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Environmental Analysis of the South Brooklyn Marine Terminal Port Infrastructure Improvement Project

Prepared for: New York City Economic Development Corporation (NYCEDC) on behalf of the City of New York

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Acronyms

Acronym	Definition
35N	35th Street "Pier" North
35W	35th Street "Pier" West
39N	39th Street "Pier" North
39S	39th Street "Pier" South
39W	39th Street "Pier" West
ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing materials
ACS	American Community Survey
AKRF	AKRF, Inc.
ANSI	American National Standards Institute
APE	Area of Potential Effects
ASMFC	Atlantic States Marine Fisheries Commission
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BCP	Brownfield Cleanup Program
BLM	U.S. Bureau of Land Management
BLM VRM	U.S. Bureau of Land Management Visual Resource Management
BMP	Best Management Practice
BOEM	Bureau of Ocean Energy Management
BTU	British Thermal Unit
C	Commercial
CAA	Clean Air Act
CCV	cargo carrying vessels
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CLCPA	Climate Leadership and Community Protection Act
CMP	Costal Management Program
CO_2	Carbon dioxide
CORRACTS	Corrective Action Sites
CP-29	Commissioner Policy 29 Environmental Justice and Permitting
CPP	Construction Protection Plan
CREC	Controlled Recognized Environmental Condition
CRIS	Cultural Resource Information System
CSD	community school district
CSO	combined sewer outfall
CTV	crew transport vessels
CY	cubic yards
CZMA	Coastal Zone Management Act
DMC	*de minimis* conditions
DO	dissolved oxygen
DOE	Department of Education
DSNY	Department of Sanitation
DUSR	Data Usability Summary Report

Acronym	Definition
EAF	Environmental Assessment Form
EAS	Environmental Assessment Study
ECHO	Enforcement and Compliance History Online
ECL	Environmental Conservation Law
EDR	Environmental Data Resources
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	environmental justice
Empire	Empire Offshore Wind LLC
EMS	Emergency Medical Services
EO	Executive Order
ESA	Environmental Site Assessment
EW-1 Project	Empire Wind 1 Project
EW-2 Project	Empire Wind 2 Project
FAR	floor area ratio
FDNY	Fire Department of New York City
FEAF	Full Environmental Assessment Form
FEMA	Federal Emergency Management Agency
FINDS	Facility Index System
FIRM	Flood Insurance Rate Map
FMC	Fisheries Management Council
FMP	Fishery Management Plans
FPL	Federal Poverty Level
FR	Federal Registry
GHG	greenhouse gas
GW	gigawatt
HAER	Historic American Engineering Record
HREC	Historic Recognized Environmental Condition
I	impaired
IBZ	Industrial Business Zones
IPaC	Information for Planning and Consultation
JMA	John Milner Associates, Inc.
JPA	Joint Permit Application
KOP	Key Observation Point
LPC	Landmarks Preservation Commission
$L_{eq(1)}$	average hourly noise level
LWRP	local waterfront revitalization program
LZ	littoral zone
M	manufacturing
m^2	square meter
mg/L	milligrams per liter
MHW	Mean High Water
MHWS	mean high water spring

Acronym	Definition
MLLW	Mean Lower Low Water
MLW	Mean Low Water
MOU	Memorandum of Understanding
MSFCMA	Magnuson-Stevens Fisheries Conservation and Management Act
MSW	municipal solid waste
MTA	Metropolitan Transportation Authority
MW	megawatts
N_xO	Nitrous oxides
NO_2	Nitrogen dioxide
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NJ	New Jersey
NLR	No Longer Regulated
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NonGen	Non-generators
NYCSBS	New York City Department of Small Business Services
NYCDCP	New York City Department of City Planning
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOT	New York Cite Department of Transportation
NYCEDC	New York City Economic Development Corporation
NYCRR	New York Codes, Rules, and Regulations
NYCWRP	New York City Waterfront Revitalization Program
NYNJR	New York New Jersey Rail
NYPD	New York City Police Department
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSERDA	New York State Energy Research and Development Authority
NYSPSC	New York State Public Service Commission
O&M	operations and maintenance
O_3	ozone
OREC	Offshore Renewable Energy Credit
OSW	offshore wind
PAH	polycyclic aromatic hydrocarbon
PANYNJ	Port Authority of New York and New Jersey
Pb	lead
PCB	polychlorinated biphenyl

Acronym	Definition
pces	Passenger care equivalents
PFAS	Per- and Polyfluoroalkyl substances
PLUTO	Primary Land Use Tax Lot Output
$PM_{2.5}$	particulate matter up to 2.5 microns
PM_{10}	particulate matter up to 10 microns
ppm	parts per million
ppt	parts per thousand
Pre-K	Pre-Kindergarten
R	Residential
RAWP	Remedial Action Workplan
RCRA	Resource Conservations and Recovery Act
REC	Recognized Environmental Condition
RJTW	Reverse Journey to Work
SAV	submerged aquatic vegetation
SBMT	South Brooklyn Marine Terminal
SCO	Soil Cleanup Objectives
SEQR	New York State Environmental Quality Review
SEQRA	New York State Environmental Quality Review Act
sf	square feet
SHPA	State Historic Preservation Act
SHPO	New York State Historic Preservation Office
SHW	spring high water
SIM	Selective Ion Monitoring
SO_2	Sulfur dioxide
SOV	service operations vessel
SPDES	State Pollutant Discharge Elimination System
SPMT	self-propelled modular transporter
SSSRT	Shortnose Sturgeon Status Review Team
SVOC	semivolatile organic compound
TAL	Target Analyte list
TCL	Target compound list
TCLP	Toxicity Characteristics Leaching Procedure
TOGS	Technical and Operations Guidance Series
TOYR	Time of Year Restriction
TRC	TRC Companies, Inc
URS	URS Corporation
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
UU	Unrestricted Use
VEC	Vapor Encroachment Condition

Acronym	Definition
VOC	volatile organic compound
WRCRA	Waterfront Revitalization of Coastal Areas and Inland Waterways Act
WRP	Waterfront Revitalization Program
WTG	wind turbine generator
ZR	Zoning Resolution

1 Background and Project Description

1.1 Introduction

New York City Economic Development Corporation (NYCEDC) proposes to perform infrastructure improvements at South Brooklyn Marine Terminal (SBMT), a marine terminal facility located in Upper New York Bay, roughly spanning the waterfront area between 29th and 39th Streets in Sunset Park, Brooklyn. The purpose of the Proposed SBMT Port Infrastructure Improvement Project (Proposed Project) is to upgrade SBMT to enable it to serve as a staging facility and operations and maintenance (O&M) base for the offshore wind (OSW) industry. The Proposed Project is needed to support the development of OSW power generation capacity to fulfil New York State's mandate of 9,000 megawatts (MW) of OSW capacity by 2035, and New York City's *Offshore Wind NYC: Equitable Opportunity for a Sustainable Future* plan (*Offshore Wind NYC*) (NYCEDC, 2021). The Proposed Project is an essential part of the City's *Offshore Wind NYC* plan, which outlines a 15-year strategy to invest $191 million in the City's OSW industry, create over 13,000 jobs, generate $1.3 billion in average annual investment, and direct 40 percent of job and investment benefits toward women, minorities, and environmental justice (EJ) communities. The Proposed Project is an essential part of this broader plan for the OSW industry. In the near term, the Proposed Project will be used to support the construction staging of Empire Offshore Wind LLC's (Empire) Empire Wind 1 and 2 projects, and it is expected to support different OSW developers and projects in the future. The O&M base will be used to support the Empire Wind projects for the duration of those two projects.

In August 2016, the New York State Public Service Commission (NYSPSC) adopted the Clean Energy Standard. Under this standard, 50 percent of New York State's (the State) electricity must come from renewable sources of energy by 2030. In 2017, the State set a goal of having 2.4 gigawatts (GW) of energy generated by OSW by 2030, which the NYSPSC adopted as a supplementary goal for its Clean Energy Standard by order dated July 12, 2018. In November 2018, the New York State Energy Research and Development Authority (NYSERDA) issued its first competitive solicitation for 800 MW or more of OSW renewable energy credits. In July 2019, the Climate Leadership and Community Protection Act (CLCPA) was signed into law. The CLCPA increased the State's renewable energy goals, requiring that the State obtain 70 percent of its electricity from renewable sources by 2030 and 100 percent by 2040, and that the State have 9,000 MW of OSW capacity by 2035.

In July 2019, the 816-MW Empire Wind 1 Project (EW 1 Project) was announced as a winner of New York's first Offshore Renewable Energy Credit (OREC) solicitation. The EW 1 Project's export cables will make landfall at SBMT, and an onshore substation will be constructed at SBMT to the north of the Proposed Project Area. The EW 1 Project's cables will run from the substation at SBMT to the point of interconnection at the existing 345-kV Gowanus substation in Brooklyn. The EW 1 Project's transmission facilities within New York State are the subject of an application submitted to the NYSPSC pursuant to Article VII of the New York Public Service Law.

In January 2021, the 1,260-MW Empire Wind 2 Project (EW 2 Project) was selected as a winner of the State's second competitive OREC solicitation. The EW 2 Project will make landfall in Long Island and interconnect in Oceanside, New York. The EW 1 and EW 2 Projects are not part of the Proposed Project and will be permitted separately. However, the federal lead agency for the federal National Environmental Policy Act (NEPA) analysis for the EW 1 and EW 2 Projects, the Bureau of Ocean Energy Management (BOEM), determined that the Proposed Project is a connected action and, therefore, the Proposed Project is analyzed in this Environmental Impact Statement (EIS) along with the EW 1 and EW 2 Projects. The State Environmental Quality Review Act (SEQRA), Article 8 of the New York Environmental Conservation Law, is New York State's environmental review law. Like NEPA, SEQRA requires that an EIS be prepared when proposed agency actions may have a significant adverse environmental impact. When both NEPA and SEQRA apply to a project and a federal EIS is prepared under NEPA, it is unnecessary for a state or local agency to prepare an additional EIS pursuant to SEQRA, provided that the federal EIS is sufficient to allow the state or local agency to make its requisite findings under SEQRA (per 6 NYCRR § 617.11). 6 NYCRR § 617.15.

The Proposed Project requires discretionary actions to be taken by federal agencies as well as by New York State and City agencies, so it is subject to both NEPA and SEQRA. This appendix of the EIS analyzes the potential environmental impacts of the Proposed Project in a manner that addresses both NEPA and SEQRA requirements, as well those of the New York City Environmental Quality Review (CEQR), which is the process by which New York City agencies implement

SEQRA. Accordingly, Parts 1 and 2 of the State Full Environmental Assessment Form (FEAF) were completed to help guide the analysis of environmental impacts (see Appendix O). In addition, the impact analyses were conducted in accordance with the *CEQR Technical Manual*, which provides detailed guidance for the review of actions subject to CEQR. As a result, the analyses of the Proposed Project in this EIS were prepared to allow New York State and City agencies to rely on this EIS and avoid the need to conduct a separate environmental review.

1.2 Purpose and Need for the Proposed Project

The purpose of the Proposed Project is to upgrade SBMT to enable it to serve as a staging facility and O&M base for the OSW industry. The Proposed Project is needed to support the development of OSW power generation capacity to fulfil the State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030, and the City's *Offshore Wind NYC* plan. For example, in the near term, the Proposed Project will be used to support Empire's Empire Wind 1 and 2 projects, and it is expected to support different OSW developers and projects in the future. Empire filed a Joint Permit Application (JPA) in 2022 for elements of the EW 1 Project, including dredging needed for cable installation and landfall in an area within SBMT, outside but adjacent to the geographic footprint of the Proposed Project.

The Project Area, including the upland and marine areas in which construction activities would take place, is within the SBMT facility, and would provide the infrastructure and proximity to the Atlantic Ocean needed to efficiently support OSW construction and O&M activities. The Proposed Project is a marine terminal and is water-dependent, as it supports the staging and marine transport of OSW components for installation on the outer continental shelf, as well as the vessels needed for the O&M of the OSW facility. SBMT features existing basins that extend to the Federal Channel between areas of bulkheaded solid fill that resemble and are referred to as "piers" (despite being solid fill instead of pile-supported structures over water). These basins occur between 39th and 40th Streets at the south end, between 34th and 36th Streets in the center, and between 31st and 33rd Streets at the north end of the Project Area. There is a marine operator, Phoenix, and a New York City Department of Transportation (NYCDOT) function at SBMT. Phoenix operates on the solid fill "pier" structures and has a maximum of three employees at SBMT. This marine operator is not uniquely dependent on SBMT and would move to a nearby location in the future with the Proposed Project. NYCDOT maintains a facility that occupies a small section of the northeastern portion of the Project Area and includes a pedestrian ramp replacement operation. The NYCDOT function will move to the Red Hook Container Terminal prior to Proposed Project construction and regardless of the Proposed Project. In addition, there may be additional short-term tenants that utilize SBMT temporarily prior to construction of the Proposed Project. These tenants would utilize SBMT in a similar way to the existing marine operator, are not uniquely dependent on SBMT, and would move to a nearby location in the future with the Proposed Project.

The Project Area is located at the north end of the federally designated Bay Ridge Channel and Gowanus Bay, immediately beyond (westward of) the pierhead line. Bay Ridge Channel connects directly to the Narrows between Upper New York Bay and Lower New York Bay at its southern end about two miles south (offshore of the neighborhood of Bay Ridge); the north end of Bay Ridge Channel, just offshore of the Project Area, splits channels providing access to the Gowanus Canal and (via the Red Hook Channel) the Buttermilk Channel, the Red Hook waterfront and Governors' Island.

The Proposed Project would provide marine vessel access and allow the storage, staging, pre-assembly and transfer of materials utilized in construction, installation, and operation and maintenance of OSW projects. These materials are expected to come to the SBMT by marine vessels as they are difficult to transport on land and must leave by marine vessel for installation at the Empire Wind projects' offshore locations. The anticipated timeframes for staging WTG components at SBMT for the EW 1 and 2 Projects is approximately nine and 12 months, respectively.

The Proposed Project would include bulkhead improvements to the 39th Street "Pier," the 35th Street "Pier" and the bulkhead that extends between 32nd and 33rd Streets; new pile supported and floating platforms; new fenders for vessel mooring; upgrades to the solid fill "pier" structures; construction of administration facilities and an O&M base; demolition of existing buildings; and improvements to site utilities. During the operational phase, the crew assigned to operate the OSW staging area will use temporary facilities like modular prefabricated mobile office units and frame structure tensioned membrane type units for warehouse and workshop space.

The Proposed Project would include dredging approximately 189,000 cubic yards (CY) of sediments over an approximately 14.2-acre area to provide vessel access to berthing areas at the 39th Street "Pier" South (39S), the 39th Street "Pier" West (39W), the 39th Street "Pier" North (39N), the 35th Street "Pier" West (35W) and the 35th Street "Pier" North (35N). Approximately 5.6 acres to the south and west of the 39th Street "Pier" would be capped with one foot of clean sand to reduce potential contaminant exposure.

In order to accomplish the purpose of the Proposed Project, the Proposed Project will address the following conditions:

1. The navigation channels to SBMT are currently too shallow for vessels laden with OSW WTG components to access the solid fill "pier" structures. The Proposed Project includes dredging these channels to allow access by these deeper draft vessels.
2. Contamination in the post-dredging surface in Areas 2.1A and 2.3 (see **Figure 1.3-6**), where 2,3,7,8-TCDD TEQ concentrations in the post-dredging surface significantly exceed their NYSDEC Technical & Operational Guidance Series (TOGS) 5.1.9, In-Water and Riparian Management of Sediment and Dredged Material, Class C threshold, will be addressed by installing a one-foot sand cap post-dredging.[1] Based on analysis of the Fall 2021 sediment data, placement of a one-foot sand cap on the post-dredging surface in Areas 2.1A and 2.3 will achieve sediment quality across the Project Area that is similar to or better than current conditions when considered on an average, Project-wide basis.
3. The existing bulkheads are in a deteriorated condition and unable to support the live loads required to operate an OSW staging facility and O&M base. The existing infrastructure was designed for container handling operations, which impose significantly lower loads than the handling of OSW WTG components. The handling of OSW WTG components requires, among other things, the ability to support large cranes needed to load/unload barges and cargo carrying vessels (CCV). The Proposed Project inlcudes bulkhead upgrades and onshore improvements to improve load-bearing capacity.
4. Bulkheads lack an adequate fender system to allow safe mooring of vessels used in OSW construction. The Proposed Project includes the replacement and addition of fenders.
5. Additional wharves are needed to allow for the mooring and berthing of barges, service operation vessels (SOV) and crew transport vessels (CTV). The Proposed Project includes the addition of wharves to accommodate SOVs and CTVs.
6. During the operational phase the crew assigned to operate the OSW staging area will use temporary facilities like offices, warehouse facilities and support areas. The facilities will be tailored to the Operator's specific need per project and constitute of modular prefabricated mobile units for offices and wardrobes and frame structure tensioned membrane type units for warehouse and workshops. A typical duration for a project is eight to twelve months followed by three to four months of decommissioning and clearing before the next project.
7. An O&M base is required to support the offshore wind projects once constructed. The Proposed Project includes the construction of an approximately 60,000 square feet (sf) O&M base containing approximately 22,000 sf of office and support space; approximately 3,000 sf of waiting area for employees deploying to off-shore work sites; and approximately 35,000 sf of warehouse facilities and associated utility space with a maximum roof height of 32.8 feet from grade. The outside areas around the buildings will be landscaped and will include associated parking.

The above improvements would allow both navigational access and berthing for all vessel types (CCVs, barges, SOVs, and CTVs) required to support OSW projects.

1.3 Project Description

The Proposed Project includes infrastructure improvements to provide the necessary structural capacity, berthing facilities and sufficient water depth to allow the SBMT to operate as an OSW hub for construction and operation. The Proposed Project includes both Upland and In-water sections at SBMT, which are discussed below and depicted in **Figure 1.3-1**.

[1] The one-foot sand cap was approved by NYSDEC on August 29, 2022.

1.3.1 Upland Section

The Upland section of the Proposed Project would include demolition of existing structures and paving, excavation of fill in order to install support structures, and installation of new support structures, above-ground structures, utilities, paving, and the construction of an O&M base.

1.3.1.1 Wind Turbine Generator Component Staging and Assembly

When operational, the Upland section of the Project Area would be organized into four areas for WTG component staging and assembly (see **Figure 1.3-2** and **Figure 1.3-3**). WTG components would consist of tower sections, nacelles, blades, and a hub, which is the part of the wind turbine connecting the blades to the main shaft of the tower. Nacelles are covers housing all of the transition units of a wind turbine, including the generator, gearbox, drive train, and brake assembly. When constructed, each turbine would consist of one nacelle, three tower units and one transition unit, and one set of blades with three blades per turbine.

- A pre-assembly area and wind turbine blade staging would be located on the north and south sides of the 39th Street "Pier." The maximum height of the stacked wind turbine blades would be approximately 69 feet high, and each stack would be 380 feet long. Each stack would contain three blades.
- Wind turbine nacelle staging would be located in the southeastern portion of the Project Area near the intersection of 39th Street and 2nd Avenue. Nacelles are approximately 40 feet high and 90 feet long with rectangular shapes. Nacelles contain electrical equipment, so they would be staged in this area as it has the highest elevation in the Project Area.
- Wind turbine tower section staging would be located at the base of the 35th Street "Pier" and abut the operational rail line running parallel to 2nd Avenue. In addition, tower section staging would extend along the north and south sides of the 35th Street "Pier." There are multiple types of tower sections ranging from approximately 63 feet to 146 feet long and 32 feet high. Tower sections would be long tube-like structures lying on their sides.
- Two unloading and assembly roads would be located on the 35th Street and 39th Street "Piers." These areas would support the transportation of WTG components from crane pads on the south and west sides of the 39th Street "Pier" and the west side of the 35th Street "Pier."

The Project Area would be used to support the WTG component staging and assembly for the EW 1 and EW 2 Projects, which includes up to 57 WTGs for the EW 1 Project and 90 WTGs for the EW 2 Project. In total, the EW 1 Project would require up to 228 tower sections, 57 nacelles and transition units, and 171 wind turbine blades. The EW 2 Project would require up to 348 tower sections, 87 nacelles and transition units, and 261 blades. For the EW 1 and 2 Projects, components making up 15 to 25 complete WTGs would be staged in the Project Area at any time to ensure adequate supply.

Pre-assembly of the WTG components would include, but not be limited to, uprising of tower sections, installing the high voltage switchgear in the tower, installing the high voltage cables in the tower, installing the helicopter host deck and collers on top of the nacelle, installing the hub on the nacelle, and the installation of the tower lift. As part of the pre-assembly, tests would be conducted on the nacelle system, and the hubs would be turned after they are installed on the nacelle.

Figure 1.3-1 Project Area

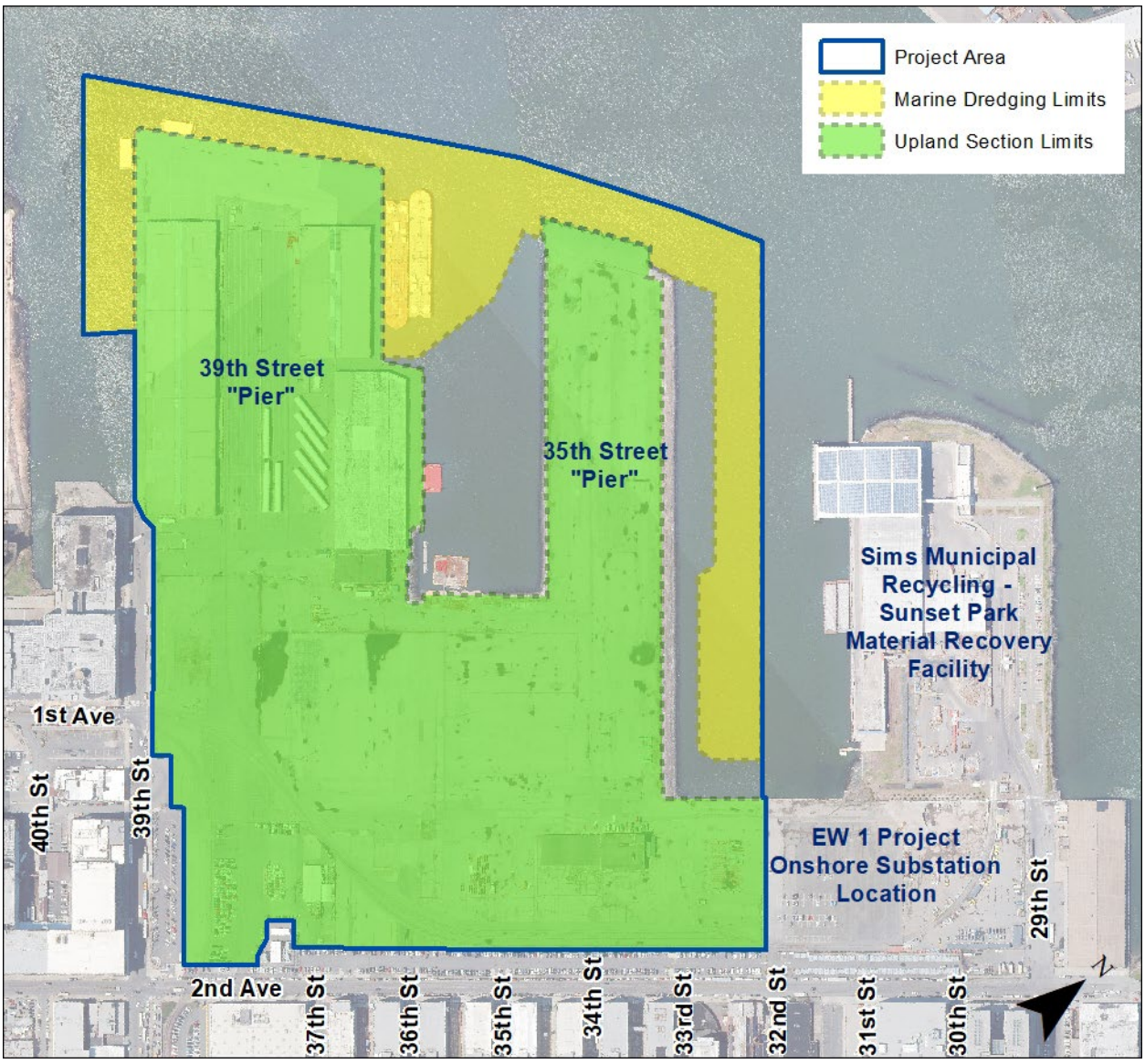


Figure 1.3-2 Proposed Project Site Plan – Conceptual

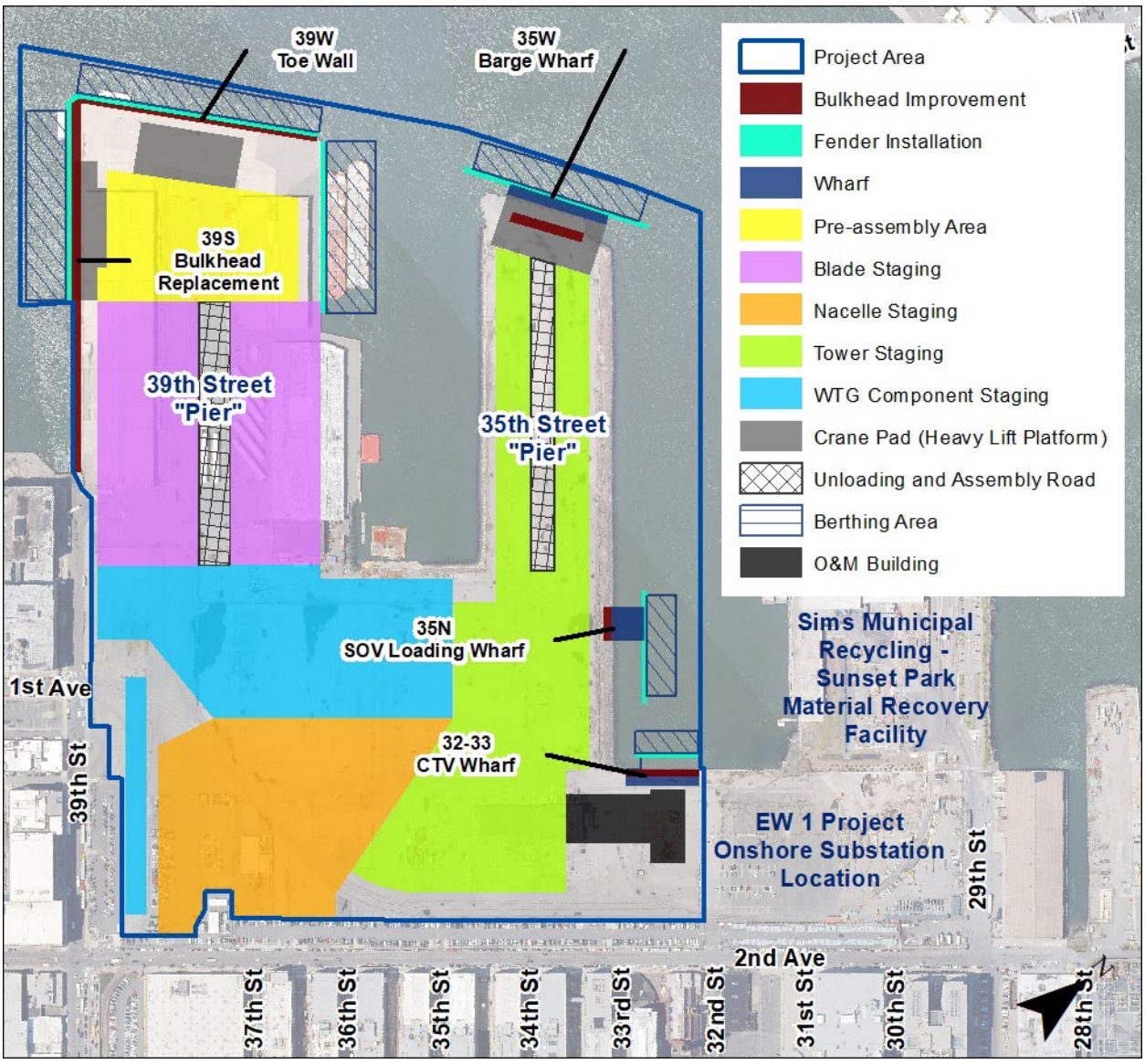
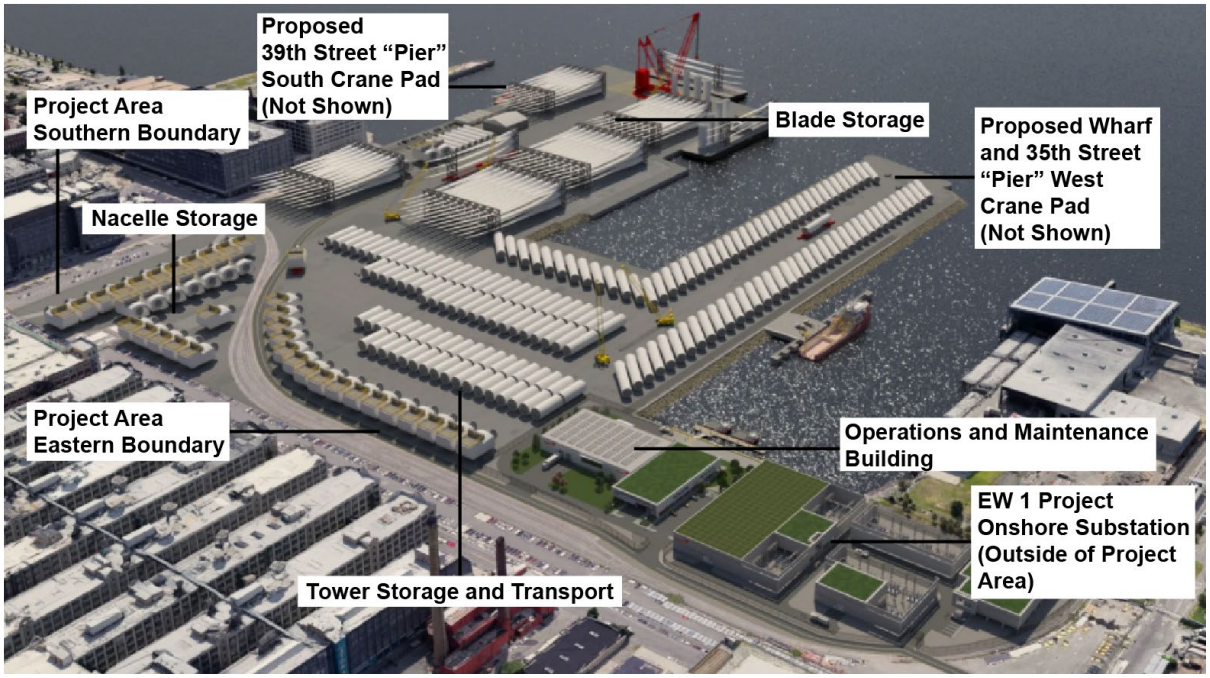


Figure 1.3-3 Proposed Project Artistic Rendering – Pre-conceptual



1.3.1.2 Demolition and Grading

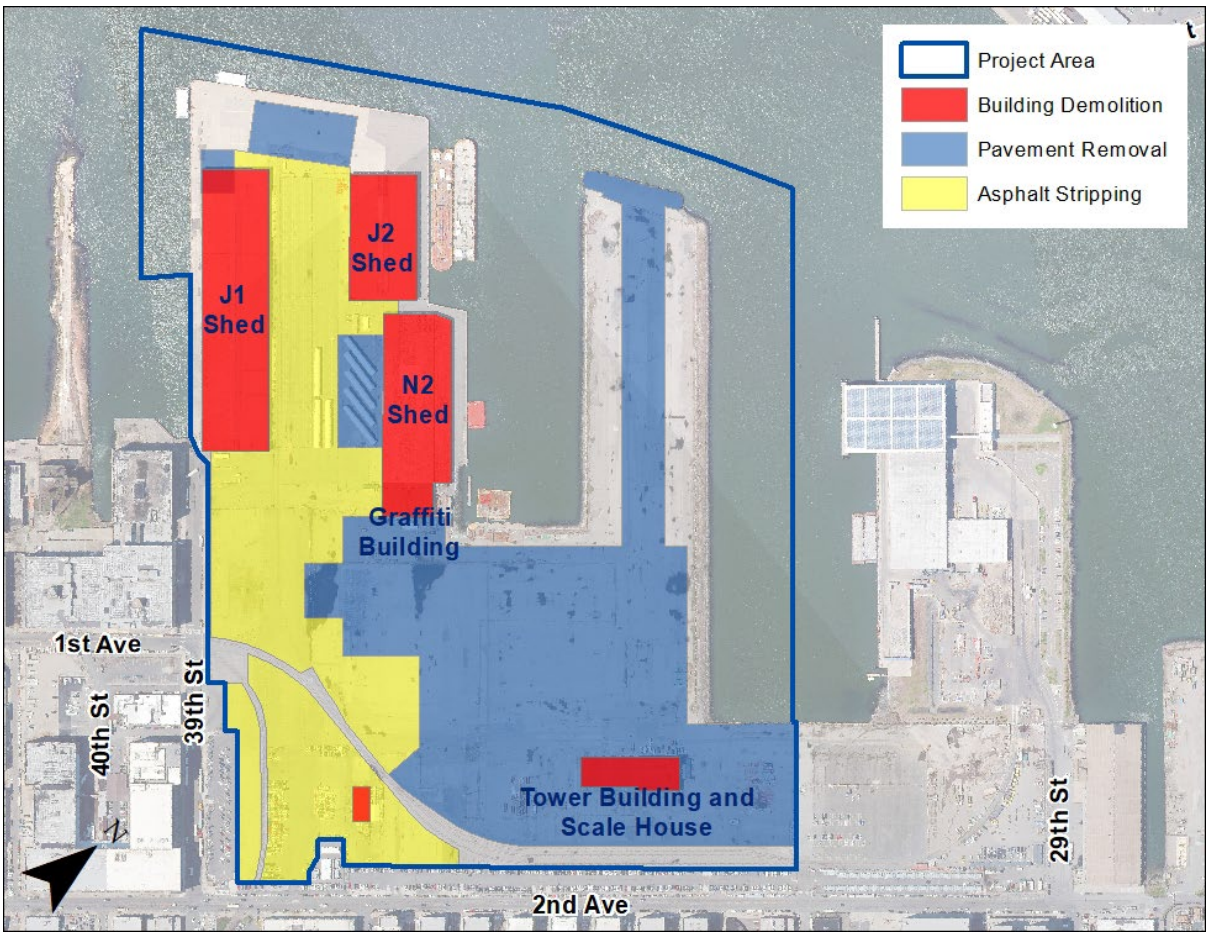
All existing buildings (five total, single and double-story structures) and some sections of paving would be removed to existing grade (see **Figure 1.3-4**) to allow for the new structures and paving. Within the Project Area, approximately 40 percent of the paving and structures (approximately 26.1 acres) is anticipated to be removed to permit construction to proceed, with the extent of removal depending on both the footprint of required work and the results of upcoming site investigations. Existing subsurface structures would remain in place, except where removal is required for new subsurface construction.

The existing pavement would be assessed for remaining life and structural capacity and replaced or improved as necessary. Required materials would be imported to the Project Area and would include aggregates for road base construction, binder and asphalt wearing coarse.

The Proposed Project would include improvements to roadways on-site to provide adequate truck access to working waterfront areas. All roadways within the Project Area would be paved and designed for H-40 loading. With few exceptions, the balance of the Project Area would be paved. Paving would be a reconstruction of the existing surface or an overlay depending on the existing surface condition and as required for operations. Roadway access would be provided through the entire facility to all solid fill "pier" structures. The 39th Street and 35th Street "Piers," which are without dedicated roadways, would include areas designated entirely for heavy equipment loading and unloading. These areas would be designed to support specialized offloading equipment and allow flexibility in movement, and they also would accommodate operational support vehicles. There are no planned improvements to roadways outside of the Project Area.

Project Area site grading would be maintained, with the exception of general grading adjustments to improve stormwater surface runoff to the collection and treatment system. Grading would also accommodate the proposed O&M base. Stormwater surface runoff within the areas for the equipment storage would be directed inland to catch basins so that the runoff would be treated by the drainage system prior to discharge. Within the yard, maximum grades of 1.0 percent and minimum grades of 0.5 percent would be maintained. The incoming road within the Project Area accessed from the 39th Street entrance would have a maximum of 4.0 percent grade in order to meet terminal grades in an efficient manner.

Figure 1.3-4 Upland Demolition Activities



1.3.1.3 Stormwater System Improvement

The Project Area would be divided into eight drainage areas. Stormwater runoff would be collected through a series of proposed catch basins and manholes. Five of the areas (Areas A, C, D, F, and G) and the 35th Street "Pier" are proposed to be discharged through existing outfalls in the solid fill "pier" structure bulkhead into Gowanus Bay (also referred to as the Upper New York Bay). The majority of the outfalls were deemed inadequate structurally, and/or did not have the hydraulic capacity to meet design and regulatory requirements. All but one existing outfall would be upgraded, which would involve upgrading the pipe and structure at existing outfall locations. Upgrades to the existing outfalls would not require excavation or fill within navigable waters. All proposed outfalls into the Gowanus Bay, would have new hydraulic separators installed to treat all stormwater runoff in the Project Area before it enters the Gowanus Bay and would be approved by the New York City Department of Environmental Protection (NYCDEP). These areas are depicted in in **Section 3.11** (Water and Sewer). One drainage area (Area E) would discharge through a new connection to the existing City sewer system (the NYC combined sewer system, as part of the Owl's Head Wastewater district) at 2nd Avenue. No new stormwater outfalls would be constructed. Permitting of Project Area storm drainage would be required by the NYCDEP and would also be required to be coordinated with NYSDEC for invert acceptance relative to the mean high-water elevation.

The storm drainage conveyance system would be designed to capture sediment and rainwater and would meet NYCDEP guidelines, which are based on stormwater runoff for a 10-year storm. For an impervious site, a runoff coefficient of 0.85 and a rainfall intensity factor of 5.95 inches/hour would be used to calculate the stormwater runoff. The storm drainage pipes would be sized according to the required capacity. Pipe sizes would vary from 12 inches to 42 inches in diameter reinforced concrete pipe. The minimum allowable pipe slope would be 0.5 percent.

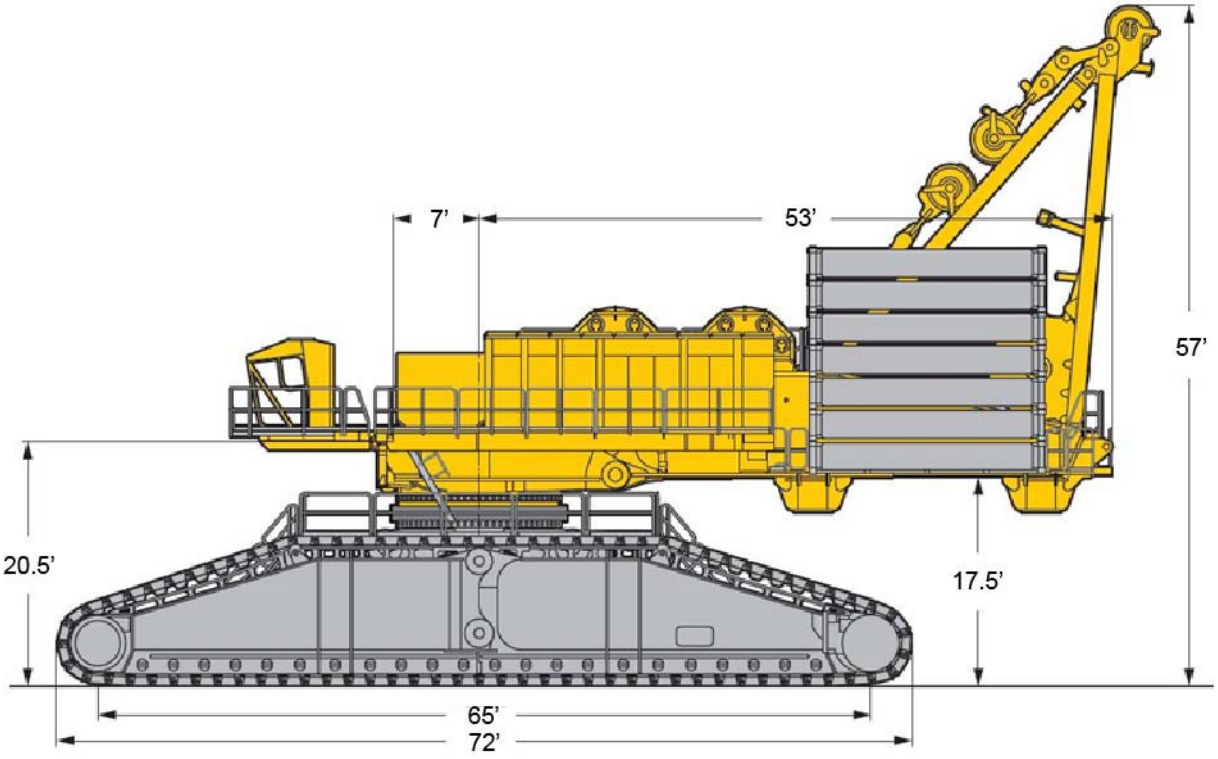
For the runoff water quality treatment, NYSDEC requires a treatment system that would hold at least 75 percent of the first 1.5 inches of stormwater runoff volume prior to filtration and discharge into the Gowanus Bay.

1.3.1.4 Installation of Crane Pads and Upland "Pier" Structural Improvements

The operational requirements for the intended use of SBMT necessitate three heavy-lift crane pads with capacity to support cranes and suspended loads required to load barges and CCVs to transport WTG components to offshore sites.

The three cranes would be constructed in three locations on the 35th Street and 39th Street "Piers": 35W, 39W, and 39S. A depiction of the crane profile is provided in **Figure 1.3-5**. Each crane would be mobile on tracks to provide movement on its constructed pad (see **Figure 1.3-2**). The 39S pad would be approximately 427 feet long and 79 feet wide. The 39W pad would be approximately 303 feet long and 150 feet wide. The 35W pad would be approximately 322 feet long and 196 feet wide. Each pad is associated with a barge berthing area where barges for transporting windmill components would dock. Each crane would have the ability to move approximately 10 feet in any direction on its pad, enabling the crane to reach offshore barges and transport tracks on the solid fill "pier" structures to lift and drop windmill components. At their bases, each crane would be approximately 72 feet long and 54 feet wide. The height of the crane from its base to the base of the crane arm would be 37 feet tall. The cranes would always be present in the Project Area during operations, and each crane would continue to operate on its crane pad during operations. The crane arm could extend up to 400 feet in the air at its highest position. Barges docking at barge berthing areas would be 400 feet long and 105 feet wide and docked in Gowanus Bay immediately adjacent to the crane pads. During operations in the Project Area, barges would dock at these berthing areas on a daily basis.

Figure 1.3-5 Crane Profile



Note: All dimensions in feet

In order to improve the load-bearing capacity to the level required for these pads located on the 35th Street and 39th Street "Piers," new pile-supported concrete slabs would be installed to support and distribute the weight of machinery and materials. Piles would be steel pipe piles with concrete caps, that would support concrete decks. Piles would support crane pads and transport corridors. Installed piles would be driven into the existing solid fill below Mean High Water Spring (MHWS).

1.3.1.5 Utilities

Existing utilities, including infrastructure which previously served the buildings slated for demolition, would be abandoned in place or removed as necessary to develop the Project Area. Existing utilities include domestic water, fire

water, sanitary sewer, electrical and telephone service, and gas lines. The utilities would be capped at suitable locations, determined in coordination with the utility companies. All existing piping to be abandoned that are 12 inches or larger in nominal diameter would be completely filled hydraulically with an excavatable flowable fill. Existing utilities that interfere with the proposed infrastructure would be removed, as needed.

New sanitary sewer, potable water, electrical, and telecommunication line connections would be provided for the O&M base with additional take-off points prepared for temporary facilities to serve the OSW staging area needs. Fire protection systems would be extended as required. Existing fire hydrants that do not interfere with the Project Area site layout would remain in place and operational. If existing fire hydrants would need to be relocated, the relocation would occur in coordination with the Fire Department of the City of New York (FDNY) and other relevant City agencies.

The existing underground utilities would be reused as far as possible. Where this would be impractical, new trenches would be excavated and services installed with any excavated materials being reused to backfill the new trenches or elsewhere in the Project Area. Existing buried services would be capped and abandoned in place provided they would not interfere with SBMT operations. Underground utilities would include ducting for electrical and IT cabling and draw pits and fire, potable and stormwater pipes, valves, chambers and manholes.

1.3.1.6 Temporary Facilities

During the operational phase of the Proposed Project, the crew assigned to operate the OSW staging area would need temporary facilities, such as offices, warehouse facilities and support areas. Such facilities would be procured on a rental basis to suit the specific needs for the OSW Operator for the given project and duration. The facilities would consist of modular prefabricated mobile units for offices and wardrobes and frame structure tensioned membrane units for warehouse facilities and workshops. The base assumption is that the office space would be approximately 5,000 sf of office trailers, and the temporary warehouse structure would typically be 11,000 sf. A typical duration for a project would be eight to 12 months followed by three to four months of decommissioning and clearing before the next project.

1.3.1.7 Construction of Operations and Maintenance Base

The Proposed Project would also include the construction of an approximately 60,000 sf O&M base containing approximately 22,000 sf of office and support space; approximately 3,000 sf of waiting area for employees deploying to off-shore work sites; and approximately 35,000 sf of warehouse facilities and associated utility space with a maximum roof height of 32.8 feet from grade. The outside areas around the buildings would be landscaped and would include associated parking.

The proposed O&M base would include an office/administration building and a warehouse and crew-change building. The office/administration building would likely be pile-supported with at-grade parking beneath the building in order to elevate the first floor level to mitigate against possible flooding and sea level rise. The warehouse and crew-change building would also likely be pile-supported with a heavy-duty ground slab. Both buildings would be pre-engineered to a level of detail that allows the primary structural steel sections to be pre-fabricated offsite with final erection, assembly, and installation of cladding and interior features occurring in the Project Area.

1.3.1.8 Railroad

The operational railroad tracks that run through SBMT are operated by New York New Jersey Rail (NYNJR) and primarily are used to service the Sims Municipal Recycling - Sunset Park Material Recovery Facility (Sims Facility) (see **Figure 1.3-1**). These tracks enter SBMT at the intersection of 39th Street and 1st Avenue, then curve to the east and then run north on the eastern edge of SBMT parallel to 2nd Avenue; at approximately 30th Street nearing the northern edge of SBMT, the tracks curve northwest into the Sims Facility. A non-operational rail spur runs from the main tracks to the west along the 39th Street “Pier” past the existing warehouses. A second set of operational tracks enters SBMT around 39th Street and 1st Avenue and exits near the intersection of 2nd Avenue and 39th Street. There is no other active rail access to the Project Area.

The design maintains the existing operational tracks; details surrounding their protection and applicable setbacks would be developed in the final design after additional coordination with stakeholders. The existing rail spur that extends west along the 39th Street “Pier” would be temporarily removed and replaced.

1.3.1.9 Lighting Upgrade

Project Area lighting would be based on the Illuminating Engineering Society of North America Lighting Handbook for design guidelines and recommendations. Applicable Codes and Standards would be reviewed for compliance including

the National Electrical Code and National Fire Protection Association. The number of lamp poles in the Project Area would be kept at a minimum to avoid light pollution to the surrounding area and interference with handling and loading/unloading operations of components.

The location of cranes, crane pads, and new buildings in the Project Area would be coordinated with the final high mast lighting layout. Some re-use of the existing high mast poles is anticipated.

During construction, lamp poles would be installed at the outer space of the working area. In addition, working areas will be illuminated separately by punctual light sources. A flexible light system would be used to ensure adequate illumination is provided to the Project Area during operations. Lighting controls would be provided for high mast fixtures that allow customization of lighting based on operational needs.

1.3.1.10 Construction Staging

During construction work, all materials and machinery for upland work would be staged within the Project Area with no additional laydown areas beyond the Project Area. Construction access would be at the 39th Street entrance west of 1st Avenue, with potential additional access at 29th Street with additional coordination with stakeholders.

In-water work would be staged both from upland areas in the Project Area and from vessels that would moor within the Project Area. No vessels are expected to moor or anchor beyond the Project Area.

1.3.1.11 Erosion Control and Dewatering

All upland work will be done in accordance with NYSDEC and NYCDEP guidelines. All work will be done in accordance with requirements of a Stormwater Pollution Prevention Plan (SWPPP) to be developed following NYSDEC State Pollutant Discharge Elimination System (SPDES) requirements, as well as requirements of a Long Island Well Permit.

Dewatering is anticipated for installation of piles and other subsurface structures. Groundwater level is approximately three to six feet below the surface. Treatment of dewatering effluent would meet permit requirements and regulations and would include filtering and settlement via frac tanks, or similar, before effluent is discharged into the water adjacent to the solid fill “pier” structures.

1.3.2 In-water Section

The In-water section of the Proposed Project would include the following:

- Dredging and dredged material management of approximately 189,000 CY of sediments;
- Installation of 9,033 CY of sand cap fill;
- Replacement and strengthening of existing bulkheads;
- Removal of existing cofferdam and removal of 7,254 CY of existing fill to mitigate filling involved in Proposed Project construction;
- Regrading of a portion of existing unvegetated riprap slope within the tidal zone, with replacement of identical material;
- Installation of new pile-supported and floating platforms (wharves); and
- Installation of new fenders.

The locations of these elements of the Proposed Project for which regulatory approvals would be sought are depicted in **Figure 1.3-2**. Quantities of excavation for proposed dredging and fill, marine intrusion, and shading due to proposed in-water structures are provided in Permit Information Packet submitted with the SBMT JPA. Detailed descriptions of the dredging, bulkhead improvements, wharf installation, fender upgrades and other in-water work are provided below.

1.3.2.1 Dredging

1.3.2.1.1 Dredging During Construction (2024-2025)

Existing water depths are inadequate to allow passage of the drafts of vessels intended to utilize the SBMT facility. To accommodate these vessels required to transport and install offshore WTG, dredging of the “interpier” channels and basins adjacent to the seaward bulkheads would be required. Existing water depths in the proposed dredging footprint

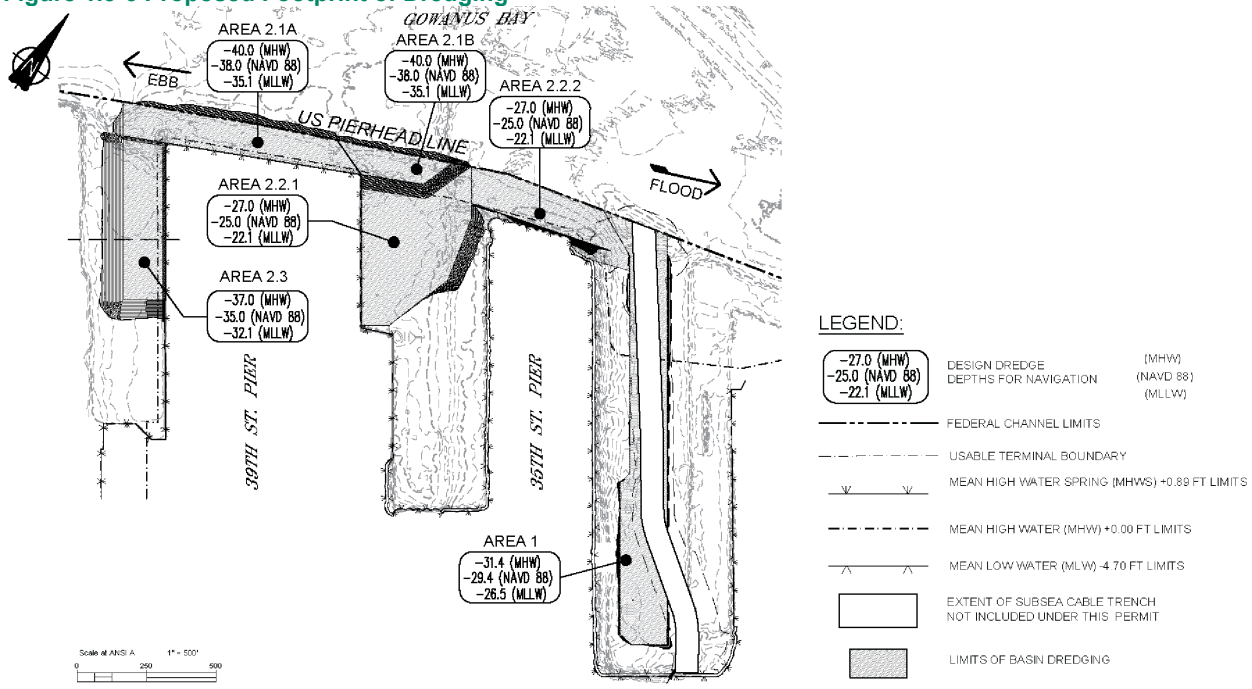
range from nine to 32 feet below Mean Lower Low Water (MLLW) (14 to 37 feet Mean High Water [MHW], 15 to 38 feet MHWS). The bottom habitat is predominantly unconsolidated silt. Sediments would be dredged to depths of up to 20 feet below the existing mudline to a final water depth of -38.1 feet MLLW (-43.0 feet MHW; -43.9 feet MHWS) to accommodate vessel drafts, including the increased depth needed to accommodate vessels after they are laden with WTG materials received from the Project Area. See **Figure 1.3-1** for the limits of the dredging area.

An additional three feet of dredging would be required to install the sand cap over the new dredged surface in Areas 2.1A and 2.3 (see **Figure 1.3-6**). The additional three feet of dredging would include one foot for the sand cap and two feet to prevent future damage to the sand cap by maintenance dredge. See **Section 1.3.2.2** (Sediment Capping) for a description of sediment capping.

Dredging would take place via a crane on a barge. To minimize the generation of turbidity, dredging would be conducted using a clamshell dredger with a closed environmental bucket, withdrawn slowly through the water column to minimize turbidity. Dredged sediments would be deposited into scows, allowed to settle for 24 hours prior to onsite dewatering (decanting), adhering to regulations and permit requirements, and then transported to an appropriately permitted upland disposal site. The material may be beneficially reused, depending on its suitability for such uses.

The dredging timeframe and associated activities would be consistent with permit conditions. It is anticipated that dredging operations would run 24 hours a day for a total of approximately 140 days and would occur during the Summer of 2024 and Summer of 2025. Best management practices (BMPs) to control turbidity will be employed, consistent with permit requirements. BMPs would include no barge overflow, no draining of the bucket over the water column, careful placement of the dredge material onto the scows, and potential use of turbidity curtains. A turbidity curtain would be installed from the pierhead of the 35th Street "Pier" to the pierhead of the 39th Street "Pier" prior to dredging Area 2.2, as available infrastructure and existing river currents allow. The same approach would be used for Area 1 and Area 2.3. Turbidity curtain use for 35W and 39W is not practical due to currents in Upper New York Bay. To avoid migration of turbidity beyond the Project Area, including the Federal navigation channel immediately west of the Project Area, slow withdrawal of the clamshell dredge with a closed environmental bucket would be implemented in addition to the previously mentioned best management practices.

Figure 1.3-6 Proposed Footprint of Dredging



1.3.2.1.2 Maintenance Dredging (2026-2036)

Maintenance dredging would be required during the life of the Proposed Project to remove accumulated sediment that could interfere with vessel access to berthing. The frequency of future maintenance dredging would be on an as-needed

basis, based on regular monitoring of the bathymetry of the Project Area. Maintenance dredging would be to the original design dredge depth. It is anticipated that a single maintenance dredging event would be required during the first decade after construction of the Proposed Project (until 2036), that would remove 60,000 to 70,000 CY of accumulated sediments.

1.3.2.2 Sediment Capping

As approved by NYSDEC, a one-foot clean sand cap would be placed post dredging in Areas 2.1A and 2.3 where 2,3,7,8-TCDD TEQ concentrations in the post-dredging surface significantly exceed their NYSDEC Technical & Operational Guidance Series (TOGS) 5.1.9, *In-Water and Riparian Management of Sediment and Dredged Material*, Class C threshold. The footprint of the capping in Areas 2.1A and 2.3 is shown in **Figure 1.3-6**.

Over an approximately 5.6-acre area, a one-foot depth of clean sand would be installed over the post-dredging surface, for a total of 9,033 CY, to address pre-existing contaminant exposure. Once dredging has been completed, attainment of the target depth would be confirmed by multibeam echosounder imaging. Clean sand would then be barged onsite. From the barge, sand would be applied to the dredged footprint using a clamshell dredger with a closed environmental bucket, lowered slowly through the water column to minimize turbidity. The target dredge depth in the area of the sand cap has been increased such that the top of the sand cap would be two feet below the original design dredge depth in order to prevent future maintenance dredging from disturbing the sand cap. Future maintenance dredging would be to the original design dredge depth, two feet above the sand cap.

The capping timeframe and associated activities would be consistent with permit requirements for in-water construction activities. It is anticipated that capping operations would be conducted 12 hours a day for 14 days and would occur immediately following dredging of the respective areas. Turbidity curtains and other applicable BMPs will be employed in a manner similar to those described in **Section 1.3.2.1** (Dredging).

1.3.2.3 Bulkhead Replacement and Improvement

Several areas of bulkhead replacement or reinforcement would be at the following locations: the south side of the 39th Street “Pier” (39S), the west side of the 39th Street “Pier” (39W), a portion of the bulkhead line between 32nd and 33rd Streets (32-33), an upland bulkhead on the north side of the 35th Street “Pier” (35N), and the west side of the 35th Street “Pier” (35W). See **Figure 1.3-2** for the locations of the proposed bulkheads.

Existing bulkheads were assessed by Proposed Project engineers based on the loading requirements of the Proposed Project. OSW components are significantly heavier than the containers that SBMT was built to accommodate, and there has been deterioration due to age of the structures. The existing bulkheads would be unable to support the live load that would be generated by the future activities taking place in the Project Area due to inadequate load bearing capacity and/or a deteriorated physical state. Therefore, to improve the stability and load bearing capacity of the solid fill “pier” structures, these bulkheads would require replacement or reinforcement to improve structural support to allow the solid fill “pier” structures to support the increased loads of the intended future use of SBMT.

1.3.2.3.1 39S Bulkhead Replacement

Along the southern bulkhead of the 39th Street “Pier,” approximately 1,072 feet of bulkhead would be replaced, with new sheet piles to be installed to create a new bulkhead surface approximately 32 inches[2] in front of the existing concrete cap and supporting beam, making it approximately 72 inches in front of the existing bulkhead (sheeting) surface. The new bulkhead would be backfilled with clean fill (flowable fill or crushed stone) to approximately MLW before capping with concrete on the top of the new deck. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column.

The 39S bulkhead replacement, which would be a singular structure, is considered as two sections: southwest (39SW) and southeast (39SE). 39SW would be adjacent to the proposed 39S heavy lift crane pad and would have attached cone fenders.

[2] 32 inches is the minimum reliable distance to ensure complete backfill between the existing cap and the new sheeting. Removing the existing concrete cap and supporting beam to reduce the in-water intrusion would risk the collapse of the existing bulkhead.

For installation, sheet piles would be installed from a crane-equipped construction barge utilizing a vibro-hammer and driven to design depth. Fill (clean fill and concrete, as described above) material would then be installed in the void between the existing and new steel sheet pile.

1.3.2.3.2 39W Toe Wall

After investigation of the existing bulkhead at 39W, the existing sheeting does not extend as deeply as originally predicted by the Proposed Project engineers. As such, the proposed dredging of Area 2.1 (see **Figure 1.3-6**) may undermine the bulkhead, causing it to fail.

A new sheet pile toe wall is proposed to be installed immediately seaward of the existing bulkhead. The toe wall would be comprised of AZ-46-700N sheet piles and extend 689 feet in length. This wall would be installed such that the bottom of the new sheeting would extend to approximately -70 feet (NAVD 88). The installed sheet piles would then sit from approximately 40 feet below the existing mudline. After installation, the sheet piles would be cut and trimmed so the top of the piles would extend five feet above the existing mudline. The area above the mudline between the new toe wall and the existing bulkhead would then be filled with marine concrete via a tremie to prevent exposure of the concrete to saltwater prior to curing. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column. The combination of the sheet pile and concrete would stabilize the existing bulkhead so it would not be undermined from dredging operations.

For installation, sheet piles would be installed from a crane barge utilizing a vibro-hammer before being driven to final depth. After installation of sheet piles, a tremie would then be used to install concrete between the existing and new sheet pile walls.

1.3.2.3.3 32-33 Bulkhead Replacement and Reinforcement

The existing structure north of the 35th Street “Pier” consists of a combination of gravity wall and low-level platform connected to a combined sewer outfall (CSO) infrastructure. The low-level relieving platform is soil-filled and supported by timber piles. This structure is in degraded condition, and existing support from timber piles has been determined to be unsalvageable.

This existing structure would be removed from land via removal of the pavement, excavation of remaining soil fill, and removal of the lower concrete deck. The existing timber piles supporting the demolished relieving platform would be cut to the mudline and removed. A stone armor layer would be installed as part of the sea bed slope up to the timber bulkhead to act as scour protection. To provide lateral support of the upland fill, a new steel sheet pile wall would be driven on the landside of the existing timber pile bulkhead, connected towards the gravity wall to the south and the CSO structure to the north. The existing platform structure would then be replaced with a new high-level relieving platform supported by unfilled 24-inch diameter steel pipe piles. The deck would consist of a precast pile cap, with precast prestressed planks, and a deck topping installed *in situ*. The water-facing surface would be protected by a precast concrete fascia beam. The new structure would be elevated above the tidal zone. This new structure is required to facilitate O&M activities, including access to the new dock for CTVs. No fenders would be installed on the beam, as vessels would berth at the separate CTV dock, and would not contact the platform directly.

The replacement high-level platform would be positioned above MHWS, as opposed to the existing relieving platform which occupies the water column above approximately MLW. The 24-inch in diameter steel pipe piles would be installed to an approximate tip elevation of -130 feet below MHW to support the new composite platform. New precast concrete pile caps of 42-inch width and 21-inch thickness would be installed on top of the pipe piles. A composite platform deck comprised of precast planks and *in-situ* top slab would be installed on top of the pile cap. The new platform would meet the existing upland surfaces and would provide the structural capacity for the increased loads of the proposed new function of the SBMT facility. No work would take place seaward of the existing gravity wall bulkhead. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column.

1.3.2.3.4 35N Localized Bulkhead Replacement

A 140-foot section of previously existing, circa 1960s, recessed bulkhead upland of the slope on the northern edge of the 35th Street “Pier” would be replaced with a new sheet pile wall to provide structural connection from the landside portion of the 35th Street “Pier” to the proposed SOV Wharf. The sheet pile wall would consist of AZ-24-700N sheet piles over a horizontal length of 140 feet, driven to an elevation of -48.0 feet (NAVD 88). This sheet pile wall would

reinforce the existing solid fill "pier" structure to support design loads that would approach and transfer over the planned SOV Wharf.

The bulkhead replacement would take place entirely in the upland area of the 35th Street "Pier." Pipe piles would be installed using a vibro-hammer for the majority of the length, and then an impact hammer would be used over the last 10 to 15 feet to ensure the piles are fully seated in the load bearing soil/stratum.

1.3.2.3.5 35W Removal of Existing Cofferdam

As the existing cofferdam has been assessed to have insufficient live loading capacity, the structure has limited future use in the upgraded port infrastructure. Removal of the cofferdam would be used to mitigate the placement of fill for other elements of the Proposed Project. Prior to removal of the cofferdam, a new sheet pile wall would be installed landward of the area to be excavated to act as a bulkhead to provide support to the remaining solid fill "pier" structure. Per boring samples taken in 2018, all cofferdam cells currently contain sandy fill. The fill in the cofferdam cells would be internally excavated down to the existing adjacent mudline before being cut back. During the excavation no live loads would act on the cofferdams. The hydrostatic pressure towards the cell structure would be balanced using bracings or a water column. After excavation, traditional underwater cutting methods would be applied to cut back the obsolete cell structure. The exposed surface would be graded to a 2:1 (horizontal:vertical) slope, and a 1.5-foot thick layer of bedding stone would be installed, followed by a layer of geotextile fabric, 2.06-foot layer of underlayer rock, and a 4.42-foot layer of armor stone to stabilize the new shoreline.

Removal of the cofferdam and associated fill would reduce the volume of existing fill occupying the water column and the area of mudline disturbance. Removal of the cofferdam and grading of the fill would create new marine habitat and new unvegetated tidal wetland habitat. Although the Proposed Project would result in the filling of approximately 0.16 acres of unvegetated tidal wetlands, removal of the cofferdam and grading the fill would create approximately 0.18 acres of unvegetated tidal wetlands resulting in a net gain of approximately 0.02 acres of unvegetated tidal wetlands.[3]

1.3.2.4 Wharf Installation

Three new wharf platforms would be installed over water to enable the SBMT to berth and onload/offload specialized vessels. One pile-supported wharf would extend west off of 35W for transport and construction barges. Another pile-supported wharf would extend north off of 35N to accommodate berthing of SOVs, and one floating wharf would be installed off of the new 32-33 platform to accommodate berthing of CTVs. The locations of the proposed wharves are depicted in **Figure 1.3-2.**

1.3.2.4.1 Construction Barge Wharf on 35W

After installation of the new sheet pile wall, removal of fill, and dismantling of the existing cofferdam, a barge loading/unloading wharf would be installed, extending from the new sheet pile wall and off the west side of the 35th Street "Pier." This wharf would be a pile-supported concrete platform with a greatly increased capacity versus the existing cofferdam structure. The design would minimize environmental impacts by utilizing hollow steel pipe piles for support and extending the platform surface approximately 40 feet from the existing cofferdam surface. In this fashion, dredging for access to the new wharf would be minimized.

Before piles would be installed upland, the existing concrete surfaces would be removed, and the areas would be excavated to appropriate depth. The piles would be installed via vibro-hammer for the majority of the depth, and then an impact hammer would be used over the last 10 to 15 feet to ensure the piles are fully seated in the load bearing soil/stratum. Piles in the riprap slope would be installed first by displacing stone to the side before exploratory excavation to ensure a timber revetment is not in the proposed location of the pile. After installation of each pile on the slope, previously displaced riprap would be replaced around the pile. Piles seaward of the cofferdam would be installed in the sediment without pre-installation excavation. For the pipe piles located in marine areas seaward of the existing cofferdam, both within the riprap slope and in marine sediments, beyond the reach of the upland crane, the piles would be installed from a crane barge using a vibro-hammer for the majority of the length. Then, an impact hammer would be used over the last 10 to 15 feet to ensure the piles are fully seated in the load bearing soil/stratum. During impact hammer use on the crane barge, slow starts would be utilized to minimize potential noise impacts.

[3] Quantities have been rounded to the nearest hundredth decimal.

After installation to design depth, piles would be topped with a concrete cap. The deck surface would be installed upon the cap. Piles would remain unfilled below the cap. A concrete cap, deck planks, and deck surface would be installed over the piles. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column.

From a construction sequencing standpoint, the outermost pipe piles would be installed first, followed by the new piles that are located landward or inside of the existing cofferdam. In addition to the pile supported wharf, this berth would have two dolphins to properly moor the design vessel. The dolphins consist of four-pile clusters connected to the wharf by a grated metal access walkway. The dolphin piles would be installed in an identical manner. A total of eight cone fenders are proposed to protect the wharf and the dolphins from docked vessels.

1.3.2.4.2 Service Operations Vessel (SOV) Loading Wharf on 35N

A new wharf for SOVs is required to support the offshore work associated with the commissioning and subsequent operations and maintenance of the OSW WTG. This new wharf will be constructed on the north side of the 35th Street "Pier," at the new 35N bulkhead.

The wharf is designed to accommodate the berthing of the design vessel in all relevant ocean conditions and is dimensioned for loading and offloading of the SOV by the vessel's onboard crane or by a shore-based telehandler-type forklift. The design lifting capacity would be 20-foot containers with a weight of up to 12 metric tons. Personnel transfer to and from the vessels would also be facilitated from the platform over the vessel's gangway. Shore power would be provided to vessels to avoid running the onboard engines while berthed.

In advance of installation of the wharf, the slope would be reshaped to facilitate a stable foundation for the structure in an area adjacent to the required dredging footprint. An area centered on the proposed wharf would be excavated and regraded. The area would be approximately 421 feet long and 110 feet wide, for a total footprint of 46,310 sf.

The existing rip rap appears to be comprised of four-inch to 16-inch stones, creating a layer of approximately three feet in depth. Sands and finer sediment fill are expected beneath the stone, based on testing done adjacent to the existing revetment. Approximately 14,841 CY of material (existing riprap and fill) would be excavated below MHW (15,046 CY below MHWS). The slope would be regraded at 2.5:1 (vertical:horizontal). A 2.2-foot depth of bedding stone would be laid throughout followed by a 4.8-foot depth of scour protection riprap (for a total depth of six feet of stone). The regrading would temporarily disturb approximately 0.74 acres of marine habitat and 0.50 acres of tidal wetland habitat. The disturbed marine and tidal wetland habitats would be replaced with similar material and surface. Most excavation, grading, and installation of material would be done via excavators from land, with remaining work being done via excavators upon barges. Dewatering procedures would be identical to those described for dredging. The intent is to dry, store and reuse the rip rap material at the same location. If material cannot be reused, the material would be characterized for proper disposal offsite.

Prior to installing the support pipe piles, the selected sections of the riprap would be temporarily removed and dry-stored to allow piles to be driven. Thirty-six 36-inch diameter steel pipe piles would be installed to support the main deck via crane barge using a vibro-hammer for the majority of the length, and then an impact hammer would be used over the last ten to 15 feet to ensure the piles would be fully seated in the load bearing soil/stratum. Sixteen 36-inch diameter pipe piles would be installed to support four separate dolphins in a similar manner. During impact hammer use on the crane barge, slow starts would be utilized to minimize potential noise impacts. Piles would be left unfilled except for a concrete pile plug for the upper five feet. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column.

The wharf would be constructed as a 100 LF by 104 LF pile-supported concrete wharf, off of the north side of the 35th Street "Pier." The wharf would have 266 LF of additional walkways with dolphins of 20 LF by 20 LF (for a total platform area of 11,998 sf).

The wharf would include a metal fender system. A total of seven cone fenders would be installed for the pile supported wharf and the dolphins.

1.3.2.4.3 Crew Transfer Vessel (CTV) Wharf (32-33)

The Proposed Project would require a facility for CTVs to dock and facilitate crew movements to and from the offshore OSW sites. The CTV wharf would be a15 LF by 224 LF floating concrete dock located off of the basin area between 32nd and 33rd Streets. The dock would be moored to 14 30-inch in diameter hollow steel pipe spud piles, installed via crane barge using a vibro-hammer for the majority of the length; and then an impact hammer would be used over the

last 10 to 15 ft to ensure the piles are fully seated in the load bearing soil/stratum. During impact hammer use on the crane barge, slow starts would be utilized to minimize potential noise impacts. The floating dock would have floating foam fenders. Access to the dock would be via an five LF by 35.75 LF tidal adjusted walkway supported and anchored to the adjacent installed platform. The dock would be serviced by power and freshwater utilities, required by the CTVs, as well as adequate lighting for operation after dark.

The guide piles would not be filled, but would cumulatively prevent access to an area of marine habitat of approximately 78 sf. The floating concrete deck would occupy approximately 750 CY of the water column during all tidal phases, over a footprint of 3,360 sf. The gangway would shade approximately 174 sf of marine habitat.

1.3.2.5 Fender Installation

Existing rubber and pneumatic fenders on the 39th Street "Pier" would be removed prior to construction. New fenders would be installed to protect wharves and bulkheads (both new and existing) in areas where vessel berthing would occur. These fenders would be fastened to the new or existing bulkhead cap or edge beam.

1.3.2.5.1 Cone Fenders

Approximately 20 units of single elastomeric buckling fender would be installed over the reconstructed bulkhead on the southern side of the 39th Street "Pier", as well as 23 units on the entire western face and 12 units on the northern face of the 39th Street "Pier" with a total of 55 units installed on the 39th Street "Pier" (see **Figure 1.3-2**). The existing fenders would be inspected and assessed to be maintained or replaced in-kind, as required. Additionally, 15 cone fender units would be installed as part of the new wharf structures (35W and 35N SOV Wharves) (see **Figure 1.3-2**).

Each cone fender system would include an ultra-high molecular weight polyethylene faced steel fender panel, which would provide the impact surface against which the vessels make contact. The panel spreads the fender reaction to a sufficient area of the hull to limit the applied hull pressure. A hull pressure limit of 200 kiloPascal (4,177 pounds per square foot) would be assumed. Hull pressure and fender impact load would be checked in final design to account for vessel motions due to environmental loads. Fenders would be coated with additional corrosion protection and have an outer rubbing surface to limit shear forces. Fender components would be chained to restrain outer movement.

Fenders have typical dimensions of 14.0 feet long by 5.2 feet wide and 15.0 feet deep (each). Fenders would be installed at an elevation above MLLW but within tidal elevation.

1.3.2.5.2 Foam Fenders

Fourteen units of foam fenders would be installed as part of the 32-33 CTV Wharf. The fenders would be floating cylindrical sections of foam padding, 3.3 feet in diameter and 4.9 feet in length, and lashed to the platform surface.

1.3.2.6 Marine Vessel Activity

A major component of the future use of SBMT is marine vessel activity, which would include berthing and transfer of cargo and crew to CCVs, barges, SOVs, and CTVs. During operations on the SBMT site, barges would dock at these berthing areas on a daily basis. Pursuant to analyses of infrastructure and site conditions, vessels would berth in the following arrangement:

- CCVs would berth along the west (offshore) and south faces of the 39th Street "Pier" (39W and 39S);
- Barges would berth along the north and west faces of the 39th Street "Pier" (39N and 39W);
- Barges would berth along the west face of the 35th Street "Pier" (35W);
- SOVs would berth along a proposed wharf on the northeastern edge of the 35th Street "Pier" (35N); and
- CTVs would berth along a proposed floating wharf platform extending from the existing bulkhead located between 32nd and 33rd Streets (32-33).

For a detailed discussion about the design vessel characteristics for vessels berthing at SBMT, see the JPA.

1.4 Regulatory Permitting, Approvals and Coordination

The Proposed Project would require federal, State, and City approvals. In addition, the Proposed Project is federally, State, and City-funded. The federal, State, and City agencies that are involved in the funding and regulatory permitting processes are as follows:

1.4.1 Project Funding

Funding sources for the Proposed Project include:

- New York City Office of the Mayor capital funding
- New York State Energy Research & Development Authority (NYSERDA)
- U.S. Department of Transportation Port Infrastructure Development Program (PIDP) Grant
- NYC Industrial Development Agency

1.4.2 Federal Permits/Approvals

- USACE: Section 404 (Clean Water Act); Section 10 (Rivers and Harbors Act)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries: Endangered Species Act (of 1973) (Section 7 Consultation), Magnuson-Stevens Fisheries Conservation and Management Act
- US Coast Guard (USCG): Local Notice to Mariners
- Federal Aviation Administration (FAA): Obstruction Evaluation (Temporary and Permanent)

1.4.3 State of New York Permits/Approvals

- NYSDEC: Article 15 (Excavation and Fill in Navigable Waters); Article 25 (Tidal Wetlands); State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges for Construction Activities, Docks and Moorings; Section 401 Water Quality Certification; Long Island Well Permit; Water Withdrawal Permit for construction dewatering activities
- NYS State Historic Preservation Office (SHPO): National Historic Preservation Act Section 106 Consultation. SHPO determined No Adverse Effect upon historic properties on March 21, 2022.
- New York State Department of State (NYSDOS): Coastal Consistency Determination

1.4.4 City of New York Permits/Approvals

- NYC Department of City Planning (NYCDCP): NYC Waterfront Revitalization Program (WRP) Coastal Consistency Determination
- NYC Public Design Commission: Design approval for permanent structures on City-owned property
- NYCDOT: Coordination and review of transportation analyses
- FDNY: Coordination of potential relocation of existing fire hydrants
- New York City Department of Small Business Services (NYCSBS): Waterfront Construction Permit
- NYCDEP: Construction Noise Control Plan pursuant to the City of New York Administrative Code (Chapter 28 Title 15) Citywide Construction Noise Mitigation. Coordination and review of storm drainage, new outfalls or sewer connections
- NYC Department of Buildings (NYCDOB): Issues building permits and enforces safety regulations to protect workers and the general public during construction
- Mayoral Zoning Override: potential need to override requirements governing development or use within or over a railroad right of way or yard

No zoning changes are anticipated to be required for the Proposed Project.

2 Project Alternatives

The overall purpose of the Proposed Project is to upgrade SBMT to enable it to serve as a staging facility and O&M base for the OSW industry. The Project is needed to support the development of OSW power generation capacity to fulfill New York State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030, and New York City's *Offshore Wind NYC* plan (NYCEDC, 2021).

The Proposed Project's basic purpose is to upgrade a marine terminal. It is water-dependent, as it supports the staging and marine transport of OSW components for installation on the outer continental shelf, as well as the vessels needed for the O&M of the OSW facility.

The Proposed Project was sited and designed to serve its overall purpose, while minimizing potential impacts to the environment. Alternative sites, methods of installation, dredging designs, bulkhead replacement approaches, and wharf layouts and structures were considered and analyzed in terms of relative environmental impacts and how well they met the Proposed Project's purpose and need. As established below, the Proposed Project meets the overall project purpose and is the least environmentally damaging practicable alternative.

2.1 Reasonable Alternatives to the Proposed Project

2.1.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses of the Project Area include a marine operator and a NYCDOT function. The marine operator is a small operation accessing the solid fill "pier" structures. The NYCDOT function occupies a small section in the northeastern portion of the Project Area as well as the area of SBMT that would be occupied by the EW 1 Project's underground cables and onshore substation, which is outside of the Project Area. In the Future without Project condition, the existing marine operator would continue to operate at SBMT, and the NYCDOT function at the site would be relocated to the Red Hook Container Terminal in Red Hook, Brooklyn. The NYCDOT function is scheduled to move to the Red Hook Container Terminal prior to Proposed Project construction. Adjacent to the Project Area at SBMT, the EW 1 Project underground cables and onshore substation would be constructed and then would operate. Construction of the EW 1 Project is anticipated to begin in 2023.

2.1.2 Future with Project Alternatives Considered

2.1.2.1 Site Alternatives

The following describes the four alternative sites considered for the Proposed Project site:

Proposed Project Alternative: SBMT;

Option 1: Howland Hook Marine Terminal;

Option 2: Port Ivory (Parcel C);

Option 3: Red Hook Container Terminal; and

Option 4: No Build (No pre-assembly, staging, and O&M base).

Four alternative sites were evaluated in addition to the No Build condition. The NYSERDA *Offshore Wind Ports: Cumulative Impacts Study* (NYSERDA, 2022) contributed to the below analysis of reasonable site alternatives, which include SBMT, Howland Hook Marine Terminal, Port Ivory (Parcel C), and Red Hook Container Terminal. The following criteria were used to compare alternative sites:

- Lot size: a minimum of 65 acres of upland area is required for a site that includes pre-assembly, staging, and O&M areas;
- Commercial availability: a site must be available for upgrade and use within a timeframe that would allow the completed port to support the OSW industry;
- Site work and geotechnical properties of the site: it must be feasible to complete site work with existing technology, without undue complexity, and in a timely and cost-effective manner; and

- Potential environmental impacts: potential adverse environmental impacts must be minimized.

Option 1 (Howland Hook Marine Terminal) is a marine terminal in the north shore of Staten Island, NY, owned by the City of New York and leased to the Port Authority of New York and New Jersey (PANYNJ) until 2050, with options for renewal. It is currently operated by Global Container Terminal pursuant to a contract through 2028, and operations are expected to continue beyond that date. ExpressRail Staten Island operates within the Howland Hook Marine Terminal, which functions as an operational port that includes the New York Container Terminal freight rail line. With the existing operations at the Howland Hook Marine Terminal, including the New York Container Terminal freight rail line, only 45 acres of the site could be made available for the Proposed Project. A moderate level of site work would be required to use the site, including pavement and pier demolition, vegetation clearing, increasing the load-bearing capacity of the site, dredging, and construction of a pile-supported wharf. Option 1 is not practicable because the available portion of the lot is too small, and the remainder of the site is not commercially available.

Option 2 (Port Ivory, Parcel C) is a waterfront site adjacent to the Howland Hook Marine Terminal on Staten Island, NY, and is owned by PANYNJ. It is currently an undeveloped vegetated 38-acre site with both federally- and NYSDEC-regulated tidal wetlands. The site is commercially available; however, it is not practicable for several reasons. First, it is not large enough to accommodate the staging and O&M facilitates needed to fulfill the Proposed Project's purpose.[4] Second, the undeveloped nature of the site would require the most extensive site work to prepare it as an OSW staging and O&M base, involving the greatest cost and time compared to other options. Finally, developing the site would be technically challenging given the site's geotechnical properties – existing sediments are characterized as organic silts with high water content, low strength, and poor stiffness. Moreover, even if it were practicable, upgrading Port Ivory would require filling approximately nine acres of wetlands, as well as conducting significant dredging in over four acres of wetlands and in open water, as the existing water depth at the site is only 0-10 feet. As a result, even if it were practicable, Option 2 would cause greater potential environmental impacts than the Proposed Alternative. Option 3 (Red Hook Container Terminal) is a marine terminal owned by PANYNJ in the Red Hook neighborhood of Brooklyn, NY. It is operated by Red Hook Container Terminal, which has a lease to operate until at least 2028 and intends to operate beyond that date. Red Hook Container Terminal is part of the broader Brooklyn Port Authority Marine Terminal, which also includes the Brooklyn Cruise Terminal. The total upland area of the Brooklyn Port Authority Terminal is 80 acres; Red Hook Container Terminal occupies approximately 65 acres. Use of the site would require significant upgrades involving the demolition and reconstruction of the site, site grading, wharf modifications, and dredging. Option 3 is not practicable because the site is not commercially available. Even if it were available, the significant upgrades that would be required would result in significant additional cost, time, and environmental impacts as compared to the Proposed Alternative.

Option 4 (No Build) would leave all alternative sites in their current conditions, which would not satisfy the Proposed Project's purpose.

SBMT, the Proposed Alternative, is an underutilized marine terminal facility owned by the City of New York in the Sunset Park neighborhood of Brooklyn, NY. There is a marine operator, Phoenix, and a NYCDOT function at SBMT. Phoenix operates on the solid fill "pier" structures. This marine operator is not uniquely dependent on SBMT and would move to a nearby location in the future with the Proposed Project. NYCDOT maintains a facility that occupies a small section of the northeastern portion of the Project Area and includes a pedestrian ramp replacement operation. The NYCDOT function will move to the Red Hook Container Terminal prior to Proposed Project construction and regardless of the Proposed Project. SBMT has sufficient lot size (approximately 66.1 acres of upland area) to support the Proposed Project's purpose. In addition, SBMT is commercially available, and the existing marine operator and NYCDOT function will move to nearby locations. The site work required to develop the site would result in the fewest environmental impacts, particularly in comparison to Option 2. Most of the infrastructure already exists; as such, it requires significantly less in-water work than Option 2. While the Proposed Project would result in the filling of approximately 0.16 acres of littoral zone wetlands, the removal of the cofferdam and associated fill at 35W would reduce the volume of existing fill occupying the water column and the area of mudline disturbance by approximately 0.18 acres. In addition, the regrading

[4] There is a second parcel at Port Ivory, known as Parcel B, which is about 26 acres. Parcel B is further inland and is connected to Parcel C by a very narrow strip of land that is approximately 110 feet in width. While adding Parcel B would offer additional acreage, it would not make Port Ivory a practicable alternative for two reasons. First, Parcel B's location is not conducive to staging due to its distance from the waterfront. Second, the narrow corridor between the two parcels would make the efficient movement of large, heavy WTG components between the parcels logistically impracticable. Third, as described herein, developing Port Ivory would involve significantly greater environmental impacts, would require overcoming challenging technical conditions at the site, and would be the most expensive potential site alternative.

of the slope associated with the installationof the wharf at 35N would temporarily disturb 0.50 acres of tidal wetland habitat, replacing it with similar material, and 0.74 acres of marine habitat. In total, approximately 0.02 acres of unvegetated tidal wetlands would be gained. Approximately 0.22 acres would be permanently shaded from the new structures installed over the unvegetated tidal wetland area at SBMT in the Proposed Project, as compared to the nine acres of largely vegetated tidal wetlands that would be filled and over four acres that would be shaded for Option 2.[5] Thus, SBMT is practicable because it is of sufficient size, commercially available, and can be completed in a timely and cost-effective manner. It also would result in the fewest potential environmental impacts. Thus, SBMT is the least environmentally damaging practicable alternative site that meets the Proposed Project's purpose.

2.1.2.2 Dredging Alternatives

The waters surrounding the solid fill "pier" structures at SBMT currently are of insufficient depth to accommodate the vessels needed to serve the Proposed Project's purpose. Three dredging options were considered:

Proposed Project Alternative: Deepen dredge areas as needed to meet the minimum under-keel clearances for the safe navigation of the design vessels at selected berthing locations;

Option 1: Deepen all dredge areas to -40.0 feet MLLW to match the authorized depth of the adjacent federal channel; and

Option 2: No Build (No dredging).

Option 1 would involve the uniform dredging around SBMT to -40.0 feet MLLW to match the authorized depth of the adjacent federal channel. While this would maximize the types of vessels that theoretically could access SBMT in the future, this depth is not necessary to accommodate the vessels expected to be used for OSW operations and is not practicable for several reasons. First, the existing "piers" at SBMT are not designed with sufficient structural capacity to withstand the additional loads that would result from deeper waters. Such dredging therefore could compromise the integrity of the existing 35th Street "Pier" and 39th Street "Pier" bulkheads, resulting in the need for additional structural in-water work and seaward fill, as well as the additional time and costs associated with that work. Second, based on initial estimates, dredging to -40.0 feet MLLW across the site would require dredging and disposing of approximately an additional 240,000 CY of material. This would involve a much longer dredging operation that would be significantly more expensive, could potentially cause greater environmental impacts.

Option 2 would not fulfill the Proposed Project's purpose, as the Proposed Project cannot function without vessel access, and the water column must be deepened to allow the cargo carrying vessels (CCV), barges, Supply Operations Vessel (SOVs) and Crew Transfer Vessels (CTVs) to access their respective wharves at 39S, 39W, 39N, 35W, 35N, and 32-33.

The Proposed Alternative minimizes the dredging needed to ensure the safe navigation of the design vessels as they approach their intended wharf area(s). Any depth shallower than what is represented in the Proposed Alterative would not provide safe under keel clearance for the design vessels, preventing the Proposed Project from serving its purpose. The Proposed Alternative therefore is the least environmentally damaging practicable dredging alternative that meets the Proposed Project's purpose.

2.1.2.3 Bulkhead Replacement and Reinforcement Alternatives

The bulkheads along edges of the solid fill "pier" structures at SBMT retain the fill behind the bulkheads and provide support for the loads that are placed upland of the bulkheads. Bulkhead replacement is only planned for areas where existing bulkheads do not have the structural capacity required to support the future upland load. Project-wide replacement of all of the bulkheads was deemed to be unnecessary to achieve the purpose of the Proposed Project.

The areas that require bulkhead replacement are 39S, the new toe wall at 39W, and along the 32-33 bulkhead. The alternative approaches to bulkhead replacement are described below.

Localized replacement and improvements to 35W and 35N areas are addressed in **Section 2.1.2.4** (Wharf Alternatives) as part the proposed wharf improvements.

2.1.2.3.1 39S Bulkhead

The following options were considered for the 39S bulkhead:

[5] Quantities have been rounded to the nearest hundredth decimal.

Proposed Project Alternative: Seaward replacement and placement of fill behind the new bulkhead;

Option 1: Replacement in place, in-kind;

Option 2: Landward replacement; and

Option 3: No Build (No bulkhead replacement or reinforcement).

SBMT was designed to handle shipping containers, which can weigh up to 30-40 tons per container. However, the offshore wind components that will be staged at SBMT are significantly heavier; a nacelle unit can weigh up to 800-1000 tons, and a tower section can weigh 300 tons. These significantly heavier loads require a correspondingly higher-capacity "pier" structure.

The bulkheads on the edges of the landfill "piers" at SBMT retain the fill behind the bulkheads and support the load placed on the "pier." Heavier loads require more robust or thicker bulkheads, and associated upland support structures, to maintain the structural integrity of the "piers." The bulkhead on the southwest side of the 39th Street "Pier" needs to be replaced to meet the Proposed Project's purpose and support the significantly heavier loads associated with unloading, loading, and moving OSW components on the 39th Street "Pier." The bulkhead on the southeast side of the 39th Street "Pier" has significant corrosion (equivalent to 40 percent section loss) at both the current mudline level and at the level of maximum bending moment EL – 31 feet NAVD88 (which is 9 feet below the current mudline). At the current mudline elevation, the bulkhead is overstressed by 19 percent beyond its allowable limit (defined as 0.6*Yield Stress). It is overstressed by 39 percent beyond its allowable limit (0.6*Yield Stress) at the elevation of maximum bending moment.

The bulkhead being overstressed means that it currently does not meet code requirements (by a significant margin), and the situation is likely to get worse over the next 50 years of the design life of the Proposed Project. In addition, considering that the area of maximum moment and maximum overstress is 9 feet below the existing mudline, any proposed solution for the southwest portion of 39S must account for the section of bulkhead that is below the existing mudline. Therefore, above-mudline solutions, such as a concrete encasement of the front of the sheet pile, will not be sufficient in this case; the strengthening solution has to go below the mudline.

The existing sheet pile bulkheads at 39th Street "Pier" are technically challenging because they have existing underground tie-rods that connect the bulkhead to subterranean dikes to provide lateral capacity and stability to the bulkhead structure. Vertical capacity is achieved by the fill material and underground low-level platforms, which are supported by timber piles. Neither Option 1 (replacement in place, in kind) nor Option 2 (landward replacement) can maintain this existing structure during bulkhead replacement and avoid the potential for a collapse of the existing bulkhead and subsequent release of landfill into the marine environment.

Option 1 (replacement of the bulkhead in-place, in-kind) would require a sequential operation whereby one section of bulkhead is replaced, followed by another. Removing the bulkhead would require severing the existing tie-rods, which would significantly compromise the structural integrity of the bulkhead and adjacent low-level platform. This in turn would likely result in the collapse and subsequent failure of the "pier" structure, causing environmental impacts due to the structures and fill entering the water column.

Similarly, Option 2 (landward replacement of the bulkhead) would require severing the existing tie rods to drive the new sheet piles, and it also would require driving the new bulkhead through the existing low-level platform, thereby impacting not only the lateral capacity but also the vertical capacity of the existing "pier" structure. As a result, these structural and technical challenges make Option 1 and Option 2 not practicable.

In addition, both Option 1 and Option 2 would have the potential to cause greater environmental impacts than the Proposed Alternative, which would involve the seaward replacement of the bulkhead and the controlled placement of a small amount of fill behind the new bulkhead.

Option 3 (No Build) would leave the bulkhead in its current condition, which would not provide sufficient structural capacity to support the Proposed Project's purpose and would leave the southeast area noncompliant with code requirements. The Proposed Alternative method of bulkhead replacement addresses the need to replace the bulkhead in a manner that maintains the structural integrity of the "pier" and avoids the potential release of existing fill into the marine environment. By relocating the new bulkhead installation seaward of the existing bulkhead, the intact existing bulkhead and low-level platform have been incorporated into the proposed final design, thereby retaining system-wide structural integrity and avoiding collapse of structures and release of fill into the water column. Therefore, the Proposed

Alternative method of bulkhead replacement at 39S is the least environmentally damaging practicable alternative that would meet the Proposed Project's purpose.

2.1.2.3.2 39W Bulkhead

The following options were considered for the 39W Bulkhead:

Proposed Project Alternative: Seaward toewall;

Option 1: Replacement in place, in-kind;

Option 2: Landward replacement; and

Option 3: No Build (No bulkhead replacement or reinforcement).

The bulkheads on the edges of the solid fill "pier" structures at SBMT retain the fill behind the bulkheads and support the load placed on the "pier." The bulkhead was reinfoced by adding an extra layer of sheet piles in front of the original bulkhead around 2004. The added sheet wall was then connected towards the original tierod system. This gave back the original lateral capacity from the original design from 1959. An examination of the in-water geotechincal boring data in front of the pier indicated that previous upgrades performed in 2004 involved sheet piles that were not driven sufficiiently deep. This causes the lateral support to be inadequate for a deepened berthing position to allow the largest design vessels to use the port.

The existing sheet pile bulkheads at the 39th Street "Pier" are technically challenging because they have existing underground tie-rods that connect the bulkhead to subterranean dikes to provide lateral capacity and stability to the bulkhead structure. Vertical capacity is achieved by the fill material and underground low-level platform, which is supported by timber piles. Neither Option 1 (replacement in place, in-kind) nor Option 2 (landward replacement) can maintain this existing structure during bulkhead replacement and avoid the potential for a collapse of the existing bulkhead and subsequent release of solid fill into the marine environment.

Option 1 (replacement of the bulkhead in-place, in-kind) would require a sequential operation whereby one section of bulkhead is replaced, followed by another. Removing the bulkhead would require severing the existing tie-rods, which would significantly compromise the structural integrity of the bulkhead and adjacent low-level platform. This in turn would likely result in the collapse and subsequent failure of the solid fill "pier" structure, causing environmental impacts due to the structures and fill entering the water column.

Similarly, Option 2 (landward replacement of the bulkhead) would require severing the existing tie rods to drive the new sheet piles, and it also would require driving the new bulkhead through the existing low-level platform, thereby impacting not only the lateral capacity but also the vertical capacity of the existing solid fill "pier" structure. As a result, these structural and technical challenges make Option 1 and Option 2 not practicable.

In addition, both Option 1 and Option 2 would have the potential to cause greater environmental impacts than the Proposed Project Alternative, which would involve the seaward replacement of the bulkhead and the controlled placement of a small amount of fill behind the new bulkhead. For the reasons listed above, both Option 1 and Option 2 were eliminated from further consideration.

Option 3 (No Bulkhead Replacement or Reinforcement) would leave the bulkhead in its current condition. The berthing position could only be dredged to 35 feet below NAVD88. This would prevent the maximum design vessels to be berthed in a fully laden condition, which would not support the Proposed Project's purpose. As a result, Option 3 was eliminated from further consideration.

The Proposed Alternative of a new toe wall maintains the structural integrity of the solid fill "pier" structure and avoids the potential release of existing fill into the marine environment. By relocating the new toe wall installation seaward of the existing bulkhead, the intact existing bulkhead and low-level platform have been incorporated into the proposed final design, thereby retaining system-wide structural integrity and adding additional design depth for the berthing position. The new toe wall adds 319 CY of fill below MHW but will be mitigated on Pier 35W. Therefore, the Proposed Project Alternative method of the new toe wall at 39W is the least environmentally damaging practicable alternative that would meet the Proposed Project's purpose.

2.1.2.3.3 32-33 Bulkhead

The following options were considered for the 32-33 Bulkhead:

Proposed Project Alternative: Landward bulkhead replacement and pile-supported platform;

Option 1: Seaward installation of replacement bulkhead and placement of fill behind the new bulkhead;

Option 2: No Build (No bulkhead replacement or reinforcement).

The 32-33 bulkhead does not have the same technical challenges as the 39th Steet "Pier." Specifically, it does not have horizontal tie rods and corresponding risk of structural collapse should they be removed. As a result, Option 1 (seaward installation of a replacement bulkhead and placement of fill behind it), while practicable, is not necessary and would result in greater environmental impacts than the Proposed Alternative.

Given the degraded condition of the existing bulkhead, Option 2, the No Build alternative, would render the upland area unusable and would not support the Proposed Project's purpose. In addition, it could result in greater environmental impacts over time, as further deterioration of the bulkhead eventually could result in the loss of structures and release of fill into the marine environment.

The Proposed Alternative involves installing steel sheeting landward of the existing low-level platform, removal of fill and the existing dilapidated platform, cutting the timber piles at the mudline, and installing a new pile supported platform, which will enable increased live loading of the area landward of the existing relieving platform. The Proposed Alternative will be less environmentally damaging than Option 1 and prevents the longer-term environmental impacts of Option 2. The Proposed Alternative therefore represents the least environmentally damaging practicable alternative method of bulkhead installation at 32-33 that meets the Proposed Project's purpose.

2.1.2.4 Wharf Alternatives

Three new fixed and floating wharves are proposed to meet the Proposed Project's purpose and need. The proposed wharf at 35W would accommodate heavy-lift barge operations associated with the loading and unloading of WTG components, crew, and other materials. O&M-related material handling activities would be accomplished at the proposed pile-supported SOV Wharf on the northern side of the 35th Street "Pier" (35N). O&M-related crew transport would be accomplished at the proposed floating CTV Wharf along the bulkhead between 32nd and 33rd Streets (32-33). Alternative wharf structures and layouts are discussed below.

2.1.2.4.1 Barge Wharf (35W) Alternatives

The following Barge Wharf 35W options were considered:

Proposed Project Alternative: Concrete platform and cap on piles, with mooring dolphins over the top of the existing cofferdam;

Option 1: Replacement of cofferdam; and

Option 2: No Build (No wharf installation).

The existing cofferdam at the end of the 35th Street "Pier" is insufficient to accommodate heavy-lift operations as needed to support the Proposed Project's purpose.

Option 1 would involve the replacement of the existing cofferdam to achieve the required load bearing capacity. While technically feasible, it is likely that the demolition of the existing cofferdam would result in a significant release of fill material, from within the existing cofferdam structure, into the marine environment. Furthermore, due to corrosion of the existing coffer cell sheeting, the location of the new cofferdam would need to be a minimum of 12-in to 18-in seaward of the existing footprint to avoid obstructions from the remnant (buried) sheets and successfully drive the new coffer cell sheets. Lastly, the new cofferdam would require vessels to berth close to the western edge of the 35th Street "Pier" where the water is shallower, thereby requiring additional dredging closer to the "pier" than would be required for the Proposed Alternative. Thus, while practicable, Option 1 would result in greater potential environmental impacts than the Proposed Alternative due to the release of fill during demolition and the additional dredging that would be needed.

Option 2 (No Wharf Installation) would not achieve the Proposed Project's purpose, as it would prevent this solid fill "pier" structure from being used to support OSW component loading or unloading. In addition, as the exististing cofferdam cell structures may fail in the future without being replaced. Therefore, Option 2 was eliminated from further consideration.

The Proposed Alternative would involve removing the cofferdams and approximately 7,871 CY of fill (below MHWS) as fill mitigation and then the installation of an extended pile supported platform and mooring dolphins. The platform

extends farther from the solid fill "pier" structure than the replacement cofferdam in Option 1, meaning the water would be deeper where vessels would reach the platform. As a result, the Proposed Alternative would remove fill below MHW, restore wetland habitat, and allow the existing natural sloping seabed to be maintained and would minimize the dredging needed to accommodate vessels at 35W. As a result, it would be the least environmentally damaging practicable alternative 35W wharf structure that meets the Proposed Project's purpose.

2.1.2.4.2 SOV Wharf (35N) Alternatives

The following options were considered for the SOV Wharf 35N:

Proposed Project Alternative: Concrete cap and deck on piles near the shoreline with mooring dolphins;

Option 1: Wharf located further into the water, connected to bulkhead by trestle;

Option 2: Combination wall structure with retained fill over the existing revetment slope; and

Option 3: No Build (No Wharf Installation).

An SOV wharf is needed to support the O&M function of the Proposed Project. The Proposed Alternative involves an extended "open' pile-supported platform and mooring dolphins, which will allow the existing natural sloping seabed to be maintained northwards, minimizing dredging required to enable boat access (versus all other alternatives considered). The new pile-supported platform transitions to the existing upland via a new 120-foot sheet pile bulkhead, which will replace the existing deteriorated timber bulkhead dated to the 1960s. The location of the seaward edge of the Proposed Alternative minimizes filling impacts to the marine habitat. In addition, this alternative minimizes the dredging needed for vessel access by making the access point farther from shore where the water is deeper.

Option 1 is similar to the Proposed Alternative; however, the seaward edge of the pile-supported platform would extend further north into the basin and would be connected to the bulkhead via trestle. The addition of an access trestle for fork-lift movements and similar transport equipment would result in additional shading and filling (clean gravel and concrete within pipe piles) of marine habitats, as compared to the Proposed Alternative due to the additional piles that would be needed to support the access trestle. This alternative would necessitate an identical dredging footprint as would be needed for the Proposed Alternative because it also avoids the need for dredging close to shore.

Option 2 would involve the installation of a pipe pile and sheet pile system around the perimeter of the proposed SOV wharf with retained fill inside leading to a "closed" structure. This bulkhead replacement option would provide the load bearing capacity required of the wharf purpose, but would result in greater environmental impacts than the Proposed Alternative due to the need to fill the entire footprint of the platform area, including a larger area of tidal wetlands and marine habitat, to achieve the same structural load capacity.

Option 3 (No Build) does not achieve the Proposed Project's purpose of supporting daily O&M activities. Utilizing the heavy-lift "pier" improvements at 35th Street "Pier" or 39th Street "Pier" would not be feasible because those areas will be used for OSW component loading and unloading, and therefore will not be available to support the frequent O&M activities. Using the CTV wharf is not feasible due to differing vessel characteristics and load capacity, cargo handling requirements, mooring requirements and frequent vessel calls.

Thus, the Proposed Alternative for the SOV wharf is the least environmentally damaging practicable alternative that meets the Proposed Project's purpose.

2.1.2.4.3 CTV Wharf (32-33) Alternatives

The following options were considered for the CTV Wharf (32-33):

Proposed Project Alternative: Floating concrete platform parallel to the 32-33 bulkhead, offering the opportunity for the simultaneous berthing of two CTVs;

Option 1: Two floating docks oriented perpendicular to the 32-33 bulkhead, with berthing on one side of each dock (for simultaneous berthing of two CTVs);

Option 2: Extension of berth 39N further east into the inlet, and installation of a floating dock for the CTVs; and

Option 3: No Build (No Wharf Installation).

Option 1 would involve the installation of two floating docks to accommodate CTVs, oriented perpendicular to the 32-33 bulkhead. A single long perpendicular floating dock would generate a vessel maneuvering conflict with the proposed

SOV Wharf; therefore, two shorter perpendicular floating platforms were considered as Option 1. Each of the floating platforms would accommodate vessel activities on one side and spud-pile mooring on the other side. Option 1 would result in greater overwater coverage and shading, as well as a larger amount of fill associated with spud piles for the two floating platforms. As a result, while practicable, Option 1 would result in greater potential environmental impacts than the Proposed Alternative.

Option 2 would involve the extension of the berth at 39N to the east (landward) as well as the installation of a floating platform for CTV use. This option would require a larger amount of dredging for vessel access, and therefore would result in greater potential environmental impacts as compared to the Proposed Alternative. In addition, using this location for the CTV wharf could result in conflicts with use of 39N for berthing of other vessels and OSW component loading and unloading. Offshore crew transfer to/from the CTVs would have to pass through the OSW staging facility, adding material handling hazards to the personnel.

Option 3 would not meet the Proposed Project's purpose for O&M activities, as specialized floating platform infrastructure is required to support the safe transfer of the workforce between vessels and the O&M base at SBMT. The SOV wharves and the heavy lift areas are not suitable for CTV primarily due to the limited freeboard on the CTV, which requires a floating platform for personnel and equipment loading and discharge. In contrast, the heavy lift and SOV areas require fixed structures for OSW component loading and unloading, and therefore will not be available or configured to support the CTV operations.

The Proposed Alternative involves the installation of a single floating platform parallel to the existing bulkhead at 32-33. This alternative will minimize dredging by extension of the wharf structure, and, as compared to Options 1 and 2, will cause fewer environmental impacts associated with shading from the floating platforms and fill generated by spud pile installation. Thus, the Proposed Alternative for the CTV wharf is the least environmentally damaging practicable alternative that meets the Proposed Project's purpose.

3 Environmental Analysis

3.1 Introduction

Chapter 3 of this Environmental Analysis documents the affected environment and potential environmental impacts for the Future without Project and Future with Project conditions for the following technical resources: land use, zoning and public policy, socioeconomic conditions, community facilities and services, open space, shadows, historic and cultural resources, urban design and visual resources, natural resources, hazardous materials, water and sewer, solid waste and sanitation, energy, transportation, air quality, greenhouse gas (GHG) emissions, noise and vibration, public health, neighborhood character, and construction.

Additionally, indirect effects and cumulative effects were assessed for the technical resources listed above. However, the following technical resources did not require a preliminary assessment pursuant to guidance in the *CEQR Technical Manual*, so they were not assessed for indirect effects and cumulative effects: open space, solid waste and sanitation, and greenhouse gas emissions. The CEQ regulations implementing the procedural provisions of NEPA require federal agencies to consider the potential for indirect effects and cumulative effects. Indirect effects are defined as effects "which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water or other natural systems, including ecosystems." (40 CFR 1508.1(g)(2)). Growth inducement occurs when an activity encourages or leads to further increases in development, population, or business activity. In assessing the potential for indirect effects, consideration is given to a broad range of affected areas, including land use, socioeconomic conditions, community facilities, shadows, historic and cultural resources, urban design and visual resources, natural resources, hazardous materials, water and sewer, energy, transportation, air quality, noise and vibration, public health, neighborhood character, and construction.

Cumulative effects, on the other hand, have been defined by CEQ as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.1(g)(3)).

It should be noted that regulations and guidelines use "indirect" and "secondary" interchangeably, as well as "effects" and "impacts." Indirect effects and cumulative impacts analysis (the analysis) identifies measures in place, or provides recommendations, designed to avoid, minimize, or mitigate the potential effects of indirect growth within the overall Study Area.

The outcome of the analysis allows for an assessment of how project-related direct and indirect potential impacts, in combination with those of other planned projects/activities within the Study Area, could result in cumulative impacts. The planned activities/projects in proximity to the Proposed Project include the relocation of the NYCDOT function and the EW 1 Project underground cables and onshore substation at SBMT. These activities/projects are described in **Section 2.1.1** (Future without Project).

The Study Area for the discussion of indirect effects and cumulative impacts is related to the areas where potential direct effects have been identified. The Study Area for the majority of the resources assessed in the environmental analysis was defined as a 400-foot buffer around the Project Area. This will serve as the primary indirect effects and cumulative impacts Study Area, although analyses may reference broader study areas as applicable.

3.2 Land Use, Zoning and Public Policy

This section describes existing land uses within the Study Area and identifies zoning requirements and other public policies which are applicable to the Proposed Project. It also assesses the potential impact of the Proposed Project on Study Area land uses, as well as the Proposed Project's compliance with the City zoning regulations and public policies.

3.2.1 Introduction

The analysis that follows was undertaken in accordance with the requirements of the *CEQR Technical Manual*. The *CEQR Technical Manual* describes procedures for the analysis of land use, zoning, and public policy to ascertain the

impacts of a project on the surrounding area. As recommended by the *CEQR Technical Manual,* a 400-foot Study Area from the physical limits of the Proposed Project is used for the analysis that follows. The analysis describes land uses, zoning regulations, and applicable policies within the Study Area, and then assesses potential land use impacts and compliance with zoning regulations and policies.

3.2.1.1 Land Use

Land use refers to the activity that is occurring on land and within the structures that occupy it. Types of uses include but are not limited to residential, retail, commercial, industrial, vacant land, and parks. According to the *CEQR Technical Manual,* the appropriate study area for land use and zoning is related to the type and size of a proposed project, the location and context of the area that could be affected by the project, and other factors, such as natural and man-made geographic boundaries.

Land use in the Study Area was determined through a review of NYCDCP *Primary Land Use Tax Lot Output* (PLUTO) data (21v4).

3.2.1.2 Zoning

The New York City Zoning Resolution (ZR) dictates the use, density, and bulk of developments within the City. The ZR is divided into two parts: zoning text and zoning maps. The zoning text establishes the zoning districts within New York City and dictates the zoning regulations governing land uses and developments, while zoning maps show the boundaries of the City's zoning districts.

New York City has three basic zoning district classifications: residential (R), commercial (C) and manufacturing (M) districts. Residential zoning districts are divided into standard and context districts. Contextual residential districts are categorized by low-, medium- and high-density. Certain areas of the City are also established as "Special Mixed-Use Districts", which allow mixed residential, commercial and/or manufacturing uses within those mapped districts. The maximum bulk permitted for developments within any zoning district is mainly governed by the district's maximum floor area ratio (FAR) and minimum required open space.

Zoning designations in the Study Area were determined through a review of NYCDCP Zoning Map 16b (effective date September 30, 2009 and approved by the City Council as of December 15, 2021) and through a review of the City's online ZR (as updated through December 15, 2021).

3.2.1.3 Public Policy

Various public policies can affect the allowable land uses on a project site. Officially adopted and promulgated public policies also describe the intended use applicable to an area or particular sites in the City. These include City and State waterfront and open space plans, City and State energy plans, the City's *Offshore Wind NYC* plan, 197-A Plans, Industrial Business Zones (IBZs). NYCWRP and *OneNYC* (related to sustainability) are also discussed. Some public policies have regulatory status, while others describe general goals that can help define the existing and future context of the land use and zoning of an area. Policies may also change over time to reflect the evolving needs of the City, as determined by appointed and elected officials and the public.

3.2.2 Affected Environment

The Project Area includes the physical limits of the Proposed Project, including the Upland Project Limits and Marine Dredging Project Limits described in **Section 1.3** (Project Description). The Project Area is bound by 39th Street to the south, 2nd Avenue to the east, the Sims Facility to the north at approximately 29th Street, and Gowanus Bay to the west. Gowanus Bay is part of the larger New York Bay.

As discussed in **Section 1.2** (Purpose and Need for the Proposed Project), the Project Area is currently used by a marine operator and a NYCDOT facility at SBMT. The private marine operator, Phoenix, functions on the 35th Street and 39th Street "Piers" within the Project Area at SBMT. The marine operator at SBMT has a maximum of three employees on the solid fill "pier" structures NYCDOT maintains a facility that occupies a small section of the northeastern portion of the Project Area and includes a pedestrian ramp replacement operation. The area occupied by the NYCDOT facility north of the Project Area will be occupied by the EW 1 Project underground cables and onshore substation. The NYCDOT function will move to the Red Hook Container Terminal prior to Proposed Project construction regardless of the Proposed Project.

There are existing operational rail lines running through the Project Area that serve the Sims Facility (see **Section 1.3.1.8** (Railroad)). The Study Area is a 400-foot buffer around the Project Area generally bound by 41st Street to the south, the City block between 2nd Avenue and 3rd Avenue to the east, the Sims Facility to the north, and Gowanus Bay to the west (see **Figure 3.2-1**).

3.2.2.1 Land Use

Development in the Study Area is a combination of transportation and utility, industrial and manufacturing, commercial, and parking uses (see **Figure 3.2-2** and **Table 3.2-1**). Transportation and utility land uses comprise over 70 percent (approximately 118 acres) of the Study Area, including the Project Area, the Sims Facility on 29th Street and a vacant pier structure in Gowanus Bay to the south.

Industrial, manufacturing, and commercial land uses are located across from the Project Area along 39th Street to the south and 2nd Avenue to the east. These land uses are all part of the redeveloped Industry City campus, which is a repurposed industrial area containing sixteen campus buildings, over 550 companies, and restaurants, retailers, and grocery stores catering to the approximately 7,500 employees throughout the campus' companies and residents of the surrounding area. Industry City also maintains private parking structures along 39th Street and 2nd Avenue immediately adjacent to the Project Area, but these parking structures are not located within the Project Area.

Commercial and office building land uses are located in the southeast portion of the Study Area. The largest commercial entity is a wholesale grocery and retail store in the southeast corner of the 2nd Avenue and 37th Street intersection.

Table 3.2-1 Overview of Land Uses in Study Area

Land Use Category	Acres	Percent
Commercial and Office Buildings	7.85	4.70%
Industrial and Manufacturing	35.24	21.08%
Transportation and Utility	117.89	70.53%
Parking Facilities	6.17	3.69%
Totals	167.15	100%

3.2.2.2 Zoning

Zoning in the Study Area is discussed below and depicted in **Figure 3.2-3**. The Study Area is located within a Manufacturing (M) zoning district. The majority of the Study Area, including the entirety of the Project Area, is located within a M3-1 district, which extends from 58th Street to the south to Hamilton Avenue to the north and contains the parcels along the Gowanus Bay waterfront. M3 zoning districts are designated for areas with heavy industries that generate noise, traffic, or pollutants. Typical uses include power plants, solid waste transfer facilities and recycling plants, and fuel supply depots. M3 zoning districts are usually located near the waterfront and buffered from residential areas. The Proposed Project's uses are permitted as-of-right in M3 districts. Within the Study Area, the M3-1 zoning district is buffered by a M1-2 zoning district before any residential zoning districts. Use groups allowed within M3 zoning districts are associated with retail and commercial (use groups 6 through 14), general service (use group 16), and manufacturing (use groups 17 and 18). The existing land uses in the Study Area, including the Project Area, Industry City, and the recycling facility, are consistent with these use groups. M3-1 zoning districts permit a FAR of 2.0. Parking requirements vary by use in M3-1 zoning districts (NYCDCP, 2022).

A portion of a M1-2 zoning district is located in the southeast corner of the Study Area where there is a wholesale grocery and retail store. M1 zoning districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. In addition, offices, hotels, and most retail uses are permitted. Community facilities, such as hospitals, are permitted only by special permit, but houses of worship are allowed as-of-right. Use groups allowed within M1 zoning districts include community facilities (use group 4), retail and commercial (use groups 5 through 14), general service (use group 16), and manufacturing (use group 17). The existing land uses within the M1-2 zoning district in the Study Area are consistent with these use groups. M1-2 zoning districts permit a FAR of 2.0. Parking requirements vary by use in M1-2 zoning districts (NYCDCP, 2022).

The Study Area is located in the Southwest Brooklyn IBZ, which wraps from the Belt Parkway to the south, through the Sunset Park and Red Hook neighborhoods along the Gowanus Bay, and to Atlantic Avenue to the north. IBZs are geographic areas that serve as safe havens for manufacturing and industrial firms, under which the City of New York guarantees not to support the rezoning of properties to allow residential uses. IBZs are also comprised entirely of manufacturing-zoned land (NYCEDC, 2013). The Southwest Brooklyn IBZ includes both the Project Area and the entirety of Industry City.

Figure 3.2-1 SBMT Project Area

Figure 3.2-2 Land Use

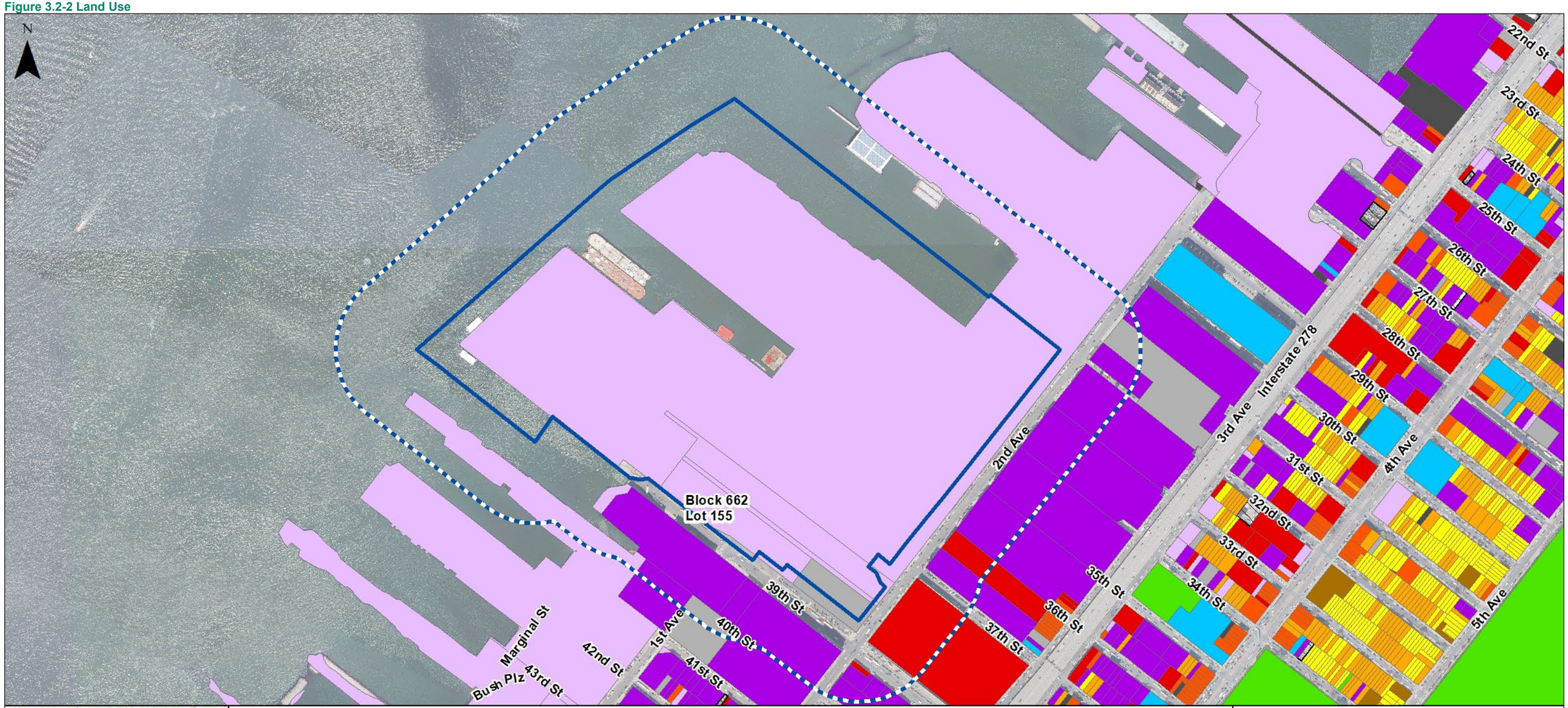


Figure 3.2-3 Zoning Districts

Legend

- Study Area (400-foot Buffer)
- Project Area
- Zoning District
- Industrial Business Zone
- Commercial Overlay District

Map Source:
NYCDCP Zoning Map, January 2022; NYCEDC Ratified IBZs, December 2013; NYC DoITT Orthoimagery, 2018.

Zoning Districts

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 250 500 1,000 Feet

AECOM
New York, New York

3.2.2.3 Waterfront Revitalization Program and Other Applicable Public Policies

The public policy initiatives applicable to the Proposed Project are described below.

3.2.2.3.1 State of New York

3.2.2.3.1.1 The Waterfront Revitalization of Coastal Areas and Inland Waterways Act and New York State Coastal Management Program

New York's Coastal Management Program (CMP) manages the state's coastal resources under the federal Coastal Zone Management Act (CZMA). Article 42 of the New York State Executive Law, the *Waterfront Revitalization of Coastal Areas and Inland Waterways Act* (WRCRA), mandated the creation of the New York State CMP to establish the boundaries of the Coastal Area within which the CMP is applied. The CMP contains 44 statewide policies to prevent the impairment of coastal resources and promote their beneficial use. Implemented by the NYSDOS, the CMP encourages coordination among all levels of government to promote sound waterfront planning and requires government agencies to consider the goals of the program in making land use decisions. The WRCRA offers local governments an opportunity to participate in the CMP on a voluntary basis; New York City is a participating municipality. Under the Act, localities prepare and adopt local waterfront revitalization programs (LWRPs) which implement the State's Program through the use of municipal ordinances and procedures such as zoning and site plan review. New York City's Waterfront Revitalization Program is discussed below.

3.2.2.3.1.2 2016 New York State Open Space Conservation Plan (NYSDEC 2016c)

The Open Space Conservation Plan is a comprehensive statewide plan that describes current open space conservation goals, actions, tools, resources, and programs administered by state and federal agencies and conservation nonprofits. Its stated goals include protecting water quality, outdoor recreation, habitat, education, and scenic, historic, and cultural resources.

The plan was developed by NYSDEC and the New York State Office of Parks, Recreation and Historic Preservation in conjunction with Regional Advisory Committees and other state agencies.

The plan identifies priority conservation projects for each of NYSDEC's nine administrative regions, and Kings County is within Region 2. Specifically, Project 14, Brooklyn/Queens East River Waterfront, addresses open spaces and proposed greenways along the 20-mile waterfront from the Brooklyn Army Terminal to the Astoria Power Station. Bush Terminal Piers Park to the south of the Project Area and The Grain Elevator Property in Red Hook to the north of the Project Area are specifically listed. Project 140, Statewide Small Projects, includes preserving waterway access.

3.2.2.3.1.3 2015 New York State Energy Plan (New York State Energy Planning Board 2015, and updated in 2020)

The State Energy Plan serves as a roadmap to New York's energy policy, Reforming the Energy Vision. It is meant to guide the State's efforts to advance new energy technologies, promote clean energy financing, and modernize energy infrastructure, including OSW, for a clean energy economy.

The plan was adopted by the New York State Energy Planning Board and is guided by statutory requirements of Article 6 of the Energy Law. An Amendment to the 2015 State Energy Plan was adopted on April 8, 2020.

3.2.2.3.1.4 New York State Smart Growth Public Infrastructure Policy Act

The *New York State Smart Growth Public Infrastructure Policy Act* (Environmental Conservation Law [ECL] § 6-0107) establishes a policy to maximize the social, economic, and environmental benefits from public infrastructure development by minimizing the impacts associated with unnecessary sprawl. In accordance with the Act, state infrastructure agencies cannot approve, undertake, support, or finance a public infrastructure project, including providing grants, awards, loans, or assistance programs unless, to the extent practicable, the project is consistent with the Smart Growth Public Infrastructure Criteria specified in ECL § 6-0107. The chief executive officer of a state infrastructure agency must attest that the project meets the relevant smart growth criteria, to the extent practicable, by providing a written "Smart Growth Impact Statement." If a project cannot meet these criteria, or compliance is considered to be impracticable, a detailed statement of justification should be provided in the Smart Growth Impact Statement.

3.2.2.3.2 City of New York

3.2.2.3.2.1 OneNYC 2050 (OneNYC)

OneNYC is the City's comprehensive strategy and policy directive to address long-term challenges related to climate change, an evolving economy, and aging infrastructure. It is built on the 2007 *PlaNYC* (updated in 2011 and 2013). OneNYC focuses on environmental sustainability, economic equality, and social justice, and consists of eight goals and 30 initiatives that together comprise a strategy to prepare New York City for the future.

3.2.2.3.2.2 New York City Waterfront Revitalization Program

Proposed projects that are located within the designated boundaries of New York City's Coastal Zone must be assessed for their consistency with the City's Waterfront Revitalization Program (WRP). The federal CZMA of 1972 was enacted to support and protect the distinctive character of the waterfront and to set forth standard policies for reviewing proposed development projects along coastlines. The program responded to city, state, and federal concerns about the deterioration and inappropriate use of the waterfront. In accordance with the CZMA, New York State adopted its own CMP, which provides for local implementation when a municipality adopts a LWRP, as is the case in New York City. The New York City WRP is the City's principal coastal zone management tool. The WRP was originally adopted in 1982 and approved by the NYSDOS for inclusion in the New York State CMP. The WRP encourages coordination among all levels of government to promote sound waterfront planning and requires consideration of the program's goals in making land use decisions. NYSDOS administers the program at the state level, and NYCDCP administers it in the City. The WRP was revised and approved by the City Council in October 1999. In August 2002, NYSDOS and federal authorities (i.e., the USACE and the U.S. Fish and Wildlife Service) adopted the City's 10 WRP policies for most of the properties located within its boundaries.

In October 2013, the City Council approved revisions to the WRP to proactively advance the long-term goals laid out in *Vision 2020: The New York City Comprehensive Waterfront Plan*, released in 2011. The 2013 comprehensive update to WRP solidified New York City's leadership in sustainability and climate resilience planning as one of the first major cities in the U.S. to incorporate climate change considerations into its Coastal Zone Management Program. They also promote a range of ecological objectives and strategies, facilitate interagency review of permitting to preserve and enhance maritime infrastructure, and support a thriving, sustainable working waterfront.

In February 2016 the revised WRP was approved by the New York State Secretary of State; and with concurrence from the U.S. Secretary of Commerce, the revisions were incorporated into the New York State CMP. In June 2016 the City released an updated version of its guidance document, *The New York City Waterfront Revitalization Program*, reflecting the revised WRP and its more fine-grained set of policies that better address the City's varied conditions. The most notable update is that the policies address the risk of climate change and sea level rise for the first time, by promoting the use of climate change projections in the planning and design of projects. Additional substantial policy changes include encouraging new opportunities for public access to the waterfront where appropriate and achievable, and improving interagency coordination to foster a clear, predictable development process.

The Coastal Zone Boundary has been updated to reflect the most recent Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Maps (FIRMs) from 2015. Three new special area designations have been created and mapped: Recognized Ecological Complexes, Priority Marine Activity Zones, and the West Shore Ecologically Sensitive Maritime and Industrial Area; and the two existing special designations (Significant Maritime and Industrial Areas and Special Natural Waterfront Areas) have been updated with new boundary lines and additional mapped areas. As the Project Area and Study Area are located within the City's designated coastal zone, the Proposed Project must be assessed for its consistency with the ten WRP policies.

The Proposed Project's WRP consistency review is appended to the SBMT JPA.

3.2.2.3.2.3 Vision 2020: New York City Comprehensive Waterfront Plan (Vision 2020)

Vision 2020 was the City's second comprehensive plan for the City's waterfront, and together with *OneNYC* (described above), was a core component of the City's Waterfront Vision and Enhancement Strategy. The City's comprehensive waterfront plans are active for a ten-year period, and *Vision 2020* was the guiding plan from 2011 to 2020. The *New York City Comprehensive Waterfront Plan* (2021), which is the current comprehensive waterfront plan, is discussed below. *Vision 2020* presented strategies for implementing many of the long-term goals of PlaNYC (now *OneNYC*) specific to the City's waterfront. The Plan proposed to make the City more sustainable and resilient, and proposed

innovative stormwater management to improve the ecological health of the City's waterbodies and the protection and restoration of wetlands, beaches, and other natural shorelines to better protect coastal neighborhoods from flooding and storm surges. *Vision 2020* has the following goals:

- Goal 1: Expand public access to the waterfront and waterways on public and private property for all New Yorkers and visitors alike.
- Goal 2: Enliven the waterfront with a range of attractive uses integrated with adjacent upland communities.
- Goal 3: Support economic development activity on the working waterfront.
- Goal 4: Improve water quality through measures that benefit natural habitats, support public recreation, and enhance waterfront and upland communities.
- Goal 5: Restore degraded natural waterfront areas and protect wetlands and shorefront habitats.
- Goal 6: Enhance the public experience of the waterways that surround New York—our Blue Network.
- Goal 7: Improve governmental regulation, coordination, and oversight of the waterfront and waterways.
- Goal 8: Identify and pursue strategies to increase the city's resilience to climate change and sea level rise.

As discussed above regarding the WRP, the goals set out in *Vision 2020* guide the WRP. In order to advance the long-term goals laid out in *Vision 2020*, the City of New York revised the WRP. These changes were reviewed pursuant to the 197-a process set forth in the City Charter for community input and adoption, and received City Council approval in 2013. These 2013 revisions to the WRP offer a mechanism to implement the goals of *Vision 2020* in projects subject to WRP review. In addition, the WRP was approved by the New York State Secretary of State for inclusion in the State's CMP in 2016.

3.2.2.3.2.4 New York City Comprehensive Waterfront Plan (2021)

The *New York City Comprehensive Waterfront Plan* is the City's third and most recent comprehensive plan for the City's waterfront and is a core component of the City's Waterfront Vision and Enhancement Strategy. This plan follows *Vision 2020* as the new ten-year comprehensive waterfront plan. The NYC Comprehensive Waterfront Plan is organized around the following six topic areas, each with its own vision for NYC's waterfront. Each topic area includes a set of goals to advance a vision for a more equitable, more resilient, and healthier waterfront: climate resiliency and adaptation, waterfront public access, economic opportunity, water quality and natural resources, ferries, and governance. Each goal is followed by strategies the City has identified that can achieve the specific goals. The goals relevant to the Proposed Project are discussed in **Section 3.2.3.2.3** (Public Policies, Programs and Plans).

3.2.2.3.2.5 Offshore Wind NYC: Equitable Opportunity for a Sustainable Future

NYCEDC created *Offshore Wind NYC* to outline strategies using OSW to help fulfil New York City's commitment to 100-percent clean electricity by 2040 and carbon neutrality by 2050. The Proposed Project is identified as part of the broader plan of *Offshore Wind NYC* to invest over $191 million over 15 years across the following three strategies:

1. Sites and infrastructure: Develop best in-class infrastructure that will support the construction and operation of 12 GW of OSW.
2. Business and workforce: Prepare local workers and businesses to seize upon the opportunities that will be created by infrastructure investments.
3. Research and innovation: Promote innovation in OSW, to ensure that new technologies and approaches that advance the City's vision for an equitable industry are created in New York City.

3.2.2.3.2.6 One City: Built to Last

Adopted in 2014, *One City: Built to Last* outlines the goals, policies, and programs to reduce New York City's GHG emissions by 80 percent by 2050, which is the level the United Nations projects is needed to avoid the most dangerous impacts of climate change. In addition, *One City: Built to Last* charts a long-term course for a total transition away from fossil fuels to renewable sources of energy. Of the many goals outlined in the plan, the goal of NYC becoming a global hub for clean energy technology and innovation applies to the Proposed Project. As part of meeting this goal, the City has committed to exploring innovative technologies for New York City buildings.

3.2.2.3.2.7 Sunset Park 197-a Plan

The Sunset Park 197-a Plan, called "New Connections/New Opportunities," was drafted by the Brooklyn Community Board 7 and adopted by the NYC City Council in December 2009. The plan focuses on the Sunset Park waterfront area between 65th Street to the south, 3rd Avenue to the east, and 15th Street to the north, and this area includes the Project Area. The plan sets forth a comprehensive framework for the revitalization of the Sunset Park waterfront as an economically viable and environmentally sustainable resource that is closely related to, and serves the needs of, adjacent upland communities. Of the five goals set out in the plan, the following goal would be addressed by the Proposed Project: promote industrial redevelopment and job creation in Sunset Park while retaining existing industrial jobs.

3.2.2.3.2.8 A Greenway Plan for New York City (1993)

A Greenway Plan for New York City presents the City's vision for 350 miles of landscaped bicycle and pedestrian paths crisscrossing New York City. This plan was adopted in 1993 and signaled the start of a multi-year effort to create new public recreational opportunities, increase the mobility of cyclists, walkers, and joggers, and enrich the lives of all New Yorkers. As a part of this plan, a greenway was proposed along 2nd Avenue adjacent to the Project Area, but the greenway has not been implemented. The NYCDOT *Brooklyn Waterfront Greenway Implementation Plan*, which was designed to implement the *Greenway Plan for New York City* identified this section of greenway adjacent to the Project Area as the NYCDOT preferred route for greenway improvements through Sunset Park.

3.2.3 Environmental Impacts

The following section assesses the potential for both adverse impacts as well as beneficial impacts to land use and zoning as a result of the Future without Project condition and Future with Project condition. A detailed assessment of impacts to land use, zoning, and public policy is not appropriate for this Proposed Project since it would not result in a change in existing land use or zoning within the Study Area.

3.2.3.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The land uses and zoning for the Project Area would remain unchanged. The existing uses in the Project Area would remain unchanged, resulting in continued underutilization of the site. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.2.3.2 Future with Project

The Proposed Project involves activities in two parts of the Project Area, the Upland Project Limits and Marine Dredging Project Limits (see **Figure 3.2-1**). The Proposed Project components within the Upland Project Limits would include demolition of existing structures and paving, excavation of fill in order to install support structures, and installation of new support structures, above-ground structures, utilities, paving, and the construction of an O&M base. These elements are described in detail in **Section 1.3.1** (Upland Section). The Proposed Project components within the Marine Dredging Project Limits include dredging and dredged material management, replacement and strengthening of existing bulkheads, installation of new pile-supported and floating platforms (wharves), and installation of new fenders. These elements are described in detail in **Section 1.3.2** (In-water Section). The EW 1 Project's underground cables and onshore substation would be located in the northeastern section of the SBMT site and adjacent to the northern boundary of the Project Area.

The existing rail lines that are currently in use within the Project Area would continue to be operational during the construction and operation of the Proposed Project. The primary vehicle access points to the Project Area would be located at 29th Street to the north of the Project Area. A detailed description of the Proposed Project is provided in **Section 1.3** (Project Description).

The Proposed Project would be contained within the boundaries of the Project Area, such that the existing parking structures associated with Industry City, and accessible on the west side of 2nd Avenue and bordering the Project Area, would continue to be used by Industry City employees. All existing access from these parking lots to Industry City would be maintained. Parking associated with the Proposed Project would be located within the boundaries of the Project Area and would be accessible from the northern entrance on 29th Street.

3.2.3.2.1 Land Use

Upon the Proposed Project's completion, the land uses within the Project Area would be as-of-right for M3 zoning districts. The Upland section of the Project Area would be organized into four areas for WTG component staging and assembly (see **Section 1.3.1.1** [Wind Turbine Generator Component Staging and Assembly]). Crane pads would be installed on the 35th Street and 39th Street "Piers" to facilitate the transfer of materials to and from marine vessels (see **Section 1.3.1.4** [Crane Pads and Upland "Pier" Structural Improvements]). In addition, the Proposed Project would also include an O&M base consisting of 22,000 sf of office and support space, 3,000 sf of waiting area for employees deploying to off-shore work sites, and 35,000 sf of warehouse space (see **Section 1.3.1.7** [Operations and Maintenance Base]). The existing transportation and utility land uses in the Project Area would be maintained. There would be no loss of existing parking adjacent to the Project Area along 39th Street and 2nd Avenue, and the existing access points to the Project Area would be maintained and enhanced on 29th Street.

3.2.3.2.2 Zoning

There would be no changes to existing zoning as a result of the Proposed Project. The Proposed Project's uses of the Project Area are allowed as-of-right under the existing M3-1 zoning district designation. A Mayoral Zoning Override would be needed to override requirements governing development or use within or over a railroad right of way or yard; however, rail operations would continue through construction and operation of the Proposed Project.

3.2.3.2.3 Public Policies, Programs and Plans

The Proposed Project would be consistent with all relevant and applicable public policies, programs and plans as summarized in **Table 3.2-2**.

Table 3.2-2: Public Policies, Programs and Plan Compliance Summary

Public Policy/Procedure	Project Applicability
2016 New York State Open Space Conservation Plan	The Proposed Project would have no impact on Project 14, Brooklyn/Queens East River Waterfront, as the Proposed Project would have no impact on open spaces and roadway access where greenways could be constructed. In addition, the Proposed Project would support Project 140 by preserving existing waterway access near the Project Area.
2015 New York State Energy Plan	The Proposed Project supports the *New York State Energy Plan* by supporting new renewable energy options, specifically OSW, which is listed within the plan.
New York State Smart Growth Public Infrastructure Policy Act	The Proposed Project would be consistent with the NYS Smart Growth Public Infrastructure Policy Act in that it would not cause unnecessary sprawl.
OneNYC 2050	The Proposed Project would support the following strategy from the Livable Climate section of the plan: *Strategy 20: Achieve carbon neutrality and 100 percent clean electricity.* The Proposed Project would be a critical component of a larger OSW strategy to construct windfarms that produce clean electricity.
NYC Waterfront Revitalization Program	The Proposed Project would be consistent with the WRP Policies, as detailed in the consistency documentation submitted with the SBMT JPA.
Vision 2020: New York City Comprehensive Waterfront Plan (superseded by New York City Comprehensive Waterfront Plan, 2021)	The Proposed Project directly supports the following goals from *Vision 2020*: Goal 2: *Enliven the waterfront with a range of attractive uses integrated with adjacent upland communities*. The Proposed Project would redevelop and revitalize a currently underutilized industrial area along the waterfront. The Proposed Project would be a critical part of the City and State's growing and innovative OSW industry. These uses would integrate into the existing industrial, manufacturing, and commercial uses in Industry City, which is adjacent to the Project Area. Goal 3: *Support economic development activity on the working waterfront.* The Proposed Project would contribute to the growing industrial, manufacturing, and commercial growth in Sunset Park in the vicinity of Industry City.

Public Policy/Procedure	Project Applicability
New York City Comprehensive Waterfront Plan (2021)	The Proposed Project directly supports the following strategies from the *New York City Comprehensive Waterfront Plan*: **Goal 1:** *Advocate for a 21st century working waterfront by pivoting to green technology and environmentally sustainable practices.* The Proposed Project would serve as a staging area and O&M base for the OSW industry, thereby supporting the achievement of New York's renewable energy mandates. **Goal 3:** *Connect investments on the waterfront to employment and career advancement opportunities for New Yorkers.* The Proposed Project would include 85 employees for weekday operations at this waterfront location and contribute to the growing industrial, manufacturing, and commercial growth in Sunset Park in the vicinity of Industry City. **Goal 4**: *Advance categories of investments in waterfront areas that broadly support economic activity locally and throughout the region.* The Proposed Project's 85 employees on site represents a beneficial impact to the local economy in Sunset Park anchored by Industry City.
Offshore Wind NYC	The Proposed Project is listed within *Offshore Wind NYC* and would contribute directly to the plan's goals of constructing OSW and promoting innovation in OSW.
One City: Built to Last	The Proposed Project would contribute to achieving the plan's goal of New York City becoming a global hub for clean energy technology and innovation.
Sunset Park 197-a Plan	The Proposed Project would support the following goal in the Sunset Park 197-a Plan: **Goal 1**: Promote industrial redevelopment and job creation in Sunset Park while retaining existing industrial jobs. The Proposed Project would redevelop a currently underutilized industrial space in Sunset Park.
A Greenway Plan for New York City	The Proposed Project would not impact the possible implementation of a greenway along 2nd Avenue if that project is proposed in the future.

The Proposed Project would redevelop an underutilized waterfront space with existing transportation and utility land uses and zoned as M3 for heavy manufacturing. There is no existing public recreational access or views of the waterfront in the vicinity of the Project Area. The Proposed Project would be allowed as-of-right in the existing M3 zoning district. **The Proposed Project would have no significant adverse impacts to existing or planned land uses in the Study Area. The Proposed Project would be consistent with applicable zoning and public policies, including the City's WRP.**

3.2.3.3 Indirect Effects and Cumulative Impacts

The Proposed Project would be consistent with existing or planned land use, zoning and public policies and would have no significant adverse impacts to existing or planned land uses within the Study Area. In addition, the Proposed Project's uses are permitted as-of-right in M3 districts. M3 zoning districts are designated for areas with heavy industries that generate noise, traffic, or pollutants. Typical uses include power plants, solid waste transfer facilities and recycling plants, and fuel supply depots. M3 zoning districts are usually located near the waterfront and buffered from residential areas. The existing NYCDOT function that would be relocated to the Red Hook Container Terminal, and the EW 1 Project's underground cables and onshore substation that would be located on SBMT to the north of the Project Area would also be permitted as-of-right in M3 districts.

The Proposed Project would not have indirect effects on land use and zoning in the Study Area, including inducing development. As discussed above, the Proposed Project would redevelop an underutilized industrial waterfront, and its uses are permitted as-of-right in a M3 zoning district and the Southwest Brooklyn IBZ. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As such, it is not expected that the redevelopment of an underutilized industrial waterfront area would induce additional developments in a highly-developed neighborhood.

The cumulative impact of the Proposed Project, in addition to the Future without Project condition projects, would result in a long-term moderate beneficial impact by redeveloping an underutilized industrial waterfront space and functioning as critical components of Citywide goals to develop renewable energy, including OSW, outlined in the *New York City Comprehensive Waterfront Plan* (2021) and *Offshore Wind NYC* plan.

3.2.4 References

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3.3 Socioeconomic Conditions

This section assesses the potential impacts of the Proposed Project on the socioeconomic character of the area surrounding the Project Area in accordance with the *CEQR Technical Manual*. The socioeconomic character of an area includes its population, housing, and economic activity. Changes may occur when a proposed project, either directly or indirectly and either positively or negatively, changes the socioeconomic character of the surrounding area. The objective of this analysis is to determine whether any changes created by the Proposed Project would have a significant adverse impact compared to what would happen under the Future without Project condition.

In accordance with *CEQR Technical Manual* guidelines, this analysis considers whether the Proposed Project could result in significant adverse socioeconomic impacts due to: (1) direct displacement of residential population; (2) indirect

displacement of residential population; (3) direct displacement of existing businesses; (4) indirect displacement of businesses; and (5) adverse impacts on a specific industry.

This section also assesses the potential for the Proposed Project to result in environmental and health effects on minority and low-income populations (collectively EJ populations) and disadvantaged communities within the Study Area. The analysis has been prepared to meet federal requirements described in Executive Order (EO) 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 1994) and EO 13045 – Protection of Children from Environmental Health Risks and Safety Risks, as well as requirements in the NYSDEC, Commissioner Policy-29 Environmental Justice and Permitting (CP-29) and State's CLCPA. The assessment of potential impacts on EJ populations is in **Section 3.3.5** (Environmental Justice).

3.3.1 Socioeconomic Study Area

According to the *CEQR Technical Manual*, the socioeconomic Study Area boundaries are similar to those of the land use Study Area (see **Section 3.2** (Land Use, Zoning and Public Policy)). To be conservative, the following residential and business preliminary assessments were expanded to a 0.25-mile Study Area around the Project Area. As per CEQR methodology, the Study Area is adjusted to align with census tracts to form the socioeconomic Study Area. The northern section of the Study Area is located in the Red Hook neighborhood. In the portion of the Study Area to the east of Gowanus Bay, the northern boundary is along Hamilton Avenue and 3rd Avenue. To the east of the Project Area, the eastern boundary is 5th Avenue from 24th Street to 44th Street. To the south of the Project Area, the southern boundary is along 2nd Avenue and the Belt Parkway. The Gowanus Bay forms the western boundary of the Study Area.

3.3.2 Methodology

The assessment of potential significant adverse socioeconomic effects follows the methodology in the *CEQR Technical Manual*. As described above, under CEQR, the socioeconomic character of an area includes its population, housing, and economic activity. Although socioeconomic changes may not result in significant adverse effects under CEQR, they are disclosed if they would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of the area. In some cases, these changes may be substantial but not adverse. In other cases, these changes may be good for some groups but bad for others. The objective of the CEQR analysis is to disclose whether any changes created by the Proposed Project would have a significant adverse effect compared with what would happen in the Future without Project condition.

An assessment of socioeconomic conditions distinguishes between effects on the residents and businesses in an area and separates these effects into direct and indirect displacement for both of those segments. Direct displacement occurs when residents or businesses are involuntarily displaced from the actual site of the Proposed Project or sites directly affected by it.

Indirect or secondary displacement occurs when residents, businesses, or employees are involuntarily displaced due to a change in socioeconomic conditions in the area caused by the proposed project. Examples include the displacement of lower-income residents who are forced to move due to rising rents caused by higher-income housing introduced by a proposed project. Unlike direct displacement, the specific occupants to be indirectly displaced are not known. Therefore, an assessment of indirect displacement usually identifies the size and type of groups of residents, businesses, or employees potentially affected.

Some projects may affect the operation and viability of a specific industry not necessarily tied to a specific location. An example would be new regulations that prohibit or restrict the use of certain processes that are critical to certain industries. In these cases, the CEQR review process may involve an assessment of the economic effects of the Proposed Project on that specific industry.

According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a project may be reasonably expected to create socioeconomic changes in the area affected by the project that would not be expected to occur in the absence of the project. The following screening assessment considers threshold circumstances identified in the *CEQR Technical Manual* and enumerated below that can lead to socioeconomic changes warranting further assessment.

1. Direct residential displacement: Would the Proposed Project directly displace residential population to the extent that the socioeconomic character of the neighborhood would be substantially altered? Displacement of less than 500 residents would not typically be expected to alter the socioeconomic character of a neighborhood. For projects exceeding this threshold, assessments of the direct residential displacement, indirect residential displacement, and indirect business displacement are appropriate.

2. Direct business displacement: Would the Proposed Project directly displace more than 100 employees, or would the Proposed Project directly displace a business that is unusually important because its products or services are uniquely dependent on its location, is the subject of other regulations or publicly adopted plans aimed at its preservation, or that serves a population uniquely dependent on its services in its present location? For projects exceeding the 100-employee threshold or if any of the other conditions are considered likely, assessments of direct business displacement and indirect business displacement are appropriate.

3. Indirect displacement due to increased rents: Would the Proposed Project result in substantial new development that is markedly different from existing uses, development, and activities within the neighborhood? Residential development of 200 units or less or commercial development of 200,000 sf or less would typically not result in significant socioeconomic impacts. For projects exceeding these thresholds, assessments of indirect residential displacement and indirect business displacement are appropriate.

4. Indirect business displacement due to retail market saturation: Would the Proposed Project add to, or create, a retail concentration that may draw a substantial amount of sales from existing businesses within the Study Area to the extent that certain categories of business close and vacancies in the area increase, thus resulting in a potential for disinvestment on local retail streets. Projects resulting in a total of 200,000 sf or more of retail on a single development site or 200,000 sf or more of a region-serving retail across multiple sites may have the potential to draw a substantial amount of sales from existing businesses within the Study Area, resulting in indirect business displacement due to market saturation. For projects exceeding these thresholds, an assessment of the indirect business displacement due to market saturation is appropriate.

5. Adverse impacts on specific industries: Is the Proposed Project expected to affect conditions within a specific industry? This could affect socioeconomic conditions if a substantial number of workers or residents depend on the goods or services provided by the affected businesses, or if the Proposed Project would result in the loss or substantial diminishment of a particularly important product or service within the City.

Direct and indirect residential and business displacement analyses begin with a preliminary assessment. The objective of the preliminary assessment is to learn enough about the potential effects of the Proposed Project to either rule out the possibility of significant adverse impacts or determine that a more detailed analysis is warranted to fully determine the extent of the effects. The following preliminary assessment provides a description of the affected environment and Future without Project Condition and then assesses the potential impacts that the Proposed Project would have on socioeconomic conditions in the Study Area.

3.3.3 Affected Environment

The Project Area is currently used by a marine operator and a NYCDOT facility at SBMT. The private marine operator, Phoenix, functions on the 35th Street and 39th Street “Piers” within the Project Area at SBMT. The marine operator at SBMT has a maximum of three employees on the solid fill “pier” structures. NYCDOT maintains a facility that occupies a small section of the northeastern portion of the Project Area and an area north of the Project Area and includes a pedestrian ramp replacement operation. The area north of the Project Area will be occupied by the EW 1 Project’s underground cables and onshore substation. The NYCDOT function will move to the Red Hook Container Terminal prior to Proposed Project construction regardless of the Proposed Project. The Sims Facility is directly north of the Project Area and is an industrial facility accessed from 29th Street and the rail lines that cross through the eastern side of the Project Area.

Immediately to the east and south of the Project Area is the redeveloped Industry City campus, which includes industrial, manufacturing, and commercial land uses. These land uses are all part of the redeveloped Industry City campus, which is a repurposed industrial area containing sixteen campus buildings, over 550 companies, and restaurants, retailers, and grocery stores catering to the approximately 7,500 employees throughout the campus’ companies and residents

of the surrounding area. Industry City also maintains private parking structures along 39th Street and 2nd Avenue immediately adjacent to the Project Area, but these parking structures are not located within the Project Area.

Commercial and office building land uses are located in the southeast portion of the Study Area. The largest commercial entity is a wholesale grocery and retail store in the southeast corner of the 2nd Avenue and 37th Street intersection. Interstate 278 and 3rd Avenue run parallel to each other to the east of the Project Area and mark the transition from the industrial, manufacturing, and commercial land uses surrounding the Project Area from Sunset Park's residential neighborhoods to the east.

General information about residential and business conditions within the Study Area is provided below.

3.3.3.1 General Residential Conditions within the Study Area

As shown in **Table 3.3-1**, in 2019[6] the estimated residential population within one-quarter mile of the Project Area was approximately 16,447 persons. This represents a slight decline of just over three percent between 2010 and 2019 but remains over 14 percent greater from 2000 decennial census estimates. The estimated number of housing units within one-quarter mile of the Proposed Project in 2019 was 5,522 units. This represents a slight decrease of roughly two percent from 2010 estimates but remains over 33 percent greater than 2000 estimates.

The total persons within the Study Area represents approximately 0.64 percent of the population of Brooklyn and 0.2 percent of the population of New York City. The number of housing units within the Study Area represents approximately 0.53 percent of the total number of housing units in Brooklyn and 0.16 percent of the total number in New York City.

Table 3.3-1 Residential Population and Occupied Housing Units within 0.25 miles of Project Area

Category	2000	2010	2019	Difference (2010-2019)	Percent Change (2010-2019)
Residential Population	14,348	16,996	16,447	-549	-3.23%
Occupied Housing Units	4,125	5,630	5,522	-108	-1.92%

Sources:
Residential Population: US Census Bureau, 2000, 2010 Census; ACS 2019 estimates.
Housing units: US Census Bureau, 2000, ACS 2010, 2019 estimates.
Study Area is selected Census Tract(s) within 0.25 miles of the Project Area: Year 2000: Census Tracts 2, 18, 55, 82, 84, 101; Year 2010 and 2019 Census Tracts 2, 18, 53, 82, 84, 101. All tracts are within Kings County (Brooklyn), New York

As shown in **Table 3.3-2**, in 2019, the estimated total number of households within one-quarter mile of the project site was approximately 4,087. This represents a slight decline of less than one percent between 2010 and 2019 but remains over 25 percent greater than 2000 decennial estimates. Median household income within one-quarter mile of the Proposed Project in 2019 was $56,080. This represents an increase of over roughly six percent from 2010 estimates, and 84 percent increase from 2000 estimates. Median Household income within the Study Area is roughly seven percent less than Brooklyn and 13 percent less than New York City.

Table 3.3-2 Household and Income Characteristics within 0.25 miles of Project Area

Category	2000	2010	2019	Difference (2010-2019)	Percent Change (2010-2019)
Total Number of Households	4,087	5,165	5,126	-39	-0.76%
Median Household Income	$30,421	$52,681	$56,080	$3,399	6.45%

Source: Households: US Census Bureau, 2000, ACS 2010, 2019 estimates.
Median Household Income: US Census Bureau, 2000, ACS 2010, 2019 estimates.
Study Area is selected Census Tract(s) within 0.25 miles of the Project Area: Year 2000: Census Tracts 2, 18, 55, 82, 84, 101; Year 2010, 2019 Census Tracts 2, 18, 53, 82, 84, 101. All tracts are within Kings County (Brooklyn), New York
Median Household Income is measured as the median of all selected Census Tracts within 0.25 of the Project Area.

[6] US Census Bureau, 2019 American Community Survey (ACS) estimates are used to measure the most recent socioeconomic conditions. Decennial 2020 census data is in the process of being released to the public and the data is not yet available.

3.3.3.2 General Business Conditions within the Study Area

As shown in **Table 3.3-3**, as of 2019, there were an estimated 7,463 persons employed within one-quarter mile of the Project Area. This represents a decline of roughly three percent between 2010 and 2019 but remains over 55 percent greater than 2000 estimates. The two sectors with the largest employment within the study area are: 1) *Educational, health and social services*; and 2) *Arts, entertainment, recreation, accommodation, and food services*. These two sectors make up roughly 38 percent of the total employment within the Study Area. They are also the two largest sectors of employment in both Brooklyn and New York City.

The fastest growing employment sector within the Study Area is *Professional, scientific, management, administrative, and waste management services,* which has grown roughly 48 percent since 2010. The *Educational, health and social services sector*, decreased by approximately two percent since 2010.

Table 3.3-3 Private Employment within in 0.25 miles of Project Area

Type of Job by NAICS Sector	2000	2010	2019	Difference (2010-2019)	Percent Change (2010-2019)
Civilian employed population 16 years and over	**4,797**	**7,723**	**7,463**	**-260**	**-3.37%**
Agriculture, forestry, fishing and hunting, and mining	14	27	16	-11	-40.74%
Construction	244	827	513	-314	-37.97%
Manufacturing	634	660	545	-115	-17.42%
Wholesale trade	252	316	201	-115	-36.39%
Retail trade	678	941	632	-309	-32.84%
Transportation and warehousing, and utilities	264	469	289	-180	-38.38%
Information	130	312	444	132	42.31%
Finance, insurance, real estate, and rental and leasing	377	371	432	61	16.44%
Professional, scientific, management, administrative, and waste management services	411	644	955	311	48.29%
Educational, health and social services	794	1,533	1,508	-25	-1.63%
Arts, entertainment, recreation, accommodation and food services	495	1,022	1,349	327	32.00%
Other services (except public administration)	311	317	377	60	18.93%
Public administration	193	284	202	-82	-28.87%

Source: US Census Bureau, 2000, ACS 2010, 2019 estimates.
Study Area is selected Census Tract(s) within 0.25 miles of the Project Area: Year 2000: Census Tracts 2, 18, 55, 82, 84, 101; Year 2010, 2019 Census Tracts 2, 18, 53, 82, 84, 101. All tracts are within Kings County (Brooklyn), New York

3.3.4 Environmental Impacts

3.3.4.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The Project Area would remain unchanged, resulting in continued underutilization of the site. The existing residences and businesses in the Study Area would remain unchanged. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.3.4.2 Future with Project

As discussed in **Section 1.1** (Introduction), the Proposed Project is an essential part of the City's *Offshore Wind NYC* plan, which outlines a 15-year strategy to invest $191 million in the City's OSW industry, create over 13,000 jobs, generate $1.3 billion in average annual investment, and direct 40 percent of job and investment benefits toward women, minorities, and EJ communities. The Proposed Project is an essential part of this broader plan for the OSW industry. In the near term, the Proposed Project will be used to support Empire's EW 1 Project, and it is expected to support different OSW developers and projects in the future. The OSW industry is growing in the City and State, so there would be no market saturation in Sunset Park, Brooklyn, or the City.

The Proposed Project would include demolition of existing structures and paving, excavation of fill in order to install support structures, and installation of new support structures, above-ground structures, utilities, paving, and the construction of an O&M base. The proposed improvements would allow the staging, pre-assembly and transfer of materials used in OSW projects; and will provide access to marine vessels and ground transport. These elements are described in detail in **Section 1.3.1** (Upland Section).

There would be approximately 85 employees at SBMT during operations as a result of the Proposed Project, including staging, pre-assembly and transfer of WTG components. Roughly 20 percent of these 85 employees would be in the *Construction Sector*. The remaining 80 percent would be in the *Professional Services Sector*, which as noted above is the fastest growing employment sector in the Study Area. In addition, the Proposed Project would construct a new O&M base that would consist of a 60,000-sf building containing approximately 22,000 sf of office and support space, approximately 3,000 sf of waiting area for employees deploying to off-shore work sites, and approximately 35,000 sf of warehouse facilities and associated utility space. The proposed O&M base would be used to operate the OSW facilities. To prepare the SBMT site, the Proposed Project would demolish approximately 400,000 sf of existing structures in the Project Area, including three sheds, the Graffiti Building, and the Tower Building and Scale House. These structures are used as warehouses and storage. The Proposed Project would not be a commercial operation, and SBMT would have industrial uses.

The existing marine operator, Phoenix, uses the existing 35th Street and 39th Street "Piers" for its operations. Phoenix has a maximum of three employees at SBMT. The Proposed Project would displace the marine operator because the Proposed Project would redevelop the 35th Street and 39th Street "Piers." Due to the size of the marine operator and the prevalence of similar areas to SBMT along the industrial waterfront in Sunset Park and Red Hook, the marine operator is not uniquely dependent on the Project Area, and it would be able to relocate to a nearby location. The NYCDOT function in SBMT would relocate to the Red Hook Container Terminal regardless of the Proposed Project, so it would not be considered a displacement.

The Proposed Project would be located within the Project Area and have no direct impact on Industry City, which borders the Project Area to the east and south. The specialized industrial uses of SBMT for the OSW industry would not compete with the manufacturing, commercial and retail uses amongst the 550 companies in the Industry City campus.

3.3.4.3 Conclusion

As discussed in **Section 3.3.2** (Methodology), a socioeconomic assessment should be conducted if a project may be reasonably expected to create socioeconomic changes in the area affected by the project that would not be expected to occur in the absence of the project. The subsequent preliminary assessment considered the following five thresholds identified in the *CEQR Technical Manual* that can lead to socioeconomic changes warranting further assessment. Based on the assessment of the Proposed Project in relationship to direct and indirect residential and business displacement and potential adverse impacts on specific industries, the Proposed Project was assessed according to the following thresholds. **The Proposed Project would have no significant adverse impacts on socioeconomic conditions.**

1. Direct residential displacement: The Proposed Project would be constructed on the SBMT site, which is an industrial waterfront area in a M3-1 manufacturing zoning district. There are no residents located in the Project Area, and the Study Area is characterized by industrial, manufacturing, and commercial land uses. The Proposed Project uses would be permitted as-of-right for the M3-1 zoning district. The residential neighborhoods within the Study Area are located approximately 0.20 miles to the east of the Project Area and to the east of 3rd Avenue and

Interstate 278. The Proposed Project would not directly displace any residents. **The Proposed Project would have no significant adverse impacts related to direct residential displacement.**

2. Direct business displacement: There is a marine operator and a NYCDOT function at SBMT. The NYCDOT function will move to the Red Hook Container Terminal in the Red Hook neighborhood in Brooklyn prior to Proposed Project construction regardless of the Proposed Project. The marine operator is not uniquely dependent on SBMT and would move to a nearby location in the future with the Proposed Project. The Proposed Project would displace far fewer than 100 employees, and the displaced marine operator is not uniquely dependent on SBMT and would be able to relocate nearby. **The Proposed Project would have no significant adverse impacts related to direct business displacement.**

3. Indirect displacement due to increased rents: The Proposed Project is located in a neighborhood characterized by industrial, manufacturing, and commercial land uses. The Project Area is located in a M3-1 zoning district and the Proposed Project's use would be permitted as-of-right for M3-1 zoning districts. In addition, the Proposed Project would not generate a residential development or commercial development. Because the Proposed Project would be permitted as-of-right in M3-1 zoning districts. **The Proposed Project would have no significant adverse impacts related to indirect displacement due to increased rents.**

4. Indirect business displacement due to retail market saturation: The purpose of the Proposed Project is to upgrade SBMT to enable it to serve as a staging facility and O&M base for the OSW industry. As described above, the City and State have outlined a 15-year strategy to grow the OSW industry, and the Proposed Project would be an essential part of that strategy. The Proposed Project is not a retail project and would not add to or create a retail concentration in the Study Area. In addition, the Proposed Project would not generate retail on a single development site or region-serving retail across multiple sites. **The Proposed Project would have no significant adverse impacts related to indirect business displacement due to retail market or any other market saturation.**

5. Adverse impacts on specific industries: The Proposed Project would redevelop an underutilized industrial waterfront space. The Proposed Project would displace a marine operator, which has three employees at SBMT. This marine operator is not uniquely dependent on the Project Area, and it would be able to relocate nearby. Therefore, a substantial number of workers or residents do not depend on the services provided by the displaced marine operator, and its displacement to a nearby location would not result in the loss or substantial diminishment of a particularly important product or service within the City. **The Proposed Project would have no significant adverse impacts on specific industries.**

3.3.5 Environmental Justice and Disadvantaged Communities

As discussed above, this section assesses the potential for the Proposed Project to result in environmental and health effects on EJ populations and disadvantaged communities within the Study Area. The analysis has been prepared to meet federal requirements described in EO 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 1994) and EO 13045 – *Protection of Children from Environmental Health Risks and Safety Risks* as well as requirements in the NYSDEC, CP-29 Environmental Justice and Permitting (CP-29) and State's CLCPA.

3.3.5.1 Regulatory Context

The need for performing an EJ analysis is related to the establishment of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 16, 1994)[7] and EO 13045 – *Protection of Children from Environmental Health Risks and Safety Risks*.

The purpose of EO 12898 legislation is "to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with a goal of achieving environmental protection for all communities."[8] EO 12898 also requires agencies to provide opportunities for minority and low-income populations to participate in the decision-making process. EO 13045 legislation protects the environmental health risks or safety risks

[7] The CEQ's *Environmental Justice Guidance under the NEPA* (1977) is the guiding documentation for the assessment of EJ impacts under NEPA.
[8] https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice

that are attributable to products or substances that a child may ingest, such as food, drinking water, recreational waters, soil, or products to which they may be exposed.

The Council on Environmental Quality (CEQ), established by NEPA is the federal agency responsible for oversight of the federal government's compliance with EO 12898. CEQ requires agencies to identify and address, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations."[9] CEQ guidance for evaluating the effects of the Proposed Project on EJ populations includes identifying minority and low-income populations in the Study Area and determining if there is a disproportionately high adverse effect on minority and low-income populations.

NYSDEC has developed their own policies for incorporating EJ concerns into the environmental review. NYSDEC's EJ policy is provided in CP-29. CP-29 was issued on March 19, 2003, to address EJ concerns and ensure community participation in the NYSDEC environmental permit review process and the NYSDEC's application of SEQR. CP-29 is intended to encourage meaningful public participation by minority or low-income communities in the environmental review process and to assist NYSDEC in addressing any disproportionate adverse impacts on minority and low-income communities.

As discussed in Section 1.1 (Introduction), the State's CLCPA was signed into law in 2019 and increased the State's renewable energy goals, requiring that the State obtain 70 percent of its electricity from renewable sources by 2030 and 100 percent by 2040, and that the State have 9,000 MW of OSW capacity by 2035. The State's CLCPA seeks to ensure that disadvantaged communities are not disproportionately burdened. The CLCPA defines disadvantaged communities as "communities that bear burdens of negative public health effects, environmental pollution, impacts of climate change, and possess certain socioeconomic criteria, or comprise high-concentrations of low- and moderate-income households." Exposure to harmful environmental pollutants can cause adverse health effects which increase community vulnerability during extreme events. Access to important infrastructure such as air conditioning and electricity during extreme heat events is often limited for disadvantaged communities (Dupingy-Giroux et al., 2018). As climate change impacts occur more frequently and with higher intensity, disadvantaged communities are expected to face greater impacts than other communities. Some of these impacts include, but are not limited to, increased damages in flooding due to low-lying housing, older infrastructure, and non-permeable surfaces; less reliable access to electricity during extreme temperatures and storms; less reliable access to public infrastructure/transit; and more extreme temperatures due to the effects of urban heat islands and less green space.

3.3.5.2 Environmental Justice Study Area

The EJ Study Area boundaries are similar to those of the socioeconomic Study Area (see **Section 3.3.1** (Socioeconomic Study Area), but the EJ Study Area is formed along block groups as opposed to census tracts. The EJ Study Area is adjusted to align with the block groups that intersect the 0.25-mile Study Area around the Project Area. The EJ Study Area is adjusted with the block groups wholly or partially within 0.25 miles of the Project Area. Eight Block Groups were identified and are listed below. All are Block Groups within Kings County.

- Census Tract 2, Block Group 1
- Census Tract 18, Block Group 1
- Census Tract 53, Block Group 2
- Census Tract 82, Block Group 3
- Census Tract 84, Block Group 2
- Census Tract 84, Block Group 3
- Census Tract 101, Block Group 2
- Census Tract 101, Block Group 3

As part of the CLCPA, disadvantaged communities are identified according to census tract. As such, the census tracts that intersect the EJ Study Area are as follows:

[9] https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

- Census Tract 2
- Census Tract 18
- Census Tract 53
- Census Tract 82
- Census Tract 84
- Census Tract 101

The northern section of the EJ Study Area is located in the Red Hook neighborhood. In the portion of the EJ Study Area to the east of Gowanus Bay, the northern boundary is along Hamilton Avenue and 3rd Avenue. To the east of the Project Area, the eastern boundary is approximately 4th and 5th Avenues from 24th Street to 43rd Street. To the south of the Project Area, the southern boundary is along 2nd and 3rd Avenues and 58th Street. The Gowanus Bay forms the western boundary of the EJ Study Area.

3.3.5.3 Methodology

The EJ analysis includes the following steps based on CEQR, CP-29, and CLCPA guidance:

- Identify potential adverse environmental impacts and area to be affected;
- Compile race, ethnicity, poverty status, and disadvantaged communities data for the EJ Study Area and identify minority, low-income communities, and disadvantaged communities;
- Determine whether potential adverse environmental impacts are likely to affect a potential EJ area or disadvantaged communities; and
- Determine if the Proposed Projects' potential significant adverse effects on minority and low-income communities and disadvantaged communities relative to the overall effects are disproportionate and therefore disproportionately high and adverse.

3.3.5.4 Environmental Justice Populations in the Study Area

3.3.5.4.1 Environmental Justice Populations

Data from the U.S. Census Bureau were used to identify minority and low-income residents within the Study Area. Data was reviewed to determine the percentage of minority and low-income populations within the Study Area. US Census Bureau, 2019 ACS five-year estimates were used in this assessment. Decennial 2020 census data is in the process of being released to the public and the data is not yet available consistently for all census topics and geographic boundaries. These ACS five-year estimates were also used above in **Section 3.3.3** (Affected Environment).

CP-29 defines EJ as the fair and meaningful treatment of all people, regardless of race, income, national origin or color, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Ensuring EJ calls for assessing whether the direct and indirect effects of the Proposed Project would be disproportionately high and adverse to EJ populations. A disproportionately high and adverse effect on minority and low-income populations is defined by CP-29 as "an adverse effect that:

- Is predominately borne by a minority population and/or a low-income population, or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population."

CP-29 guidance defines minority populations to include Hispanic, African-American or Black, Asian and Pacific Islander or American Indian races. This analysis also includes minority races that identify as other race or two or more races. Minority communities are defined as a census block group, or contiguous area with multiple census block groups, having a minority population equal to or greater than 51.10 percent of the total population. This analysis considers any census block with a minority population that exceeds 51.10 percent to be a minority community.

A low-income population is a population having an annual income that is less than the poverty threshold. A low-income community is defined as a census block group, or contiguous area with multiple census block groups, having a low-

income population equal to or greater than 23.59 percent of the total population of such block group or groups[10]. For this study, the *ACS 2014 -2019 5-Year Estimates* reports a 20.00 percent poverty rate for Kings County. Therefore, this analysis considers any census block group with a low-income percentage that is greater than in Kings County (exceeds 20.00 percent) a low-income community.

The EJ Study Area meets NYSDEC's definition of a minority community. The EJ Study Area has a total population of 10,623 persons, of which approximately 55.50 percent is minority, as shown in **Table 3.3-4**. Persons whose race is identified as "Other[11]" represent the largest minority group, comprising approximately 36.30 percent of the Study Area. The percent minority population of the EJ Study Area is less than that of Kings County (56.30 percent) and New York City (57.30 percent).

The EJ Study Area does not meet NYSDEC's definition of a low-income community. As shown in **Table 3.3-4**, approximately 19 percent of the residents in the EJ Study Area live below the poverty level; compared to approximately 20 percent in Kings County; and roughly 18 percent in New York City. All three geographies are below the CP-29 threshold of 23.59 percent. The low-income population is spread relatively evenly across the eight block groups that comprise the EJ Study Area.

[10] The federal poverty level and urban/rural designations for census block groups are established by the U.S. Census Bureau. The thresholds are determined by a statistical analysis of the 2014-2019 ACS data, which is the most recent data available as of the time of the analysis in 2020.
[11] Other could mean American Indian and Alaska Native alone, not Hispanic or Latino); Native Hawaiian and Other Pacific Islander alone, not Hispanic or Latino; Some other race alone, not Hispanic or Latino

Table 3.3-4 Study Area 2019 Population and Economic Characteristics within one-quarter mile of Project Area

Area	Total Population	Population White	% Population White	Population Black	% Population Black	Population Asian	% Population Asian	Population Other	% Population Other	Population Hispanic	% Population Hispanic	Percent Minority	Individuals Below Poverty Level	% Below Poverty Level
Census Tract 2, Block Group 1	1,167	650	55.7%	37	3.2%	58	5.0%	422	36.2%	908	77.8%	44.3%	355	**30.41%**
Census Tract 18, Block Group 1	**1,897**	**709**	**37.4%**	**840**	**44.3%**	**57**	**3.0%**	**291**	**15.3%**	**712**	**37.5%**	**62.6%**	**0**	**0%**
Census Tract 53, Block Group 2	968	571	59.0%	214	22.1%	32	3.3%	151	15.6%	224	23.1%	41.0%	240	**24.79%**
Census Tract 82, Block Group 3	**1,232**	**333**	**27.0%**	**71**	**5.8%**	**51**	**4.1%**	**777**	**63.1%**	**992**	**80.5%**	**73.0%**	**368**	**29.87%**
Census Tract 84, Block Group 2	1,863	1,009	54.2%	53	2.8%	181	9.7%	620	33.3%	1364	73.2%	45.8%	324	17.39%
Census Tract 84, Block Group 3	**822**	**309**	**37.6%**	**67**	**8.2%**	**20**	**2.4%**	**426**	**51.8%**	**690**	**83.9%**	**62.4%**	**143**	17.39%
Census Tract 101, Block Group 2	1,430	730	51.0%	51	3.6%	120	8.4%	529	37.0%	757	52.9%	49.0%	143	10.00%
Census Tract 101, Block Group 3	**1,244**	**412**	**33.1%**	**47**	**3.8%**	**147**	**11.8%**	**638**	**51.3%**	**775**	**62.3%**	**66.9%**	**448**	**36.01%**
Study Area Total	**10,623**	**4,723**	**44.5%**	**1,380**	**13.0%**	**666**	**6.3%**	**3,854**	**36.3%**	**6,422**	**60.5%**	**55.5%**	**2,021**	**19.02%**
Kings County	**2,589,974**	**1,132,426**	**43.7%**	**833,683**	**32.2%**	**307,081**	**11.9%**	**316,784**	**12.2%**	**493,232**	**19.0%**	**56.3%**	**511,631**	**20.00%**
New York City	**8,419,316**	**3,597,217**	**42.7%**	**2,046,877**	**24.3%**	**1,186,608**	**14.1%**	**1,588,614**	**18.9%**	**2,447,862**	**29.1%**	**57.3%**	**1,485,784**	**17.90%**

Sources: US Census Bureau, ACS 2014-2019 5-year estimates. Poverty level is defined by The U.S. Census Bureau.

Minority population means a population that is identified or recognized by the U.S. Census Bureau The racial and ethnic categories provided are further defined as: White (White alone, not Hispanic or Latino); Black (Black or African American alone, not Hispanic or Latino); Asian (Asian alone, not Hispanic or Latino); Other (American Indian and Alaska Native alone, not Hispanic or Latino); Native Hawaiian and Other Pacific Islander alone, not Hispanic or Latino; Some other race alone, not Hispanic or Latino; Two or more races, not Hispanic or Latino). Persons of Hispanic origin may be of any race).

3.3.5.4.2 Disadvantaged Communities

Pursuant to the CLCPA, disadvantaged communities are identified at the census tract level and based on geographic, public health, environmental hazard, and socioeconomic criteria, including:

- Areas burdened by cumulative environmental pollution and other hazards that can lead to negative public health effects;
- Areas with concentrations of people that are of low income, high unemployment, high rent burden, low levels of home ownership, low levels of educational attainment, or members of groups that have historically experienced discrimination based on race or ethnicity; and
- Areas vulnerable to the impacts of climate change.

Disadvantaged communities scores are grouped into two broad categories: environmental burdens/climate change risk and population characteristics/health vulnerabilities. Scores consider each census tract's relative burden, risk, vulnerability, or sensitivity in percentile ranks. The percentile ranks for each Census Tract produce a value that measures a census tract's score regarding the level of environmental burdens/climate change risks as well as population characteristics/health vulnerabilities relative to other census tracts in the City and/or State. Census tracts with higher scores relative to other tracts in the State or their region (i.e., the City) are identified as disadvantaged communities.

As depicted in **Table 3.3-5**, all the census tracts in the EJ Study Area are disadvantaged communities based on environmental burdens/climate change risk. This is primarily driven by existing land use in the area (industrial and power generation), potential for projected extreme heat risk, and existing pollution burden associated with high traffic and air quality concerns. Census tracts 2, 82, 84, and 101 are disadvantaged communities based on population characteristics/health vulnerabilities. This is primarily driven by high percentages of residents with hospital visits due to asthma, COPD, and heart attacks, without health insurance, limited English proficiency, low income, and minority status.

Table 3.3-5 Disadvantaged Communities in the EJ Study Area

Census Tract	Environmental Burdens/Climate Change Risk (%)	Population Characteristics/Health Vulnerabilities (%)
Census Tract 2	97%	89%
Census Tract 18	97%	0%*
Census Tract 53	99%	61%
Census Tract 82	90%	84%
Census Tract 84	87%	89%
Census Tract 101	97%	77%

Source: https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria

*Population characteristics and health vulnerability statistics are not available for this census tract.

3.3.5.5 Analysis of Potential for Disproportionately High and Adverse Effects

The EJ Study Area included eight census block groups with a total population of 10,623. The EJ Study Area is largely industrial, commercial, and manufacturing land uses, but includes residential areas mostly between 3rd and 4th Avenues. Of the eight census block groups in the EJ Study Area, four are considered to be minority areas. Each of these four census blocks have minority populations above 51.10 percent. The minority percentages for these four census blocks range from 73 percent to 62.90 percent. Overall, the minority percentage for the EJ Study Area is 55.50 percent. Comparatively, the minority percentage rate for Kings County is 56.30 percent and 57.30 percent for New York City, as shown in **Table 3.3-4**.

Of the eight census block groups in the EJ Study Area, four are considered low-income areas. Most of the low-income areas are also minority block groups. The low-income percentages range from 36.01 percent to 24.10 percent. Overall, 19.02 percent of the population live below the poverty line in EJ Study Area. Comparatively, 20 percent of the population of Kings County lives below the poverty line and 17.90 percent live below the poverty line in Manhattan.

The Proposed Project would not result in significant adverse impacts in any of the impact analysis areas discussed in this Environmental Analysis. **Therefore, the Proposed Project would not result in any disproportionately high and adverse effects on minority and low-income populations. The Proposed Project would be in compliance with all applicable state regulations related to environmental justice.**

As discussed below in Section 3.15.2.2.2 (Air Quality – On-site sources), air emissions from the Proposed Project's O&M activities would be very small and are not expected to have a significant adverse impact on regional air quality during the use of the O&M base. However,air emissions would occur within identified EJ populations, and the air quality assessment must determine if high and adverse significant adverse impacts would occur to these EJ populations. An air quality assessment was conducted for the Proposed Project's construction period during which the most intensive air emissions from all sources would occur. The assessment, conducted via dispersion modeling, not only estimated the contributions of the Proposed Project to ambient pollutant concentrations in the neighborhood, but it also included the monitored ambient concentrations recorded at the closest monitoring station (see **Table 3.20-6**). These monitored ambient conditions reflect background stationary and mobile sources such as off-site traffic along local roadways and highways. Therefore, the contributions from off-site sources were accounted for in the modeling in an aggregated way. The results from the analysis of the most intensive use of emission sources during the construction period plus the ambient monitoring results from other sources show no violation of the NAAQS. It is anticipated that during other operational periods, when emissions are lower, there would be less impacts as compared to the phases modeled (which showed no violation of the NAAQS). Therefore, potential air quality impacts during the Proposed Project's construction and operational periods would be minor and further aggregated analysis is not necessary.

As discussed in Section 3.15.2.2.2 (Air Quality – On-site Sources), the limited emissions from the the O&M base would be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenue approximately 600 feet away from the SBMT property boundary. The *CEQR Technical Manual* establishes various source- (stationary or mobile source) specific screening thresholds in terms of source-receptor distances within which an impact analysis via a quantitative analysis is warranted. Since the proposed on-site operation of these sources such as cranes, vessels, trucks, etc. would not operate within the applicable distance of 400 feet between the stationary/mobile sources and sensitive receptors, further quantitative analysis is not required and potential localized air quality impacts from the operation of these sources are considered insignificant. According to the pollutant concentration levels predicted for construction period equipment operations as discussed in **Section 3.20.4.2** (Construction – Air Quality) and shown in **Table 3.20-6**, the pollutant conentration levels from operation of these sources would be well below the NAAQS or applicable CEQR *de minimis* levels given the greater amount of equipment and closer distances to sensitive receptors during the construction phase as compared to the operational phase. **Therefore, the Proposed Project would not result in any disproportionately high and adverse effects on minority and low-income populations associated with air quality. The Proposed Project would be in compliance with all applicable state regulations related to environmental justice.** Therefore, there are no EJ concerns expected with the Proposed Project.

Of the six census tracts in the EJ Study Area, all are considered to be disadvantaged communities based on their environmental burdens/climate change risk. Census tracts 2, 82, 84, and 101 are disadvantaged communities based on population characteristics/health vulnerabilities. As discussed in Appendix P: Supplemental Air Quality and Climate Change Analysis (Section 4.4 [Minimization of Potential Impacts] and Section 5.3.2.1.2 [Disadvantaged Communities]), in the operational phase, the Proposed Project would minimize air pollutant emissions, including GHG emissions, by using electric power for building heating via the HVAC system and by using alternative lower-GWP refrigerants instead of using the existing natural gas lines to the existing SBMT facility. In addition, the O&M base would incorporate solar panels and stringent electric efficiency standards for lighting, heating, and cooling in accordance with Local Law 97, which regulates GHG emissions from buildings larger than 25,000 sf, and LEED green building standards. Additional reductions would be achieved by supplying vessels with wayside power cables in lieu of hoteling using onboard fossil fuel-fired engines. **Therefore, the Proposed Project would not result in any disproportionately high and adverse effects on disadvantaged communities. The Proposed Project would be in compliance with all applicable state regulations related to disadvantaged communities.**

3.3.5.6 Public Outreach to Environmental Justice Populations and Disadvantaged Communities

In accordance with EO 12898, Federal agencies must work to ensure effective public participation and access to information. Similarly, CEQ guidance states that: "Agencies should assure meaningful community representation in the public participation process. Agencies should be aware of the diverse constituencies within any particular community when they seek community representation and should endeavour to have complete representation of the community

as a whole." Additionally, CP-29 requires public participation throughout the environmental permit review process. A public participation plan will be developed and submitted for review to NYSDEC, in conjunction with the permit application. The following public outreach activities for the Proposed Project have been conducted to date:

- Project brochure distribution at local libraries and selected organizations to alert the community about the Proposed Project and EW 1 Project. Spanish and Chinese brochures are available for distribution at workshops;
- Recurring bi-weekly meetings with local partner UPROSE, maintaining Climate Justice and responsible development at the forefront. The NYC Environmental Justice Alliance is a partner and collaborator;
- Ongoing discussions with City officials to create local jobs, opportunities, and accessibility for unconventional employees;
- Quarterly meetings with the Sunset Park Taskforce committee, extending outreach to local businesses, residents, and organizations to present and seek feedback on various aspects of the Proposed Project;
- Work with Southwest Brooklyn Industrial Development Corporation and the Brooklyn Chamber of Commerce to collaborate with and explore opportunities for local businesses/manufacturers as part of the OSW supply chain;
- Recurring engagements with maritime users and environmental groups; and
- Work to establish various local community benefits, including:
  - Community Learning Center – to be housed within Empire's Brooklyn project office as a way to enhance local reach and facilitate access for non-English speakers and ESL populations;
  - Capacity Building Program specifically tailored to support Minority and Women Owned Business Enterprises in the OSW industry; and
  - Ecosystem Fund – fund strategy being developed with the community, including Sunset Park and surrounding neighborhoods.

3.3.6 Indirect Effects and Cumulative Impacts

Beneficial indirect effects to socioeconomic conditions as a result of the Proposed Project are anticipated, due to its anticipated support of the EW 1 Project and the broader *Offshore Wind NYC* Pan. The EW 1 Project would provide growth-inducing economic benefits to Sunset Park, the City, and the State through direct, indirect, and induced job creation, infrastructure investment, supply chain development, benefits to ratepayers, and cost savings through emissions reductions. The Proposed Project is part of the City's broader goal stated in the *Offshore Wind NYC* plan of ensuring 40 percent of job and investment benefits are directed toward women, minorities, and environmental justice communities. Therefore, there would be beneficial indirect effects to environmental justice communities resulting from the Proposed Project.

The Proposed Project and the EW 1 Project would provide economic benefits to Sunset Park, the City, and the State through growth-inducing direct, indirect, and induced job creation, infrastructure investment, supply chain development, benefits to utility ratepayers, and cost savings through emissions reductions. In 2019, NYSERDA released its report on its Phase 1 award projects (NYSERDA, 2019). Together, the two Phase 1 award projects, including the EW 1 Project, are anticipated to provide a combined economic benefit to the State of $3.2 billion in private investment in labor, supplies, development, and manufacturing throughout the State. They are expected to provide more than $85 million in investments in long-term port facilities, related infrastructure, and new technologies, and contribute $20 million in combined public and private investments for a new Offshore Wind Training Institute. The Phase 1 award projects would also create $5 million in combined public and private investments for a Community and Workforce Benefits Fund that would connect communities in the State with job opportunities in the OSW industry, particularly the State's disadvantaged and environmental justice communities (NYSERDA, 2022). NYSERDA estimates that approximately 300 long-term O&M jobs in the State would result from the two Phase 1 projects, including the EW 1 Project.

These investments would increase commerce and job opportunities, including for disadvantaged communities and EJ populations, in the Study Area, City, and State. The approximately 85 employees at SBMT would increase demand for

local commerce within the Study Area for food, retail, and gas stations. The additional long-term investment for a Community and Workforce Benefits Fund would increase job opportunities and induce economic growth for disadvantaged communities and EJ populations in the City and State.

The cumulative impact of the Proposed Project, in addition to the Future without Project condition, would result in a long-term major beneficial impact by including approximately 85 employees at SBMT for O&M activities. Although, the Proposed Project would displace a small marine operator business, Phoenix, which has three employees at SBMT, it is not uniquely dependent on SBMT, and would relocate to a nearby location. The NYCDOT function would relocate to the Red Hook Container Terminal regardless of the Proposed Project. In addition, the development of the EW 1 Project would confer additional economic benefits on the State by reducing production costs and emissions, which would provide additional value to New York ratepayers. Production cost and emissions reduction benefits are expected to result from reducing reliance on thermal energy generation.

3.3.7 References

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3.4 Community Facilities and Services

The *CEQR Technical Manual* defines community facilities as public or publicly funded facilities, such as schools, hospitals, libraries, day care facilities, and fire and police protection. This analysis examines potential impacts on existing facilities and services that the City provides to the community.

3.4.1 Introduction

An analysis of community facilities to examine the impact a proposed project would have on the provision of services provided by public or publicly funded community facilities is recommended if an increase in local population is anticipated that might impact community facility service delivery or if the Proposed Project physically alters or displaces a community facility. The thresholds for a detailed analysis on community facilities are listed in **Table 3.4-1.**

Table 3.4-1 Community Facility Thresholds for Detailed Analysis

Public schools	Libraries	Early childhood centers (publicly funded)	Fire and Police Services and Health Care Facilities
More than 50 elementary/intermediate school or 150 high school students	Greater than 5 percent increase in the ratio of dwelling units to libraries in the borough	20 or more eligible children under age 5 based on # of low or low/moderate in- come residential units OR Direct Effect	Introduction of a sizeable new neighborhood where none existed before

Note: Hunter's Point South is cited in the CEQR Technical Manual as an example Project that would introduce a sizeable new neighborhood where none existed before. The Hunter's Point South project would introduce approximately 5,000 new dwelling units to the Hunter's Point South waterfront in Long Island City

3.4.2 Screening Assessment

3.4.2.1 Police and Fire Services

The preliminary analysis threshold for a police and fire services assessment is met if the proposed project would lead to a direct impact on police and fire services within the study area. Impacts are generally considered when a project that affects the physical operation of, or access to and from, a police or fire facility.

The New York City Police Department (NYPD) routinely reviews staffing levels at each precinct to meet operational requirements and maintain adequate coverage. The Project Area is located within the 72nd Police Precinct. The 72nd Precinct Police Service Station is located at 830 4th Avenue, approximately one-half mile east of the Project Area. In addition, the NYPD Harbor Unit (also referred to as "Harbor Charlie") is located approximately 1.25 miles southwest of the Project Area and services the waterfront area, including the Project Area.

The FDNY similarly evaluates the need for changes in personnel, equipment or locations of fire stations and makes those changes independent of particular proposed projects. The Project Area is served by Engine 228 located at 436 39th Street, approximately one-half mile east of the site; and Engine 201/Ladder 114/Battalion 40 located at 5113 4th Avenue, approximately one mile southeast of the Project Area. Additionally, Emergency Medical Services (EMS) Station 40 operated by FDNY is located at 5011 7th Avenue, approximately 1.5 miles southeast of the Project Area. The FDNY also utilizes marine operations units that operate along the New York City waterfront. Although the FDNY Marine units do not have stations in the Study Area, the FDNY Marine units service the waterfront area in the Project Area. See **Table 3.4-2** and **Figure 3.4-1** for the locations of police and fire services. The Upper New York Bay is within the service area of the USCG Atlantic Area operations. Although the USCG does not have a station in the Study Area, the USCG has a station along the eastern Staten Island waterfront. The USCG has the role of ensuring maritime safety, maritime security, maritime mobility, protection of natural resources, and national defense in the Upper New York Bay.

Table 3.4-2 Police and Fire Facilities within the Study Area

Map ID	Facility Name	Type	Address	Distance to Project Area
1	NYPD 72nd Precinct Service Station #6	Police Station	830 4th Avenue, Brooklyn, NY 11232	One-half mile east
2	Engine 228	Firehouse	436 39th Street, Brooklyn, NY 11232	One-half mile east
3	Engine 201/Ladder 114/Battalion 40	Firehouse	5113 4th Avenue, Brooklyn, NY 11220	1 mile southeast
4	EMS Station 40	Ambulance Station	5011 7th Avenue, Brooklyn, NY 11220	1.5 miles southeast
41	NYPD Harbor Unit	Police Station	Brooklyn Army Terminal, Brooklyn, NY 11220	1.25 miles southwest

Source: New York City Department of Planning

The Proposed Project would involve the continued operation of SBMT and would not have a direct impact on local police and fire services in the area. The Proposed Project would not hinder police, fire and emergency medical services. In addition, the Project Area is subject to the requirements of the City's Fire and Building Codes. The Proposed Project would not result in the introduction of a sizable new neighborhood where none existed before. **Therefore, the Proposed Project would not have significant adverse impacts on police and fire facilities**.

3.4.2.2 Health Care Facilities

According to the *CEQR Technical Manual*, potential impacts on health care facilities may result from a direct effect on health care facilities or as a result of large increases in the user/resident population. The Proposed Project would not result in large increases in the user population and would not generate residential units within the Study Area. **Therefore, the Proposed Project would have no significant adverse impacts on health care facilities**.

3.4.2.3 Libraries

According to the *CEQR Technical Manual*, potential impacts on libraries may result from the displacement or alteration of an existing library or a large increase in the user/resident population. According to the *CEQR Technical Manual*, the threshold for further library impact analysis is a greater than five percent increase in the ratio of residential units to libraries borough-wide, or 834 residential units in Brooklyn. Since the Proposed Project would not generate residential units, no further analysis is warranted. **Therefore, the Proposed Project would have no significant adverse impacts on libraries**.

3.4.2.4 Educational Facilities

3.4.2.4.1 Early Childhood Programs

Publicly financed Early Childhood Programs are available for eligible children 5 years old and younger (until the child is eligible to attend Kindergarten for a fall start date). Families eligible for Early Childhood Program subsidized seats must meet financial and social eligibility criteria as established by Department of Education (DOE). In general, children in families that have incomes at or below 200 percent Federal Poverty Level (FPL), depending on family size, are financially eligible, although in some cases eligibility can go up to 275 percent FPL.

Early childhood program facilities are identified in **Table 3.4-3** and displayed on **Figure 3.4-1**. The Proposed Project would not add residential units within the Study Area. As such, a further assessment of the potential impacts to early childhood programs was not performed. **Therefore, the Proposed Project would have no significant adverse impacts on Early Childhood Programs.**

Table 3.4-3 Early Childhood Program Facilities within the Study Area

Map ID	Program Name	Address	Type
5	Bubble Bee Day Care	76 Lorraine Street, Brooklyn, NY 11231	Early Head Start
6	Bais Yaakov Adas Yereim	1169 43rd Street, Brooklyn, NY 11219	Head Start
7	Bais Yaakov Faigeh Schonberger of Adas Yereim Kindervelt EHS	1169 43rd Street, Brooklyn, NY 11219	Early Head Start
8	BCA Day Care Center	713 43rd Street, Brooklyn, NY 11232	Head Start
9	Yeled v'Yalda 1017 45th Street	1017 45th Street, Brooklyn, NY 11219	Head Start
10	Project Nursery	1019 46th Street, Brooklyn, NY 11219	Head Start
11	YvY_867-869 45th Street	867-869 45th Street, Brooklyn, NY 11220	Head Start and Early Head Start
12	4706 10th Avenue	4706 10th Avenue, Brooklyn, NY 11219	Early Head Start
13	Yeshiva HeadStart 10th Avenue	4706 10th Avenue, Brooklyn, NY 11219	Head Start
14	Brooklyn Chinese-American Association	871 50th Street, Brooklyn, NY 11220	Head Start
15	Grand Street Settlement, Inc.	775 50th Street, Brooklyn, NY 11220	Head Start
16	Grand Street Settlement, Inc.	850 50th Street, Brooklyn, NY 11220	Head Start and Early Head Start
17	Grand Street Settlement, Inc.	629 51st Street, Brooklyn, NY 11220	Head Start and Early Head Start
18	United Talmudical Academy of Boro Park	5411 Fort Hamilton Parkway, Brooklyn, NY 11219	Head Start
19	Brooklyn Chinese-American Association	812 54th Street, Brooklyn, NY 11220	Head Start
20	Grand Street Settlement, Inc.	928 55th Street, Brooklyn, NY 11219	Head Start and Early Head Start
21	Grand Street Settlement	928 55th Street, Brooklyn, NY 11219	Early Head Start
22	Brooklyn Chinese-American Association	757 60th Street, Brooklyn, NY 11220	Head Start
23	Sunset Park Early Childhood Development Center	5902 6th Avenue, Brooklyn, NY 11220	Head Start

Source: Early Childhood Learning and Knowledge Center locator https://eclkc.ohs.acf.hhs.gov/

3.4.2.4.2 Universal 3-K and Pre-Kindergarten

The *CEQR Technical Manual* suggests a detailed analysis of publicly-funded group childcare centers when the proposed project would generate 20 or more children (under the age of five) based on the number of low or low/moderate income residential units eligible for public day care. The *CEQR Technical Manual* further states that the minimum number of residential units that trigger the need for possible detailed childcare analyses in Brooklyn is 110

units. Universal 3-K and Pre-Kindergarten (Pre-K) facilities within the Study Area are listed in **Table 3.4-4** and displaced on **Figure 3.4-1**. The Proposed Project would not add residential units within the Study Area. As such, a further assessment of the potential impacts to Universal 3-K and Pre-K facilities was not performed. **The Proposed Project would have no significant adverse impacts on Universal 3-K and Pre-K facilities.**

Table 3.4-4 Universal 3-K and Pre-K Facilities within the Study Area

Map ID	School	Address	Current Enrollment
24	P.S. 15 Patrick F. Daly	71 Sullivan Street, Brooklyn, NY 11231	71
25	P.S. 172 Beacon School Of Excellence*	825 4th Avenue, Brooklyn, NY 11232	34
26	P.S. 124 Silas B. Dutcher	515 4th Avenue, Brooklyn, NY 11215	50
27	P.S. 131 Brooklyn	4305 Ft Hamilton Parkway, Brooklyn, NY 11219	36
28	The Brooklyn New School, P.S. 146	610 Henry Street, Brooklyn, NY 11231	48
29	P.S. 24*	427 38th Street, Brooklyn, NY 11232	54
30	Red Hook Neighborhood School	27 Huntington Street, Brooklyn, NY 11231	18
31	P.S. 1 The Bergen*	309 47th Street, Brooklyn, NY 11220	113
32	P.S. 107 John W. Kimball	1301 8th Avenue, Brooklyn, NY 11215	18
33	P.S. 295	330 18th Street, Brooklyn, NY 11215	51
34	Sunset Park Avenues Elementary School*	4222 4th Avenue, Brooklyn, NY 11232	32
35	The School Of Creativity And Innovation	736 48th Street, Brooklyn, NY 11220	15

Source: Enrollment, Capacity and Utilization Report for the 2019-2020 School Year, issued by the NYC DOE; cross referenced with the NYCDCP Capital Planning Explorer. Schools classified as DOE – Universal Pre-K, Public.
Facilities with an asterisk (*) are also elementary schools serving grades one through five.

3.4.2.4.3 Public Schools

The *CEQR Technical Manual* states that the primary study area for this analysis of elementary and intermediate schools is generally the community school district's "sub-district" (CSD), in which the project is located. For the selected schools, the *CEQR Technical Manual* states that the analysis should identify the following information for each school:

- School identification by number and address;
- Current enrollment;
- Target capacity;
- Number of available seats;
- Target utilization rate; and
- Grades served.

Table 3.4-5 and **Table 3.4-6** identify elementary and intermediate schools within the Study Area. These schools are also displayed in **Figure 3.4-1**. All schools are within CSD 15. As of the 2019-2020 school year, elementary schools within the Study Area had an average utilization level of approximately 126 percent. Intermediate schools within the Study Area had a utilization rate of 89 percent with approximately 121 available school seats available.

P.S. 172 Beacon School of Excellence was the most utilized K-12 school within the Study Area with a Target Utilization Rate of 158 percent. I.S. 136 Charles O. Dewey was the lowest utilized school with approximately 67 available seats and a Target Utilization Rate of approximately 88 percent.

The Proposed Project would not add residential units within the Study Area. As such, a further assessment of the potential impacts to public schools was not performed. **Therefore, the Proposed Project would have no significant adverse impacts on public schools.**

Table 3.4-5 Elementary Schools in the Study Area

Map ID	School	School ID	Address	Grades Served	Current Enrollment	Target Capacity	Number of Available Seats / Over Capacity	Target Utilization Rate
36	P.S. 001 The Bergen	K001	309 47th Street, Brooklyn, NY 11220	PK, 0K, 01, 02, 03, 04, 05, SE	954	751	-203	127%
37	P.S. 024	K024	427 38th Street, Brooklyn, NY 11232	PK, 0K, 01, 02, 03, 04, 05, SE	590	588	-2	100%
38	P.S. 172 Beacon School Of Excellence	K172	825 4th Avenue, Brooklyn, NY 11232	PK, 0K, 01, 02, 03, 04, 05, SE	580	368	-212	158%
39	Sunset Park Avenues Elementary School	K516	4222 4th Avenue, Brooklyn, NY	PK, 0K, 01, 02, 03, 04, 05, SE	466	390	-76	119%
-	-	-	-	**Total**	**2,590**	**2097**	**-493**	**-**

Source: Enrollment, Capacity and Utilization Report for the 2019-2020 School Year, issued by the NYC DOE; cross referenced with the NYCDCP Capital Planning Explorer. Schools classified as Elementary School – Public.
PK=Pre-Kindergarten; K=Kindergarten; SE=Special Education
All schools in Community School District 15

Table 3.4-6 Intermediate Schools in the Study Area

Map ID	School	School ID	Address	Grades Served	Current Enrollment	Target Capacity	Number of Available Seats / Over Capacity	Target Utilization Rate
40	I.S. 136 Charles O. Dewey	K136	4004 4th Avenue, Brooklyn, NY 11232	06, 07, 08, SE	509	576	67	88%
40	Sunset Park Prep	K821	4004 4th Avenue, Brooklyn, NY 11232	06, 07, 08, SE	482	536	54	90%
-	-	-	-	**Total**	**991**	**1112**	**121**	**-**

Source: Enrollment, Capacity and Utilization Report for the 2019-2020 School Year, issued by the NYC DOE; cross referenced with Community District Profiles, issued by the NYCDCP.
SE=Special Education
All schools in Community School District 15

3.4.2.5 Conclusion

As noted above, the *CEQR Technical Manual* indicates that if demand is greater than the remaining capacity of community facility by a certain threshold, an adverse impact may be identified. The Proposed Project would not reach the applicable thresholds, would not involve the addition of any residential units, and would not adversely impact community facilities and services. **Thus, the Proposed Project would have no significant adverse impact on the operations of community facilities in the Study Area, and further assessments are not warranted.**

3.4.2.6 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts on the operation of community facilities in the Study Area. Emergency services located in the Study Area and servicing the waterfront could access residents, businesses, and the waterfront industrial area within the Study Area, and residents and business employees would maintain existing access to community facilities within the Study Area. Due to the proximity of the relocation of the NYCDOT function and the EW 1 Project underground cables and onshore substation at SBMT, the Future without Project condition would have no significant adverse impact on community facilities and services. Therefore, there would be no adverse

cumulative impact to community facilities and services resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on community facilities and services in the Study Area, including inducing development or population growth that would increase demand for community facility services. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on the operation of community facilities in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments or population growth in the surrounding highly-developed neighborhood.

Figure 3.4-1 Community Facilities

3.4.3 References

New York City School Construction Authority. 2020. Enrollment, Capacity and Utilization Report for the 2019-2020 School Year. Available online at: http://www.nycsca.org/Community/Capital-Plan-Reports-Data#Enrollment-Capacity-Utilization-69. Accessed on April 20, 2022.

NYCDCP. 2022: Community District Profiles. Available online at https://communityprofiles.planning.nyc.gov/. Accessed on April 20, 2022.

US Department of Health and Human Services. 2022. Early Childhood Learning and Knowledge Center Locator. Available online at: https://eclkc.ohs.acf.hhs.gov/. Accessed on April 20, 2022.

3.5 Open Space

This section examines the potential for the Proposed Project to impact open space directly or indirectly in the Study Area by eliminating, altering, or overtaxing open space. According to the *CEQR Technical Manual*, open space is "publicly or privately owned land that is publicly accessible and available for leisure, play, or sport, or is set aside for the protection and/or enhancement of the natural environment." Public open space is available "to the public on a constant and regular basis, including for designated daily periods." Examples of public open space observed in the Study Area include a waterfront park with passive or active recreational uses and playgrounds. Private open space is "not publicly accessible or is available only to limited users and is not available to the public on a regular or constant basis."

The *CEQR Technical Manual* outlines an analysis methodology for evaluating possible direct and indirect effects (referred to as direct and indirect impacts in this section) on open space resources as a result of the Proposed Project. Direct impacts include those in which the Proposed Project reduces or limits access to open space. In addition, a direct impact could occur if a project would:

- Result in a physical loss of public open space (by encroaching on or displacing open space);
- Change the use of an open space so that it no longer serves the same user population;
- Limit public access to an open space; or
- Cause increased noise, air pollutants, odors, or shadows on public open space that would affect its function, usability, or enjoyment, whether on a permanent or temporary basis.

There are no open spaces located within or adjacent to the Project Area. Therefore, the Proposed Project would have no direct impacts on open space.Therefore, a preliminary assessment of direct impacts on open space is not warranted.

Indirect impacts could result from projects that generate residential or commercial population, and that additional population "overtaxes the capacity of existing open space so that their service provided to existing and future populations in the area would be substantially or noticeably diminished." An open space assessment of indirect impacts would be required if the Proposed Project would generate more than 200 residents or 500 nonresidents, or a similar number of other nonresidential users. There would be approximately 85 employees at SBMT during operations, which is below the 500 nonresident threshold set by CEQR. **The Proposed Project would have no indirect impacts on open space. Therefore, a preliminary assessment of indirect impacts on open space is not warranted.**

3.6 Shadows

3.6.1 Introduction

This section examines the potential for the Proposed Project to produce incremental shadows long enough to cover all or portions of publicly-accessible sunlight-sensitive resources. According to the *CEQR Technical Manual*, public open spaces, architectural resources, natural resources, and greenstreets are resources that depend on sunlight either for their enjoyment or to maintain their natural condition. The incremental shadow is the additional, or added, shadow cast onto a sunlight-sensitive resource. A significant adverse impact of this incremental shadow is determined if it "falls on

a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight exposure, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources."

3.6.2 Definitions and Methodology

This analysis has been prepared in accordance with CEQR procedures and follows the guidelines of the *CEQR Technical Manual*.

3.6.2.1 Definitions

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those resources that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. Such resources generally include:

- *Public open space* such as parks, beaches, playgrounds, plazas, school yards (if open to the public during non-school hours), greenways, and landscaped medians with seating. Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- *Features of architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features need be considered, as opposed to the entire resource. Such sunlight-sensitive features might include design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource's condition or microclimate. Such resources could include surface water bodies, wetlands, or designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources include, for the purposes of CEQR:

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space);
- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist.

A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

3.6.2.2 Methodology

The *CEQR Technical Manual* outlines a tiered screening assessment designed to identify sunlight-sensitive resources within the Study Area, measure the incremental shadows on the sunlight-sensitive resources added by the Proposed Project, and determine the impacts of those incremental shadows. A shadow assessment is required for projects that would "either (a) result in new structures (or additions to existing structures including the addition to rooftop mechanical equipment) of 50 feet or more or (b) be located adjacent to, or across the street from, a sunlight sensitive resource." The Tier 1 Screening Assessment involves mapping the sunlight-sensitive resources within the longest shadow area, which "encompasses the site of a proposed project and a perimeter around the site's boundary with a radius equal to the longest shadow that could be cast by the proposed structure, which is 4.3 times the height of the structure and occurs on December 21, the winter solstice."

If there are sunlight-sensitive resources within this longest shadow study area, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the path of the sun in the northern hemisphere. The Tier 2 Screening Assessment assesses sunlight-sensitive resources determined to be within

the longest shadow study area and within the path of the sun in the northern hemisphere. Within the northern hemisphere, the path of the sun would not cast shadows in a triangular area south of any project; and the specific areas in New York City where no shadows can be cast "lie between -108 and +108 degrees from true north."

A Tier 3 Screening Assessment should be conducted only for projects in which all or a portion of a sunlight-sensitive resource is within the longest shadow study area and outside the triangular area south of the project that would not experience shadows. The Tier 3 Screening Assessment further refines the area that could be reached by project shadows by looking at specific representative days in each season and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

3.6.3 Affected Environment

There is one publicly-accessible sunlight-sensitive resource within or adjacent to the Tier 1 Shadow Screening Study Area, or the boundary of the longest shadow: the Gowanus Bay waterfront around the solid fill "pier" structures from the Sims Facility and around the 35th Street and 39th Street "Piers". There are several existing buildings within the Project Area. The Tower Building and Scale House is an existing multi-story building between 33rd and 34th Streets at the base of the 35th Street "Pier." This existing building is located approximately 150 feet south of the "interpier" basin between the Sims Facility and the 35th Street "Pier." In addition, there are four buildings located on the 39th Street "Pier," including three sheds (J1, J2, and N2) and a building referred to as the Graffiti Building. The three sheds set back from the Gowanus Bay waterfront by approximately 30 to 45 feet, and the Graffiti Building is set back by approximately 75 feet. The area surrounding the Tower Building and Scale House, the three sheds, and the Graffiti Building is paved.

3.6.4 Environmental Impacts

3.6.4.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. All existing buildings within the Project Area would remain, and the proposed O&M base would not be constructed. All shadows cast by the the Tower Building and Scale House, three sheds, and the Graffiti Building would continue. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.6.4.2 Future with Project

Under the Future with Project condition, the existing Tower Building and Scale House, three sheds, and the Graffiti Building would be demolished, and a new O&M base would be constructed to the north, and at the base of the 35th Street "Pier" with a setback of approximately 60 feet from the "interpier" basin. The height of the proposed O&M base would be approximately 33 feet at its highest point compared to the grade at street level. The existing buildings on the 39th Street "Pier" would also be demolished, but no buildings would be constructed to replace them.

Although the buildings on the 39th Street "Pier" would be demolished, the 35th Street and 39th Street "Piers" would be utilized for WTG component staging and assembly and three cranes as depicted on **Figure 3.6-1**. The WTG component staging and assembly areas would consist of the following:

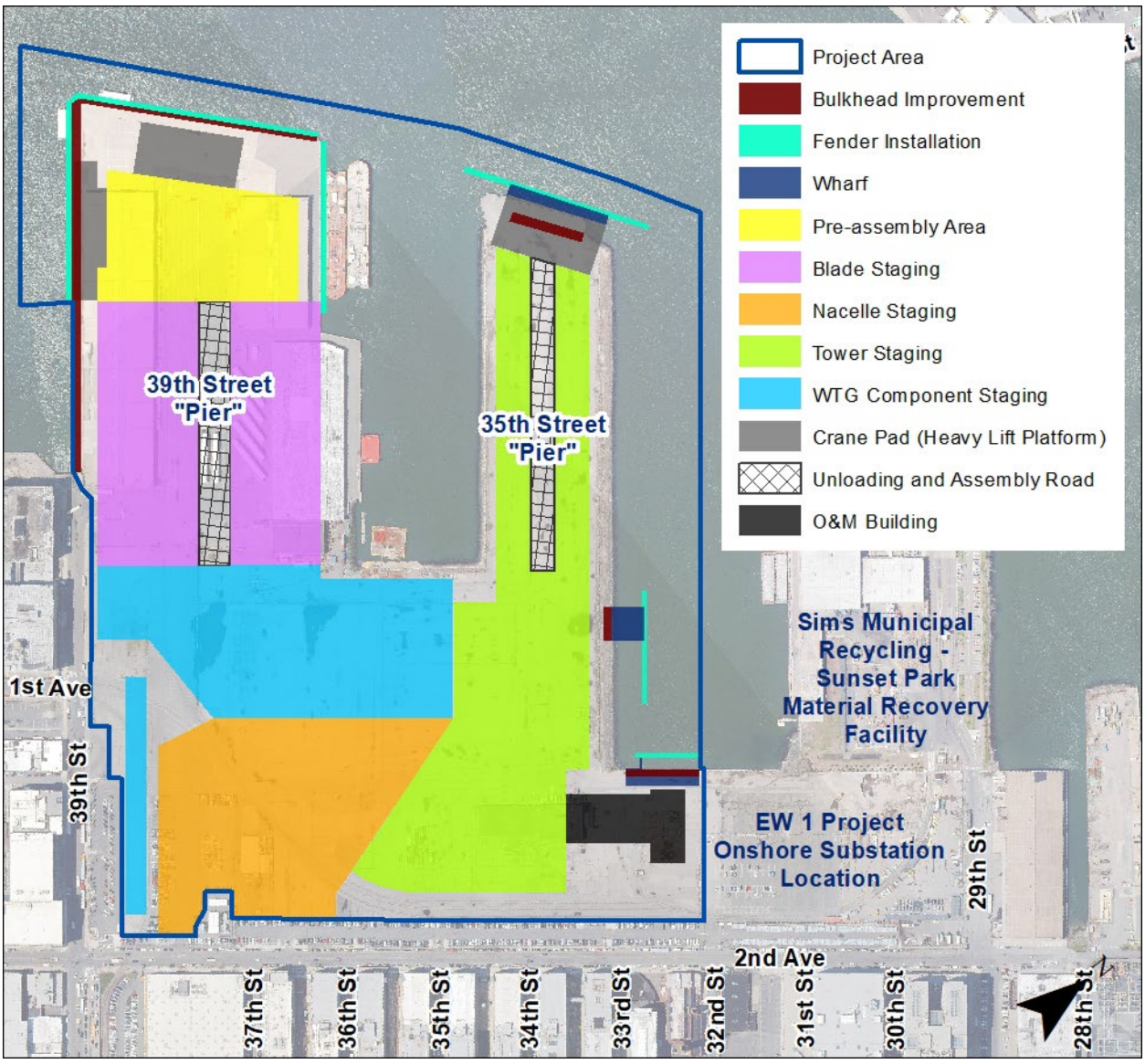
- A pre-assembly area and wind turbine blade staging would be located on the north and south sides of the 39th Street "Pier." The maximum height of the stacked wind turbine blades would be approximately 69 feet high, and each stack would be 380 feet long. Each stack would contain three blades.
- Wind turbine nacelle staging would be located in the southeastern portion of the Project Area near the intersection of 39th Street and 2nd Avenue. Nacelles are approximately 40 feet high and 90 feet long with

rectangular shapes. Nacelles contain electrical equipment, so they would be staged in this area as it has the highest elevation in the Project Area.

- Wind turbine tower section staging would be located at the base of the 35th Street "Pier" and abut the operational rail line running parallel to 2nd Avenue. In addition, tower section staging would extend along the north and south sides of the 35th Street "Pier." There are multiple types of tower sections ranging from approximately 63 feet to 146 feet long and 32 feet high. Tower sections would be long tube-like structures lying on their sides.
- Two unloading and assembly roads would be located on the 35th Street and 39th Street "Piers." These areas would support the transportation of WTG components from crane pads on the south and west sides of the 39th Street "Pier" and the west side of the 35th Street "Pier."

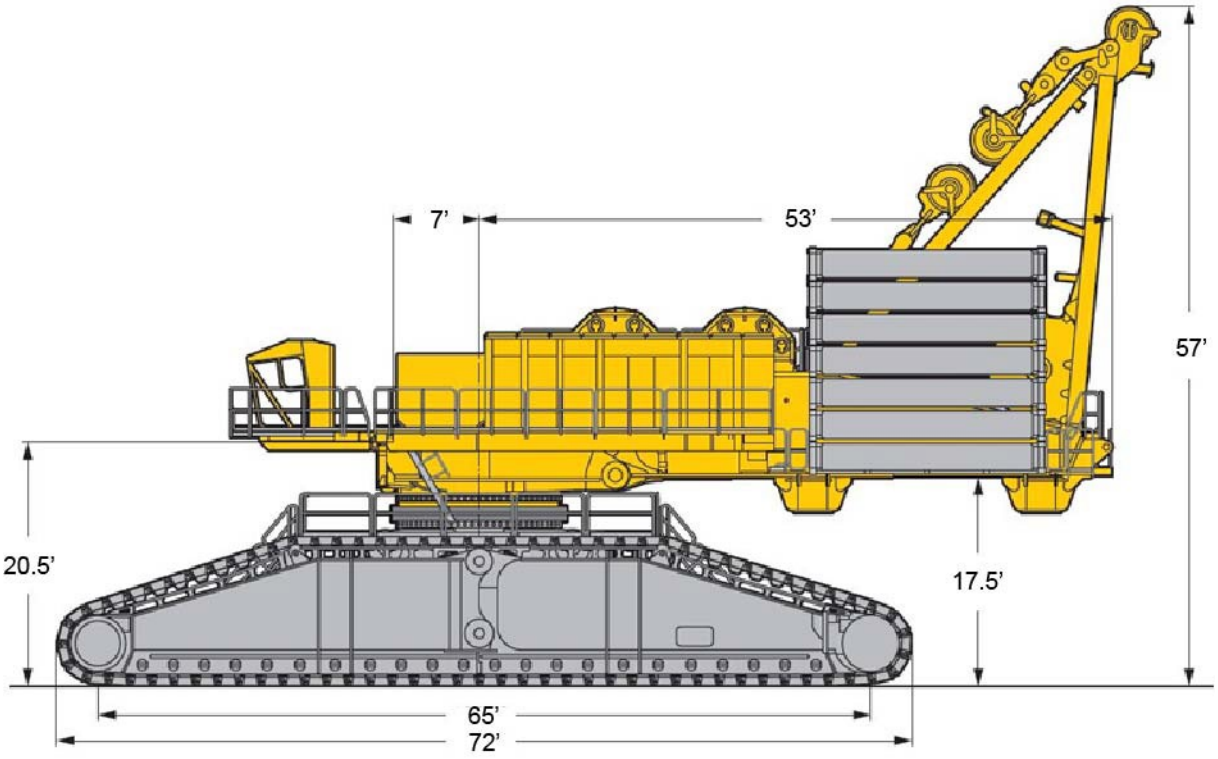
Although the WTG component staging, temporary facilities, and assembly areas would be located on the solid fill "pier" structures and adjacent to the "interpier" basins, they will not be considered in the following preliminary screening assessment. The operations of the Proposed Project on the 35th Street and 39th Street "Piers" would include the consistent movement of WTG components throughout the SBMT with WTG components being transported to and from the SBMT. Because the WTG components would move consistently on and off the solid fill "pier" structures, they would not be permanent structures capable of casting consistent shadows on the "interpier" basins. Similarly, the temporary facilities like offices, warehouse facilities and support areas would be procured on a rental basis to suit the specific needs for the OSW operator for the given project and duration. Because these temporary facilities would have a limited duration of eight to 12 months, and their quantities and locations would change across the Project Area from project to project during the operational phase, the temporary facilities would not cast a consistent or permanent shadow pattern on a sunlight-sensitive resource.

Figure 3.6-1 Proposed Project Site Plan – Conceptual



In addition, three cranes would be constructed in three locations on the 35th Street and 39th Street "Piers: 39S, 39W, and 35W. A depiction of the crane profile is provided in **Figure 3.6-2**. Each crane would be mobile on tracks to provide movement on its constructed pad (see **Figure 3.6-3**). The 39S pad would be approximately 427 feet long and 79 feet wide. The 39W pad would be approximately 303 feet long and 150 wide. The 35W pad would be approximately 322 feet long and 196 feet wide. Each pad is associated with a barge berthing area where barges for transporting windmill components would dock. Each crane would have the ability to move approximately 10 feet in any direction on its pad, enabling the crane to reach offshore barges and transport tracks on the solid fill "pier" structures to lift and drop windmill components. At their bases, each crane would be approximately 72 feet long and 54 feet wide. The height of the crane from its base to the base of the crane arm would be 37 feet tall. The crane arm could extend up to 400 feet in the air at its highest position. The crane arm would be an open structure allowing sunlight to pass through it and not fixed at its maximum length consistently. Therefore, only the crane from its base to the base of the crane arm was considered in the preliminary screening assessment below. Barges docking at barge berthing areas would be 400 feet long and 105 feet wide and docked in Gowanus Bay immediately adjacent to the crane pads (see **Figure 3.6-3**). During operations on the SBMT site, barges would dock at these berthing areas on a daily basis. The cranes would always be present in the Project Area during operations, and each crane would continue to operate on its crane pad during operations.

Figure 3.6-2 Crane Profile



Note: All dimensions in feet

Although the proposed O&M base and three cranes would be below CEQR's 50-foot threshold, they are located adjacent to the Gowanus Bay waterfront, which is a sunlight-sensitive resource. Therefore, a preliminary screening assessment was carried out for the proposed O&M base and three cranes.

3.6.4.2.1 Preliminary Screening Assessment

The shadow assessment begins with a preliminary screening assessment to ascertain whether a project's shadow may reach any sunlight-sensitive resources at any time of the year. If the screening assessment does not eliminate this possibility, a detailed shadow analysis is generally warranted in order to determine the extent and duration of the net incremental shadow resulting from the project. The effects of shadows on sunlight-sensitive resources are site-specific; therefore, the screening assessment and subsequent shadow assessment (if necessary) was performed for the new O&M base and the three cranes to be built in the Project Area adjacent to the Gowanus Bay.

3.6.4.2.2 Tier 1 Screening Assessment

The first step in the preliminary shadow screening assessment is a Tier 1 Screening Assessment. A base map is developed that illustrates the proposed site location in relationship to any sunlight-sensitive resources. The Tier 1 Shadow Screening Study Area, the boundary of the longest shadow, is then determined, which encompasses the footprint of the proposed O&M base and a perimeter around the footprint with a radius equal to the longest shadow that could be cast by the O&M base. To find the longest shadow length, the maximum height of the structure is multiplied by the factor of 4.3. The maximum height of the new O&M base would be 33 feet, and the maximum height of each crane from its base to the base of the crane arm would be 37 feet.

The Tier 1 Shadow Screening Study Area for the proposed O&M base has a radius of 142 feet, encompassing a portion of the "interpier" basin north of the 35th Street "Pier" (see **Figure 3.6-3**). The Tier 1 Shadow Screening Study Area for each of the three cranes has a radius of 159 feet (see **Figure 3.6-3**). Therefore, a Tier 2 Screening Assessment was completed.

3.6.4.2.3 Tier 2 Screening Assessment

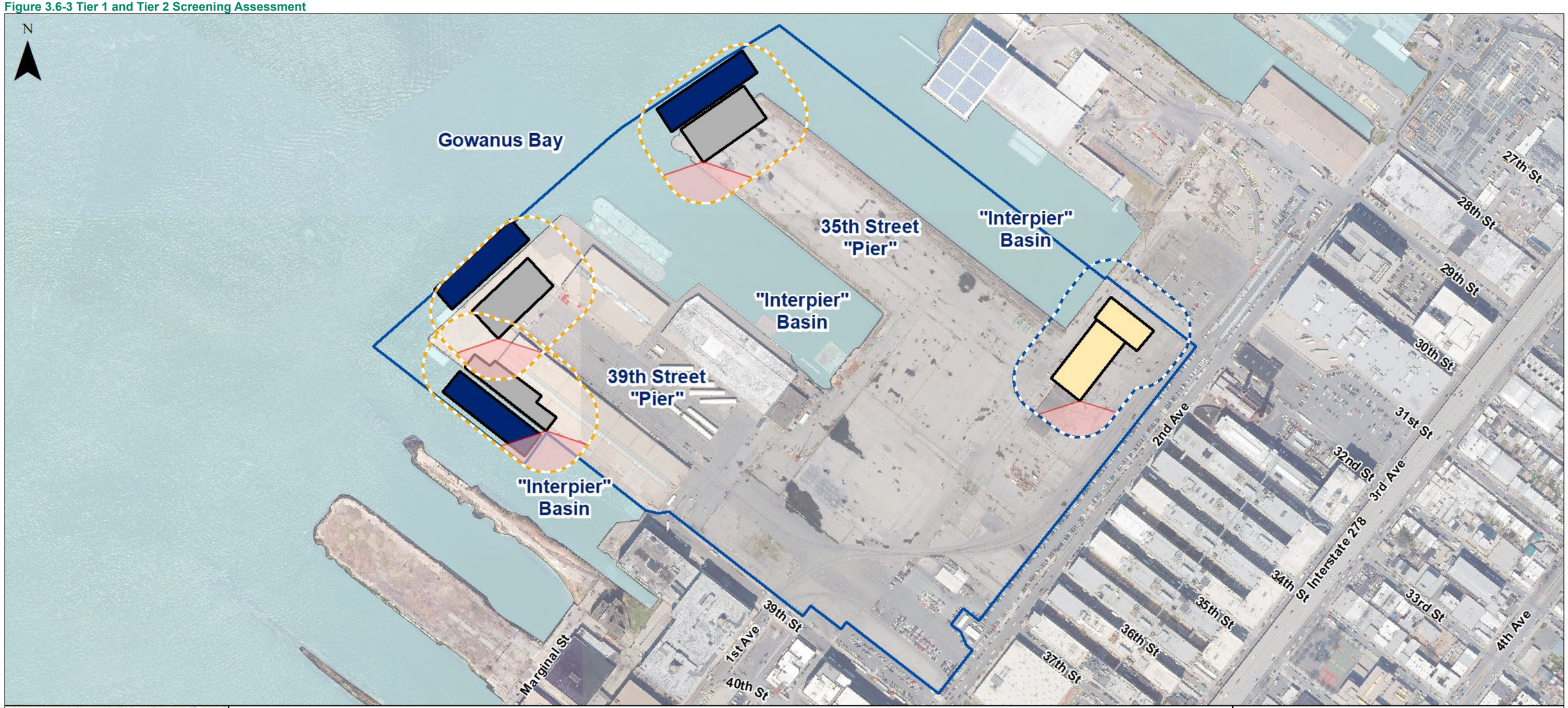
In accordance with *CEQR Technical Manual* guidance, if any portion of a sunlight-sensitive resource lies within the Tier 1 Shadow Screening Study Area, the boundary of the longest shadow, a Tier 2 Screening Assessment should be performed. Because of the path that the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City, this area lies between -108 and +108 degrees from true north.

For a Tier 2 Screening Assessment, sunlight sensitive resources within the triangular area that cannot be shaded by a project, starting from the southernmost portion of the site covering the area between -108 degrees from true north and +108 degrees from true north, are screened out. The complementing portion to the north within the Tier 1 Shadow Screening Study Area is the area that can be shaded by a project. According to the Tier 2 Screening Assessment, the southern portion of the Project Area is located within the triangular area that lies between -108 and +108 degrees (see **Figure 3.6-3**). The only sunlight-sensitive resource, the Gowanus Bay, is not located within the triangular area identified in the Tier 2 Screening Assessment, so a shadow cast by the O&M base could reach the Gowanus Bay. Based on the results of the Tier 1 and 2 Screening Assessments, a Tier 3 Screening Assessment is warranted for the Gowanus Bay.

The triangular area identified in the Tier 2 Screening Assessment overlaps portions of the Gowanus Bay in the vicinity of 39S and 35W cranes but not in the vicinity of the 39W. As part of the Tier 1 and Tier 2 Screening Assessment, the functions of the 39S, 39W, and 35W cranes during operations and the presence of barges throughout a typical day of operations were considered. The Tier 1 and Tier 2 Screening Assessments depict the Shadow Screening Study Area based on the dimensions of the crane pads (see **Figure 3.6-3)**. However, each crane would occupy a smaller space on the pad, have mobility across the pad, and rotate on its base throughout the day changing the size and shape of its shadow. Therefore, each crane would never cast a shadow from a permanent fixed position during operations compared to the proposed O&M base. In addition, as shown in **Figure 3.6-3**, barges would dock in the Gowanus Bay within each crane's Shadow Screening Study Area at various times during the day, and cranes would cast shadows on barges instead of the Gowanus Bay during typical operations. When the barges are not docked, each crane would cast a small shadow on the Gowanus Bay that would move from southwest in the early morning hours to the northeast and east in the evening hours.

Because of the cranes' mobility, design, and location adjacent to barges, the three cranes would not cast substantial shadows on the Gowanus Bay.

Figure 3.6-3 Tier 1 and Tier 2 Screening Assessment



Legend

- Project Area
- Tier 1 Shadow Screening Study Area for O&M Building
- Tier 1 Shadow Screening Study Area for Crane
- Tier 2 Shadow Screning Study Area

Proposed Project Elements

- Crane Pad
- Operations and Maintenance Facility
- Barge Berthing Area

- Waterbody

Map Source:
NYC MapPLUTO 21v4; NYC DoITT Orthoimagery, 2018.

Tier 1 and Tier 2 Screening Assessment

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 245 490 980 Feet

AECOM
New York, New York

3.6.4.2.4 Tier 3 Screening Assessment

A Tier 3 Screening Assessment is used to determine if project-generated shadows have the potential to reach a sunlight-sensitive resource. In order to determine whether the sun-sensitive features of the nearby resources would potentially be affected by shadows cast from the Proposed Project, a three-dimensional model was created surrounding the proposed O&M base.

The *CEQR Technical Manual* states that for the New York City area, the months of interest for an open space resource encompass the growing season (March through October) and one month between November and February (usually December) representing a cold-weather month. Representative days for the growing season are generally the vernal equinox (or the autumnal equinox, which is approximately the same), the summer solstice, and a spring or summer day halfway between the summer solstice and equinoxes. For the cold-weather months, the winter solstice is usually included to demonstrate conditions during cold-weather when people who do use open spaces rely most heavily on available sunlight for warmth. As representative of the full range of possible shadows, these months and days are used for assessing shadows on historic or natural sunlight-sensitive resources.

Assessments of the shadows cast during the following four representative dates were made in accordance with the *CEQR Technical Manual*: March 21 (vernal equinox), June 21 (summer solstice), September 21 (autumnal equinox), and December 21 (winter solstice). As discussed in the preceding paragraph, the four analysis dates encompass the growing season as well as December, which represents a cold-weather month (and the longest shadow of the year). Under CEQR, shadows occurring within one and one-half hour of sunrise or sunset are not considered significant and thus were excluded from the screening assessment.

The results of the Tier 3 Screening Assessment are shown in **Figure 3.6-4**, **Figure 3.6-5**, **Figure 3.6-6**, and **Figure 3.6-7** and depict the extent and duration of shadows generated by the proposed O&M base on the “interpier” basin. The Tier 3 Screening Assessment results demonstrate that shadows from the proposed O&M base would fall on areas of the “interpier” basin on all four representative dates: March 21, June 21, September 21, and December 21.

According to the *CEQR Technical Manual*, a detailed analysis should be conducted to determine whether project-generated shadows would reach any sunlight-sensitive resources and, if so, to determine the extent and duration of new incremental shadows that fall on a sunlight-sensitive resource as a result of the Proposed Project. The duration of project-generated shadows on the “interpier” basin for the Proposed Project are depicted in **Table 3.6-1**. Project-generated shadows would be cast over the “interpier” basin in each representative day only during morning hours. During the representative days of the growing season, the latest that shadows would reach the “interpier” basin would be on March 21 at 10:00 AM. March 21 is also the day with the greatest shadow extent compared to the other representative days. The representative day with the longest duration of shadow would be June 21 with a shadow cast for approximately 3 hours, 5 minutes.

Table 3.6-1 Duration and Extent of Project-Generated Shadows

Representative Day	Shadow Enter – Exit Times	Duration of Shadow (hrs)
March 21	7:29 AM – 10:00 AM	2 hours, 31 minutes
June 21	5:55 AM – 9:00 AM	3 hours, 5 minutes
September 21	7:13 AM – 9:30 AM	2 hours, 17 minutes
December 21	8:46 AM – 11:00 AM	2 hours, 14 minutes

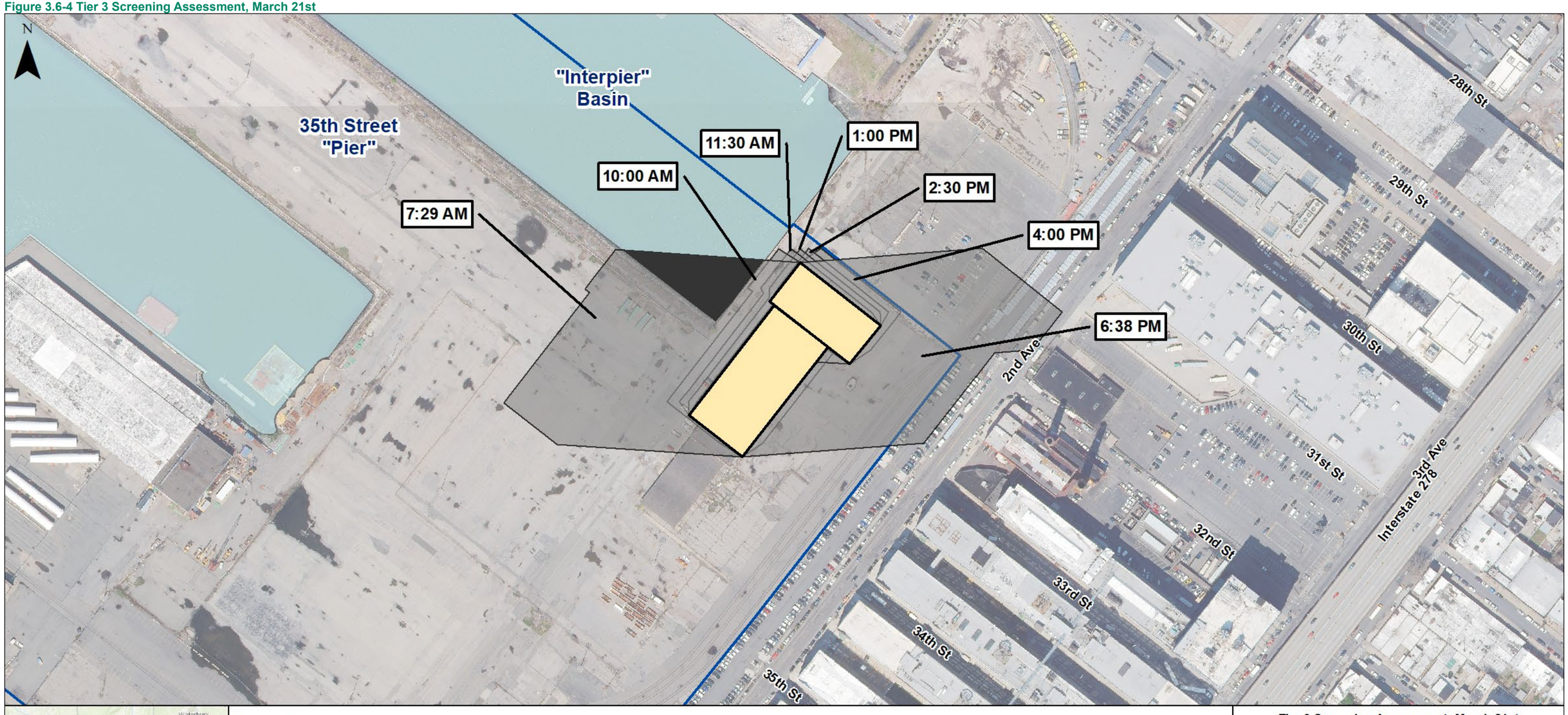
The proposed O&M base with a height of 33 feet is set back 60 feet from the “pier” bulkhead. Project-generated shadows would be cast on the “interpier” basin, a sunlight-sensitive resource, throughout the year according to the Tier 3 assessment. However, the duration of the shadows cast would be limited to only the early morning hours with shadows exiting by 10:00 AM at the latest during the growing season and 11:00 AM during the winter months. The “interpier” basin would be out of project-generated shadows for the remainder of the day and receive sufficient sunlight. The Proposed Project would not substantially reduce or completely eliminate direct sunlight. **Therefore, the Proposed Project would have no significant adverse shadow impacts on the Gowanus Bay**.

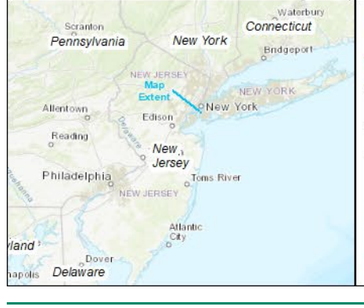
3.6.4.3 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts to sunlight-sensitive resources (the "interpier" basins) in the Project Area. In the Future without Project condition, the EW 1 Project would include the construction of an onshore substation in the vicinity of the "interpier" basin between the 35th Street "Pier" and the Sims Facility, and the tallest building associated with the onshore substation would be 39 feet tall. It is anticipated that any shadows cast by the onshore substation onto the "interpier" basin would cast similar shadow patterns over the same time periods to that of the Proposed Project's O&M base. The shadows cast by the O&M base and the onshore substation are anticipated to cover small portions of the "interpier" basin during short periods of time each day over the course of the year. Therefore, there would be minor adverse cumulative impacts to sunlight-sensitive resources resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on sunlight-sensitive resources in the Study Area, including inducing developments that could cast shadows on sunlight-sensitive resources. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on sunlight-sensitive resources in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments in a highly-developed neighborhood that may cast shadows on sunlight-sensitive resources, including Gowanus Bay.

Figure 3.6-4 Tier 3 Screening Assessment, March 21st





Legend

- Project Area
- Proposed Operations and Maintenance Facility
- Shadow
- Extent of Shadow on Gowanus Bay Inlet
- Waterbody (Sunlight-Sensitive Resource)

Map Source:
NYC DoITT Orthoimagery, 2018.

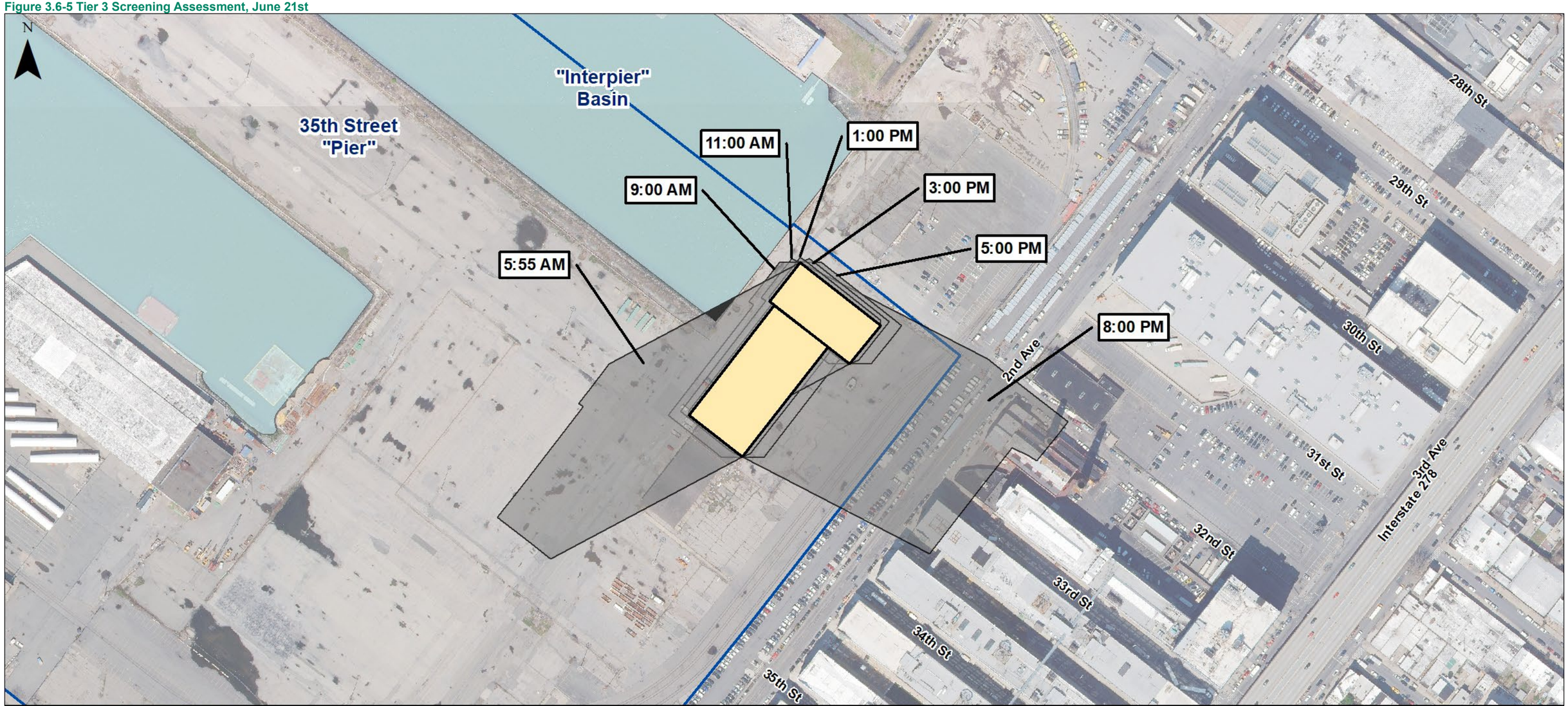
Tier 3 Screening Assessment: March 21st

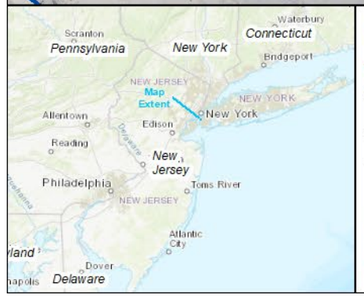
South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 125 250 500 Feet

AECOM
New York, New York

Figure 3.6-5 Tier 3 Screening Assessment, June 21st





Legend

- Project Area
- Proposed Operations and Maintenance Facility
- Shadow
- Extent of Shadow on Gowanus Bay Inlet
- Waterbody (Sunlight-Sensitive Resource)

Map Source:
NYC DoITT Orthoimagery, 2018.

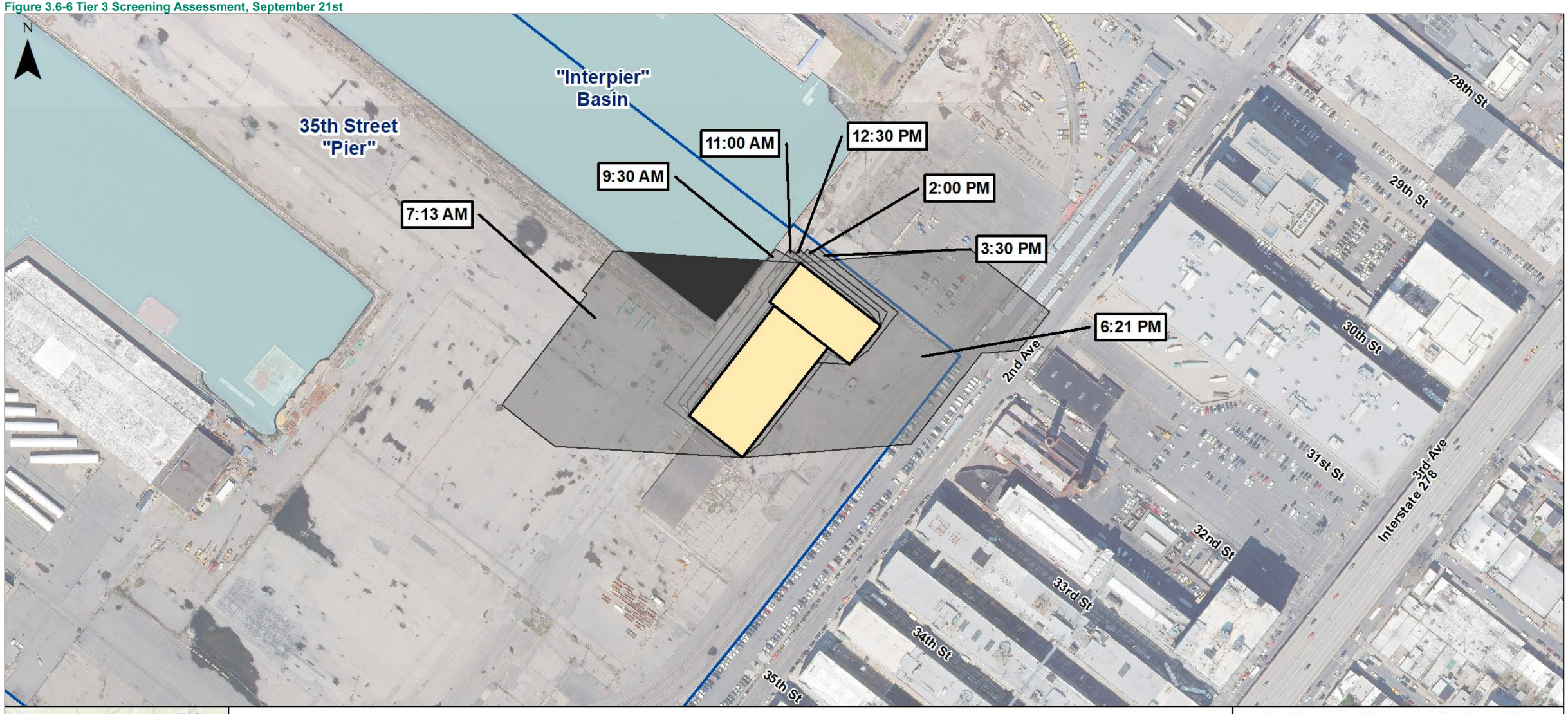
Tier 3 Screening Assessment: June 21st

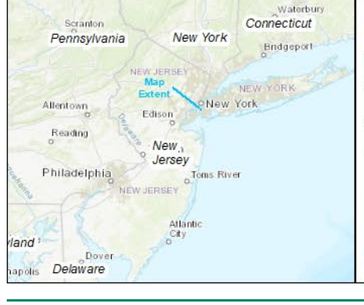
South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 125 250 500 Feet

AECOM
New York, New York

Figure 3.6-6 Tier 3 Screening Assessment, September 21st





Legend

- Project Area
- Proposed Operations and Maintenance Facility
- Shadow
- Extent of Shadow on Gowanus Bay Inlet
- Waterbody (Sunlight-Sensitive Resource)

Map Source:
NYC DoITT Orthoimagery, 2018.

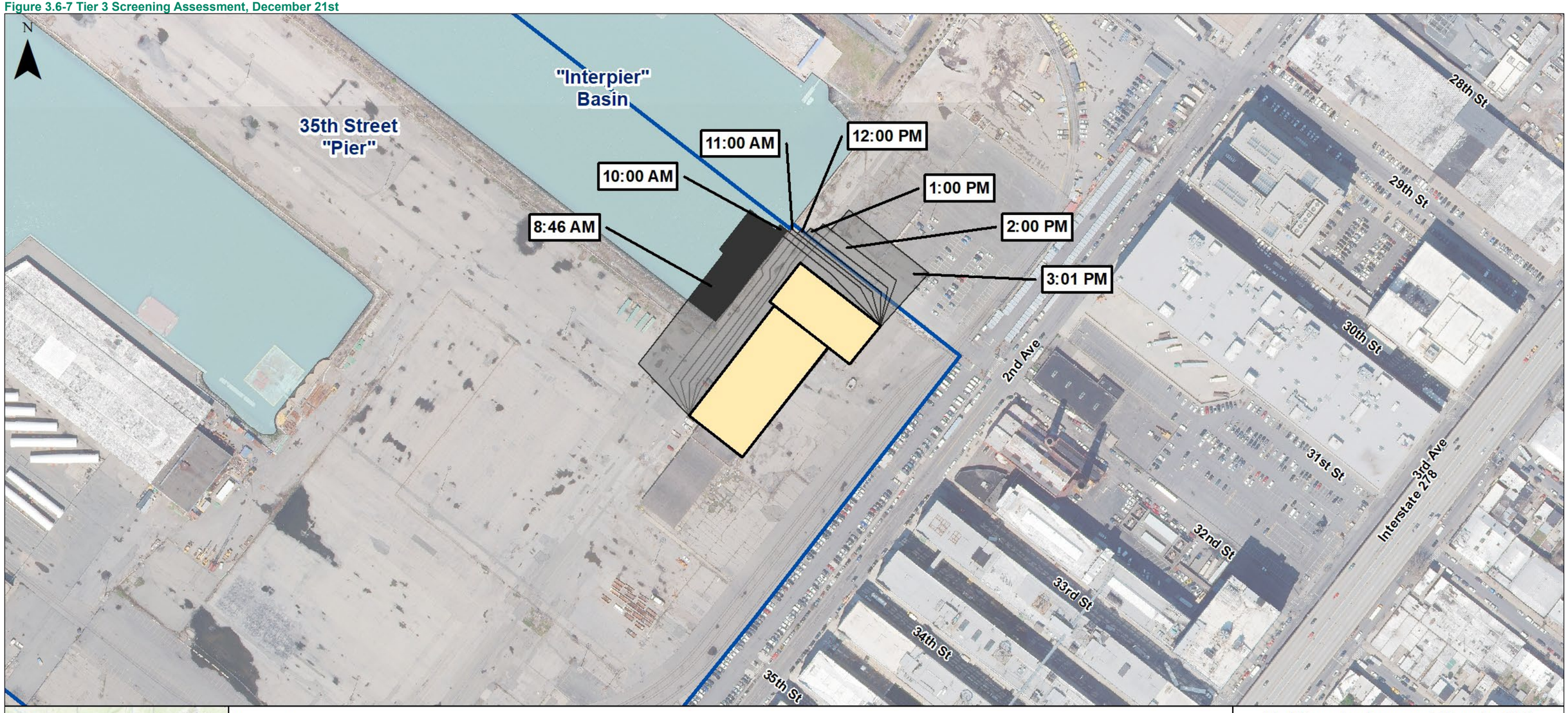
Tier 3 Screening Assessment: September 21st

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 125 250 500 Feet

AECOM
New York, New York

Figure 3.6-7 Tier 3 Screening Assessment, December 21st



Legend

- Project Area
- Proposed Operations and Maintenance Facility
- Shadow
- Extent of Shadow on Gowanus Bay Inlet
- Waterbody (Sunlight-Sensitive Resource)

Map Source:
NYC DoITT Orthoimagery, 2018.

Tier 3 Screening Assessment: December 21st

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 125 250 500 Feet

AECOM
New York, New York

3.7 Historic and Cultural Resources

The Proposed Project is being undertaken in the Borough of Brooklyn in New York City, and this Environmental Analysis is being prepared in accordance with federal, state, and local historic preservation/environmental review regulations. At the federal level, federal funding, coupled with the USACE/NYSDEC JPA, triggers compliance with Section 106 of the NHPA, and the USACE has assumed the role of lead federal agency under Section 106 as of April 11, 2022. In addition, this Environmental Analysis must comply with state and local regulations, including SEQR and CEQR. The regulatory framework for historic and cultural resources is described below.

3.7.1 Federal Regulations

The NHPA of 1966 was enacted to integrate consideration of cultural resources into the early stages of projects that are funded, licensed, or permitted by the federal government, collectively, an "undertaking." Under Section 106 of NHPA (54 USC 306108), prior to execution of a project, a federal agency or federally, licensed, permitted, or funded agency is required to consider the project's impact on historic properties, including any prehistoric or historic district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places (National Register). To qualify for inclusion in the National Register, cultural resources must be over 50 years old, retain integrity, and possess significance according to the four National Register criteria (i.e., A – Event; B – Person; C – Design/Construction; D – Information Potential).

Implementing regulations for Section 106, established by the Advisory Council on Historic Preservation (ACHP) (36 Code of Federal Regulations [CFR] Part 800), require that lead federal agencies consider the direct, indirect, and cumulative effects of their actions on any National Register-listed and/or National Register-eligible archaeological and historic architectural resources that have been previously identified within the Area of Potential Effects (APE), or identified within the APE as part of the Section 106 process.

All documents required under Section 106 are prepared and provided to the SHPO for review and concurrence. Under Section 106, if adverse effects to National Register-listed and/or National Register-eligible resources occur because of the undertaking, the regulation requires that lead federal agencies work toward resolving adverse effects and document that alternatives to avoid or minimize impacts have been considered. If adverse effects cannot be avoided, these agencies collaborate with the SHPO, other consulting parties, and the ACHP if they wish to participate, to develop and implement measures to mitigate such effects.

3.7.2 New York State Regulations

At the state level, SEQR requires all state and local government agencies to consider environmental impacts equally with social and economic factors during discretionary decision-making. The involved agencies must assess the environmental significance of all actions that they have discretion to approve, fund, or directly undertake.

Section 14.09 of the New York State Historic Preservation Act (SHPA) was passed in 1980 as a counterpart to the federal NHPA of 1966 and declares historic preservation to be the public policy of, and in the public interest of, the state. The SHPA created the State Register, the official list of resources significant in the history, architecture, archaeology or culture of the state, its communities, or the nation. The SHPA requires State agencies to consult with the commissioner if it appears that any project which is being planned may or will cause any change, beneficial or adverse, in the quality of any historic, architectural, archaeological, or cultural property that is listed on the National Register or property listed on the State Register or that is determined by the commissioner to be eligible for listing on the State Register of Historic Places. It requires State agencies, to the fullest extent practicable, consistent with other provisions of the law, to avoid or mitigate adverse impacts to such properties, to fully explore all feasible and prudent alternatives, and to give due consideration to feasible and prudent plans which would avoid or mitigate adverse impacts to such property. It establishes agency preservation officers for the purpose of implementing these provisions.

3.7.3 New York City Regulations

CEQR is New York City's process for implementing SEQR. According to the *CEQR Technical Manual*, an assessment of archaeological and historic architectural resources is generally required for any project funded, directly undertaken or approved by a New York City agency which involves new construction, demolition, or any in-ground disturbance. In New York City, the New York City Landmarks Preservation Commission (LPC) functions as the city's expert technical agency for historic and cultural resources.

CEQR defines archaeological resources as physical remains, usually subsurface, of the prehistoric, Native American, and historic periods. CEQR defines architectural resources as historically important buildings, structures, objects, sites, and districts. Architectural resources include properties designated as Landmarks and Historic Districts by the LPC, properties calendared for consideration as Landmarks or Historic Districts by LPC; properties listed on or formally determined eligible for inclusion on the State and/or National Register, or contained within a district listed on or formally determined eligible for inclusion on the State/National Register; properties recommended for listing in the State/National Register by the New York State Board for Historic Preservation; National Historic Landmarks; and properties not identified by these programs, but that meet their eligibility requirements as determined by the SHPO. It should be noted that while the National Register protects resources that meet eligibility criteria over 50 years old, the New York City Landmarks Law protects resources that meet eligibility criteria over 30 years old.

If it is determined that the project would significantly impact archaeological and historic architectural resources, project sponsors would collaborate with SHPO, LPC and other consulting parties to develop and implement measures to mitigate such effects, similar to the process described under Section 106 above.

3.7.4 Affected Environment

An initial step in assessing the potential impacts to historic resources is to determine the APE. Section 106 defines the APE as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if such properties exist” (36 CFR §800.16[d]). Section 14.09 refers to this as the project impact area, and CEQR refers to this as the study area. For purposes of this document, all such areas will be referred to as APEs. The APE is influenced by the scale and nature of an undertaking and may vary for different kinds of effects caused by the undertaking.

The Archaeological and Historic Architectural APEs have been delineated to take into account potential direct effects of the Proposed Project on archaeological resources, and potential direct and indirect effects of the Proposed Project on historic architectural resources. Both APEs are described below.

3.7.4.1 SHPO Consultation

On March 1, 2022, USACE, initiated consultation with SHPO when the agency submitted Appendix C of the NYSDEC/USACE Draft JPA (December 2021) for review. Appendix C included the NYSDEC Structural Archaeological Assessment Form and Section 106 Assessment. On March 21, 2022, SHPO notified USACE via letter that **the Proposed Project will have No Adverse Effect upon historic properties.**

A copy of the letter is included in Appendix A.

3.7.4.2 Archaeological Resources

Environmental review for archaeological resources is a predictive endeavor. Unlike above-ground historic architectural resources, which are evident and can be immediately evaluated, archaeological resources are almost always hidden below the ground surface. To assess whether the project impact area may contain significant archaeological resources, data must be gathered to predict the likelihood of archaeological resources existing within the Archaeological APE. According to the CEQR guidelines, for precontact resources, it is appropriate to determine whether there are known precontact resources within a half-mile radius of the project site. For historic archaeological resources, it is appropriate to determine how, and if, the project site was developed historically, and if there are known historic archaeological resources in the nearby area, such as on the present-day full tax lot or within the boundaries of the nearest adjacent mapped streets.

The Archaeological APE and previously identified archaeological resources and prior survey reports within a 0.5-mile search radius of the Project Area are described below.

3.7.4.2.1 Archaeological Area of Potential Effect

Archaeological resources are subject to direct impacts caused by subsurface disturbances to previously undisturbed soils or minimally disturbed soils associated with the execution of a proposed project’s construction activities. The Archaeological APE includes two components: the horizontal APE, which is the footprint of proposed ground disturbance; and the vertical APE, which is considered as the depth to which the proposed ground disturbance is anticipated to extend. The proposed in-water and upland construction activities for the Proposed Project would create varying levels of in-water and upland ground disturbance, each of which could directly impact potential archaeological resources. Therefore, the proposed horizontal Archaeological APE is the footprint of the entire Project Area (see **Figure 3.7-1**). The vertical APE, or anticipated depth of disturbance within the horizontal APE, varies by project construction activity, as described below. SHPO has concurred with the APE.

Figure 3.7-1 Archaeological Area of Potential Effect

Legend

- Archaeological 0.5-mile Search Area
- Archaeological APE (Project Area)
- Upland Project Limits
- Marine Dredging Project Limits
- Bulkhead Replacement
- New Wharf Construction
- Fender Installation
- Parcel

Map Source:
NYC MapPLUTO 21v4; NYC DoITT Orthoimagery, 2018.

Archaeological Area of Potential Effect

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 750 1,500 3,000 Feet

AECOM
New York, New York

The in-water construction activities that determine the vertical APE include dredging, bulkhead replacement, new wharf construction, and new fender installation (see **Figure 3.7-1**). A total of approximately 14.2 acres proposed for dredging are located along the north, west, and south sides of the 39th Street "Pier" and north and west sides of the 35th Street "Pier." The dredging depth across the in-water Project Area, would be up to 20 feet below the mudline.

Bulkheads would be replaced in three portions of the Project Area (see **Figure 3.7-1**). The anticipated depths of disturbance will be a result of pile driving as follows:

- 39S – 1,055 feet of bulkhead requiring sheet piles to be driven 40 feet below ground elevation.
- 39W – 700 feet of bulkhead requiring sheet piles to be driven 40 feet below ground elevation.
- 35N – 90 feet of bulkhead requiring pipe piles to 50 feet and sheet piles to 40 feet below ground elevation.
- 32nd – 33rd Street – would require 40 20-inch diameter pipe piles driven to 70 feet below ground elevation.

New wharf construction will occur in three portions of the Project Area (see **Figure 3.7-1**). The anticipated disturbances created by the wharf construction are:

- 35W (Barge Loading) – 216 24-inch diameter steel pipe piles driven to 130 feet for 322 feet by 196 feet platform.
- 35N (SOV) – 52 36-inch diameter steel pipe piles driven to 130 feet for 100 feet by 110 feet wharf and dolphins extending into water.
- 32nd – 33rd Street (CTV) – 14 30-inch diameter steel pipe piles driven to 70 feet connecting to a floating platform 15 feet wide by 224 feet long .

Fender installation will occur along the three wharf locations and the 39th Street "Pier" within the Project Area. The fender installations would not incur any in-water ground disturbance. The fenders are attached to the sections of replaced bulkhead but do not extend as far downward as the bottom sediments. Therefore, the installation of the fenders will not create in-water subsurface ground disturbance.

Elements of the Proposed Project's upland work that determine the vertical APE include installation of crane pads for heavy lift activities, excavation of existing pier fill, existing building demolition, new building construction, excavation for new utilities and capping of obsolete utilities, trenching for upgrades to storm water system, paving removal, grading, and repaving.

The construction of three crane pads would require excavation of approximately 10-feet of existing pier fill atop the existing relieving platform and installation of steel pipe piles to depths of 130 feet to support the replacement fill and new concrete deck. Two heavy lift crane pads would be installed on the 39th Street "Pier": one at the 39W (approximate 303 feet by 150 feet footprint), and one at the 39S (approximate 430 feet by 80 feet footprint). The third crane pad would be installed on the 35W (approximate 322 feet by 196 feet footprint).

Excavation for new storm water system assumes 3,600 linear feet of trenching, approximately 15-feet wide and 6-feet deep across the 39th Street "Pier." The system upgrades include installation of new catch basins, manholes and sections of reinforced concrete pipe mains. Grading is likely to be minimal in scope, but necessary to achieve acceptable grade for drainage system.

Proposed demolition activities include removal of all existing buildings (five total, single and double-story structures) and some sections of paving to existing grade to allow for the new structures and paving. Within the Project Area, approximately 40 percent of the paving and structures (approximately 26.1 acres) is anticipated to be removed to permit construction to proceed, with extent of removal depending on both the footprint of required work and the results of upcoming site investigations.

Existing utilities, including infrastructure which previously served the buildings slated for demolition, would be abandoned in place, or removed as necessary to develop the site. Existing utilities include domestic water, fire water, sanitary sewer, electrical and telephone service, and gas lines. The existing utilities have already created subsurface disturbances along their corridors. Existing utilities that interfere with construction of the proposed O&M base would be removed, as needed.

New sanitary sewer, potable water, gas and telecommunication line connections will be provided for the O&M base. Fire protection systems will be extended as required, including new hydrant installations. New trenching for utilities is anticipated to extend to a maximum depth of six feet below grade.

3.7.4.2.2 Previously Identified Archaeological Sites Within A One-Half-Mile Search Radius

The Archaeological APE was researched in SHPO's Cultural Resource Information System (CRIS) website to identify any previously identified archaeological sites and sensitivity areas on and in the vicinity of the in-water and upland Project Area. CRIS also maps the locations of prior archaeological survey areas, and the resulting reports may be downloaded for reference. The LPC online archive of archaeological reports was also consulted for relevant prior surveys conducted in proximity to the current Project Area.

Given the dense urban setting of the SBMT, the archaeological search area for both precontact and historic archaeological resources was a one-half mile radius surrounding the Project Area/Archaeological APE (see **Figure 3.7-1**). The CRIS search indicated that no previously-identified precontact or historic archaeological sites were located on or within one-half-mile of the Project Area. In addition, no Areas of Archaeological Sensitivity, Submerged Resources or New York State (NYS) Museum Areas were identified.

3.7.4.2.3 Previously Conducted Archaeological Surveys Within 0.5-mile Search Radius

The current Project Area is located within the study area of Michael Raber et al.'s Final Report: Cultural Resources Investigations in Brooklyn Reach 2: New York Harbor Collection and Removal of Drift Project (1985). This study was conducted in association with the USACE's proposed Harbor Collection and Removal of Drift Project (Drift Project); the project was intended to remove potential sources of debris and drift from the New York Harbor.

Following the Brooklyn Reach 2 study, Thomas Flagg and Michael Raber prepared Documentation for Determination of Eligibility for Bush Terminal and Historic American Engineering Record (HAER) documentation for the Bush Terminal (Company). The HAER was prepared to mitigate adverse effects to Piers 5 and 7 per a Memorandum of Agreement between the ACHP, the SHPO, and the USACE, New York District (HAER NY-201). In terms of the archaeological potential of the Bush Terminal "piers," the 1985 report stated "The solid fill of the piers represents two or three construction programs, beginning in the 1880s, and may contain undocumented information on the types and sources of such material. Available data suggest dredged silts, demolition debris, coal ash and local urban refuse as likely materials, but fill composition, distribution, stratigraphy, and probable source remain unexplored for all the Bush Terminal piers." (Raber et al., 1985:33).

Raber Associates completed the Survey Level Study for Determination of Significance and Management Recommendations: 31st Street Pier, Brooklyn, New York, Brooklyn Reach 2 New York Harbor Collection and Removal of Drift Project in 1985. This study was completed for the USACE. The study concluded that the 31st Street Pier was not National Register eligible.

In 2008, John Milner Associates, Inc. (JMA) completed a Phase IA survey for the South Pier Improvement Project located to the north of the Project Area. The South Pier Improvement Project was located between 27th and 28th Streets west of 2nd Avenue and consisted of approximately 2.75 acres located on the existing pier. JMA concluded that there were no National Register-eligible properties within or immediately adjacent to their study area. They also found that there was no possibility for significant archaeological resources to be present. As a result, no further cultural resource investigations were recommended.

AKRF, Inc. (AKRF) conducted a Phase IA documentary study to the northeast of the Project Area in 2015. AKRF's study was undertaken in association with proposed repairs to an existing timber cribwork bulkhead at 280 Richards Street, which was failing and required stabilization. AKRF documented that the existing bulkhead above the water line had significantly deteriorated and had been altered over time. Therefore, this portion of the bulkhead was not considered a significant historic resource. AKRF also concluded that there was no precontact or historic archaeological sensitivity within the 280 Richards Street property.

In 2018, Dewberry Engineers Inc. completed the Made in New York – North Campus Project Phase IA Archaeological Documentary Study and Architectural Eligibility Assessment for the NYCEDC and The NYCSBS. This project lies adjacent to the current Bush Terminal Park Esplanade Shoreline Stabilization Project to the north.

Two Environmental Assessment Studies (EAS) have also been conducted within the immediate vicinity of the Project Area. In March of 2005, NYCEDC submitted a CEQR EAS for the Bush Terminal Piers Open Space Project which proposed the creation of a 23-acre park along the waterfront of Sunset Park, located to the south of the SBMT Project Area The completed park includes Piers 1 through 4 and the landfill between Piers 1 and 4. The EAS indicated that the Bush Terminal Complex is eligible for New York City Landmarks Designation and listing in the

National Register. The EAS further indicated that no structures associated with the National Register-eligible Bush Terminal Complex were located within the Bush Terminal Piers Open Space Project. Given the lack of structures along the "piers" and the deteriorated state of both the "piers" and bulkheads, no project impacts to historic resources were expected. Furthermore, the project was not considered to pose an adverse effect to the Bush Terminal Complex. Correspondence with LPC and SHPO indicated that the project area did not have archaeological significance.

In 2008, NYCEDC also conducted an EAS for Bush Terminal Units B and C, located to the south of the SBMT Project Area. This EAS was conducted in association with the proposed disposition of Units B and C in Bush Terminal to a private entity. It further noted that the proposed disposition would result in no physical changes to Units B and C; therefore, it was anticipated that the proposed project would not result in significant adverse impacts to Units B and C. Correspondence with LPC indicated that Block 725, Lot 1, Block 715, Lot 1, and Block 710, Lot 16 (corresponding to parts of Units A, B, C, and D; the Power House; and large portions of the waterfront) were characterized as properties with no archaeological significance.

3.7.4.3 Historic Architectural Resources

Historic architectural resources in close proximity to the Project Area are described below.

3.7.4.3.1 Historic Architectural Area of Potential Effect

The Historic Architectural APE includes all areas where the action may cause changes to land or structures and their uses, including the area of ground disturbance caused by the action, and locations from which elements of the undertaking may be visible. The Project Area is characterized as an urban waterfront, including solid fill "pier" structures, warehouse buildings, waterfront park, and densely developed street network. According to the *CEQR Technical Manual*, 400 feet from the borders of a project site is generally adequate, but study areas of different sizes are sometimes appropriate, including projects that may have the potential to be seen from farther away. Therefore, the Historic Architectural APE forms a ¼-mile (1,320 feet) buffer around the Project Area, and is adequate to consider potential direct and indirect effects of alteration to the waterfront location. The Historic Architectural APE is featured in **Figure 3.7-2**. SHPO has concurred with this APE. However, it is noted that the visual study area in **Section 3.8** (Urban Design and Visual Resources) extends four miles around the Project Area because the proximity to the Gowanus Bay waterfront allows longer views over open water beyond the Historic Architectural APE.

3.7.4.3.2 Known Historic Architectural Resources Within Historic Architectural Area of Potential Effect

According to research conducted on SHPO's online CRIS, SBMT was determined not eligible for listing in the National Register on March 4, 2019. In its determination, SHPO indicated "buildings associated with the SBMT were determined not eligible for the State and National Registers as part of 11PR00638; Structures are located outside the eligible Bush Terminal Historic District." (Mackey, March 4, 2019). CRIS further indicates that 7 structures at SBMT were erected around 1939, and renovated around 2009, and these structures are not National Register-eligible (CRIS).

Five known historic architectural resources are situated within the Historic Architectural APE as shown in **Figure 3.7-2**. These include National Register-eligible and National Register-listed resources which are identified in **Table 3.7-1**. Photographs are included in Appendix B.

Figure 3.7-2 Historic Architectural Area of Potential Effect

Legend

- Historic Architectural APE
- Project Area
- Upland Project Limits
- Marine Dredging Project Limits
- National Register-Eligible
- National Register-Listed
- National Register-Eligible Historic District (Bush Terminal Historic District)
- Parcel

Map Source:
NYC MapPLUTO 21v4; NYC DoITT Orthoimagery, 2018.

Historic Architectural Area of Potential Effect

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 500 1,000 2,000 Feet

AECOM
New York, New York

Table 3.7-1 Historic Architectural Resources in Area of Potential Effect

USN/Status	Resource Name	Address	Year Built	Description
04701.019392/NRE	Bush Terminal Historic District	Bound to the north by portions of 31st and 39th Streets; the south by 50th Street, the east by portions of 2nd Avenue and the Gowanus Expressway; and the west by Bay Ridge Channel of Upper New York Bay in Brooklyn, NY	1915-1971	Bush Terminal, comprised of loft buildings, support buildings, and piers constructed between 1915-1971, is National Register-eligible under Criteria A and C in the areas of commerce and architecture. Bush Terminal is significant as the first American example of the complete integration of the commercial and industrial functions of manufacturing and warehousing with both rail and water transportation in one terminal under a unified management. It was the largest unified non-railroad terminal ever built in the Port of New York, and the largest multi-tenant industrial property in the United States. Significant persons associated with Bush Terminal noted in the federal determination include terminal design consultant E.P. Goodrich, factory loft architect William Higginson, and the Turner Construction Company. The period of significance is 1915-1971 (Mackey, March 20, 2019a).
04701.021102/NRE	American Can Company	148 43rd Street Brooklyn, NY	1917; 1927	American Can Company at 148 43rd Street is significant under Criterion A in the area of commerce for its association with the American Can Company, a local business that contributed to the early 20th-century industrial development of Brooklyn's waterfront. The building is also significant under Criterion C in the area of architecture as a representative example of an early 20th-century reinforced concrete factory, which was constructed by the Turner Construction Company, the leading contractor for the construction of reinforced concrete industrial complexes in the period (Mackey, March 20, 2019b).
12NR06399/ NRL	Storehouse #2, US Navy Fleet Supply Base	850 3rd Avenue Brooklyn, NY	1918	Storehouse No. 2 is significant under Criteria A and C for its historic and architectural importance. It is significant under Criterion A in the area of military history for its association with the former U.S. Navy Fleet Supply Base, which was one of two purpose-built, intermodal supply storage complexes commissioned by the U.S. Navy in 1916; building was formed as part of a larger complex that included two storehouses, steam plant, warehouses, railroad, Marine barracks, office, sheds, piers, and float bridges on Gowanus Bay; significant under Criterion C as an example of a reinforced concrete building erected by Turner Construction Company, the leading contractor for reinforced concrete industrial complexes (Dietrich, 2012).
USN Not Available/NRE	Gowanus Expressway	Running for 18,472 feet from 65th Street to the Prospect Expressway between Mileposts 11 and 15 in Brooklyn, NY	1941-1961	The National Register-eligible Gowanus Expressway has been determined National Register-eligible under Criteria A and C for its historic importance and engineering design. It is significant as a massive, cantilevered roadway adaptively reused from an original 1941 elevated subway, and widened in 1961 to accommodate six lanes of traffic while retaining the original subway supports. It also is important for local history in the changing planning paradigms in favor of the automobile with the road construction dividing neighborhoods on a large scale (FHWA, 2006).

USN/Status	Resource Name	Address	Year Built	Description
04701.014993/NRE	P.S. 136 (Present-day I.S. 136)	4004 4th Avenue Brooklyn, NY	1901	P.S. 136 appears to meet Criterion C as an architecturally significant example of early twentieth century school architecture (French Renaissance style). The school may also possess additional significance under Criterion A for representing the response of the city to the expanding school-age population and the educational reform movement; designed under administration of C.B.J. Snyder, Buildings Superintendent, 1891 to 1923 (Howe, October 13, 1999).

3.7.5 Environmental Effects

Direct impacts to historic and cultural resources include, but are not limited to, physical damage or destruction of all or part of a property; physical alterations; moving or realigning a historic property; and/or isolating a property from its setting. Direct impacts may also include acquisitions of portions of property that do not include buildings or large-scale structures, but may include small-scale features such as fences, portions of driveways and sidewalks, and landscaping. Indirect impacts to historic and cultural resources may include visual, auditory, or atmospheric intrusions; shadow effects; vibrations; and changes in access or use.

3.7.5.1 Archaeological Resources

According to the *CEQR Technical Manual*, archaeological resources usually need to be assessed for projects that would result in any in-ground disturbance. In-ground disturbance is any disturbance to an area not previously excavated, including new excavation that is deeper and/or wider than previous excavation on the same site. Examples of projects that typically require assessment are:

- Above-ground construction resulting in in-ground disturbance, including construction of temporary roads and access facilities, grading, or landscaping.
- Below-ground construction, such as installation of utilities or excavation, including that for footings or piles.
- Analysis of archaeological resources typically is not necessary in the following circumstances:
- Projects that would not result in ground disturbance.
- Projects that would result in disturbance only of areas that have already been recently excavated for other purposes, such as basements, concourses, sunken plazas, etc. However, if the area proposed to be excavated exceeds the previous disturbance in depth or footprint, archaeological assessment may be appropriate.

For any projects that would result in new ground disturbance (as described above), assessment of both precontact and historic resources is appropriate. Such a determination is arrived at through consultation with SHPO and LPC on the potential effects of project actions on archaeological resources. SHPO has responded to the initial consultation letter with a determination of “No Adverse Effect on historic properties.” Therefore, a Phase IA archaeological assessment is not required for the Proposed Project.

3.7.5.1.1 Future without Project – Archaeological Resources

In the Future without Project condition, the Proposed Project would not occur. Current uses by the two existing marina operators would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project underground cables and onshore substation would be constructed and then would operate. The Future without Project condition in the Project Area would have no effect on potential archaeological resources within the Archaeological APE, as existing conditions would remain as is, and no subsurface disturbance would be created. In addition, any additional projects that would be undertaken in proximity to the Project Area would be subject to their own environmental review process per the NEPA, SEQR and/or CEQR, and be subject to related Section 106/14.09 requirements. A Phase IA archaeological survey was conducted for the EW 1 Project, and the potential for the EW 1 Project to impact archaeological resources within its Archaeological APE is currently being evaluated under Section 106 of the NHPA.

See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.7.5.1.2 Future with Project – Archaeological Resources

Significant adverse impacts on archaeological resources are physical – disturbance or destruction – and typically occur as a result of construction activities that would not occur but for the Proposed Project. If any significant archaeological resources were identified in the Project Area, and the Proposed Project may disturb or destroy those resources in any way, a significant adverse impact would occur.

SHPO has opined that the Proposed Project would have No Effect on archaeological resources.

3.7.5.1.3 Indirect Effects and Cumulative Impacts

Indirect effects, including inducing additional growth, to archaeological resources are not anticipated, as the Project Area has been determined to possess no archaeological potential. On March 21, 2022, SHPO notified the USACE via letter that the Proposed Project will have No Adverse Effect upon historic properties. The Proposed Project would not have indirect effects on archaeological resources in the Study Area, including inducing developments on other sites in the Study Area that may be determined to possess archaeological potential. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As such, it is not expected that the Proposed Project would induce additional developments in the surrounding highly-developed neighborhood that may have potential to have effects on archaeological resources.

The onshore construction actions associated with the Proposed Project and EW 1 Project would not incur short-term construction impacts to archaeological resources. The Phase IA archaeological documentary study for the EW 1 Project concluded that there are no areas of potential archaeological sensitivity across the Terrestrial Archaeological APE that may be impacted by the construction actions associated with the EW 1 Project. No cumulative long-term operational effects to terrestrial archaeological resources would be incurred.

It is not known at the time of the publication of this EAF if EW 1 Project short-term construction impacts or long-term operational effects to marine archaeological resources within the EW 1 Project Marine Archaeological APE are anticipated because the analysis of the marine archaeological resources is not available for reference. However, given the absence of impacts associated with the Proposed Project, there would be no cumulative impacts; the only potential impacts are those associated with the EW 1 Project.

3.7.5.2 Historic Architectural Resources

The potential direct and indirect impacts of the Proposed Project on the five historic architectural resources are analyzed in accordance with the *CEQR Technical Manual*. In New York City, impact assessments undertaken in accordance with CEQR generally ask three major questions for historic and cultural resources:

1. Would there be a physical change to the property?
2. Would there be a physical change to its setting, such as context or visual prominence (also known as indirect impacts)?
3. If there would be a change to the property or setting, would it alter or eliminate significant characteristics of the resource that make it important?

If a project negatively impacts characteristics that make a resource eligible for National Register listing or designation as a New York City Landmark, it would most likely result in a significant adverse impact. Significant adverse impacts on historic architectural resources may include the following:

1. Physical destruction, demolition, damage, alteration, or neglect of all or part of an historic property. For example, alterations that would add a new wing to an historic building or replacement of the resource's entrance may result in adverse impacts, depending on the design.
2. Changes to the architectural resource that cause it to become a different visual entity, such as a new location, design, materials, or architectural features. An example would be recladding an architectural resource with new brickwork.
3. Isolation of the property from, or alteration of, its setting or visual relationships with the streetscape. This includes changes to the resource's visual prominence so that it no longer conforms to the streetscape in terms of height,

footprint, or setback; is no longer part of an open setting; or can no longer be seen as part of a significant view corridor. For example, if all the buildings on a block, including an architectural resource, are four floors high, and a proposed project would replace most of those with a 15-story structure, the four-story architectural resource would no longer conform to the streetscape. Another example would be a proposed project that would result in a new building at the end of a street so that views of an historic park beyond were blocked.

4. Introduction of incompatible visual, audible, or atmospheric elements to a resource's setting. An example would be construction of a noisy highway or factory near a resource noted for its quiet, such as a park.
5. Replication of aspects of the resource so as to create a false historical appearance. If a house was built during the Revolutionary War but later underwent extensive alteration, re-creation of its 18th-Century appearance may have an adverse impact on that resource.
6. Elimination or screening of publicly accessible views of the resource.
7. Construction-related impacts, such as falling objects, vibration (particularly from blasting or pile-driving), dewatering, flooding, subsidence, or collapse.
8. Introduction of significant new shadows, or significant lengthening of the duration of existing shadows, over an historic landscape or an historic structure (if the features that make the resource significant depend on sunlight) to the extent that the architectural details that distinguish that resource as significant are obscured.

Assessment of impacts on resources in the Historic Architectural APE are described below. The three potential findings include:

- No Impact – Undertaking would not impact National Register-listed or eligible resources.
- No Adverse Impact – Undertaking may have potential to directly or indirectly affect historic property, but would not alter characteristics that qualify it for inclusion in the National Register, and, if relevant, impacts could be reduced through design or other means prior to implementation.
- Adverse Impact – Undertaking would directly or indirectly alter characteristics that qualify a property for inclusion in the National Register.

The impacts assessment is provided below.

3.7.5.2.1 Future without Project – Historic Architectural Resources

In the Future without Project condition, the Proposed Project would not occur. Current uses by the two existing marina operators would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project underground cables and onshore substation would be constructed and then would operate. Despite nearby actions associated with the EW 1 Project, the five resources within the EW 1 Project Historic Architectural APE would remain intact, and the three resources closest to onshore EW 1 Project improvements, including the Bush Terminal Historic District, American Can Company, and Storehouse No. 2, would be adjacent to a revived working waterfront which is consistent with their industrial surroundings since their construction in the early 20th century. Therefore, the Future without Project condition is anticipated to result in No Adverse Effect.

See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.7.5.2.2 Future with Project – Historic Architectural Resources

The Proposed Project would occur entirely within SBMT. SBMT features basins that extend to the Federal Channel between areas of bulkheaded solid fill that resemble and are referred to as “pier” structures (despite being solid fill instead of pile-supported structures over water). The Proposed Project includes dredging, bulkhead replacement, new fender installation, new wharf installation, building removal, paving and grading, and construction of an O&M base. The buildings slated for removal include three existing commonplace structures on the 39th Street “Pier,” one building on the east (land-based side) of the 39th Street “Pier,” and the Tower Building and Scale House on the east (or land-based side) of the 35th Street “Pier.” The structures slated for removal have been determined ineligible for National Register listing according to CRIS (Mackey, March 24, 2019). In their letter dated **March 21, 2022, SHPO reaffirmed that the SBMT complex is ineligible for National Register listing**. A copy of the letter is included in Appendix A.

Potential physical and visual impacts of the Proposed Project on the five historic architectural resources within the Historic Architectural APE are provided below. **On March 21, 2022, SHPO concurred that the Proposed Project will have No Adverse Effect upon historic properties,** and a copy of the letter is included in Appendix A.

3.7.5.2.2.1 Bush Terminal Historic District

The National Register-eligible Bush Terminal Historic District is historically and architecturally significant for its cohesive collection of loft buildings, support buildings, and piers constructed between 1915-1971, which corresponds to its period of significance. The complex is significant as the first American example of the complete integration of the commercial and industrial functions of manufacturing and warehousing with both rail and water transportation in one terminal under a unified management. It was the largest unified non-railroad terminal ever built in the Port of New York, and the largest multi-tenant industrial property in the United States (Mackey, March 20, 2019a). Although some piers, railroad yards, and a few warehouses have been removed, most the terminal's buildings remain in their original location with very little infill development. Piers 1 through 4 were out of service by 1978 and were partially filled between 1974 and 1980 to expand SBMT. Bush Terminal Park was completed in 2014 and built on Piers 1 through 4. While the partial filling and development of the park occurred outside the period of significance, the area is historically related and there is possible research potential. Despite the changes over time, the Bush Terminal Historic District retains integrity of location, design, setting, materials, feeling, and association.

Under the Proposed Project, dredging, bulkhead replacement, new fender installation, new wharf installation, a removal of all buildings and structures, and construction of an O&M base at SBMT would occur northeast of the Bush Terminal Historic District. Buildings slated for removal include three existing commonplace structures on the 39th Street "Pier," and one non-historic building on the east (land-based side) of the 39th Street "Pier," and the Tower Building and Scale House on the east (or land-based side) of the 35th Street "Pier." The buildings and structures slated for removal have been determined ineligible for National Register listing according to CRIS (Mackey, March 24, 2019). Specifically, actions would take place northeast of contributing Pier 7, which is a highly deteriorated structure that no longer retains structural integrity, and north of the contributing warehouse buildings between 2nd Avenue and the 3rd Avenue/Gowanus Expressway (I-278).

The Proposed Project is not anticipated to impact any of the characteristics that qualify the Bush Terminal Historic District for inclusion in the National Register. The district has changed over time because the need for such a massive port terminal has diminished, resulting in the removal of buildings and piers, and creation of a city park. The Proposed Project would not occur within the district's National Register boundary, and therefore, will have no direct effect on its integrity of location, design, setting, materials, feeling, and association.

However, the Bush Terminal Historic District is located within 90 feet of the Proposed Project on its south and east sides. The portion of the district immediately south of the Project Area would be in close proximity to pavement stripping, pavement removal, and building demolition. The portion of the district immediately east of the Project Area would be in close proximity to pavement stripping and pavement removal. To ensure that the district's integrity remains intact during and after construction, a Construction Protection Plan (CPP) would be prepared in accordance with the NYCDOB "Technical Policy and Procedure Notice 10/88: Procedures for the Avoidance of Damage to Historic Structures Resulting from Adjacent Construction When Subject to Controlled Inspection by Subsection 27-724 and for Any Existing Structure Designated by the Commissioner." This notice defines adjacent historic structures as resources that are located contiguous to or within a lateral distance of 90 feet from a lot under development or alteration (Polsky, June 6, 1988), and construction activities slated near the Bush Terminal Historic District meets this definition. The CPP would also follow the guidance included in "New York City LPC Guidelines for Construction Adjacent to a Historic Landmark," and "Protection Programs for Landmark Buildings" (both on file with LPC). The CPP would be implemented by a professional engineer before excavation and construction activities associated with the Proposed Project takes place.

In addition, the district may also be indirectly visually impacted. Specifically, the working waterfront would be re-established at SBMT, but these alterations are consistent with the port setting in Brooklyn and will not introduce elements that diminish the integrity of the district's significant historic features. The district will remain historically and architecturally significant for its cohesive collection of loft buildings, support buildings, and piers constructed between 1915-1971. In summary, the Proposed Project would have No Adverse Impact on Bush Terminal Historic District provided that the CPP is prepared.

3.7.5.2.2.2 American Can Company

The National Register-eligible American Can Company building is historically and architecturally significant as an early 20th-century reinforced concrete factory, which was constructed along the Brooklyn waterfront by the Turner Construction Company, the leading contractor for the construction of reinforced concrete industrial complexes in the period. The American Can Company retains integrity of location, setting, feeling, and association. The Proposed Project would occur over 1,200 feet north of the National Register-eligible American Can Company building, which is located at 4302-4324 2nd Avenue/148 43rd Street. The view from the building to SBMT where the Proposed Project would take place is obstructed by intervening development. As a result, the Proposed Project would not directly or indirectly affect the American Can Company building. Therefore, the Proposed Project would have No Impact on the American Can Company.

3.7.5.2.2.3 Storehouse No. 2

The National Register-listed Storehouse No. 2 is historically and architecturally significant as an early 20th-century U.S. military building that survives as a distinctive example of a reinforced concrete warehouse erected by the Turner Construction Company. Storehouse No. 2 retains integrity of location, setting, feeling, and association. Situated between 2nd and 3rd Avenues, and 30th and 32nd Streets, the 2nd Avenue façade of Storehouse No. 2 faces the east side (land-based side) of the Sims Facility Pier, which is northeast of the 35th Street "Pier" at SBMT. The storehouse is also situated east of the 35th Street and 39th Street "Piers" where improvements would be made. Specifically, the Proposed Project would occur over 600 feet west of the National Register-listed Storehouse No. 2 located at 850 3rd Avenue. While the Proposed Project would be visible from Storehouse No. 2, it would have no effect on the location, feeling, and association of the historic property, and the visual alterations are consistent with and sustain the setting of the historic property as part of a working waterfront. Therefore, the Proposed Project would have No Adverse Impact on Storehouse No. 2.

3.7.5.2.2.4 Gowanus Expressway

The National Register-eligible Gowanus Expressway (I-278) is historically and structurally significant as a massive, cantilevered roadway adaptively reused from an original 1941 elevated subway and widened in 1961 to accommodate six lanes of traffic while retaining the original subway supports. It also is important for local history in the changing planning paradigms in favor of the automobile with the road construction dividing neighborhoods on a large scale. The viaduct that supports the highway is situated along 3rd Avenue and is over 900 feet southeast of SBMT. Views between the highway and SBMT, where the Proposed Project would take place, are intermittently blocked by intervening development. In addition, the significance of the highway is not tied to its proximity to the waterfront. As a result, the Proposed Project would not directly or indirectly affect the Gowanus Expressway. Therefore, the Proposed Project would have No Impact on the Gowanus Expressway.

3.7.5.2.2.5 I.S. 136

The National Register-eligible I.S. 136 is an architecturally significant example of early 20th-century school architecture (French Renaissance style). It is also historically significant for representing the response of New York City to the expanding school-age population and the educational reform movement. It was designed under the administration of C.B.J. Snyder, Superintendent of School Buildings from 1891 to 1923. Located at 4004 4th Avenue, the school is situated over 1,600 feet southeast of SBMT. The Proposed Project would not be visible from the school, and its integrity as a 1901 school would remain intact. Therefore, the Proposed Project would have No Impact on I.S. 136.

3.7.5.2.3 Indirect Effects and Cumulative Impacts

As indicated above, on March 21, 2022, SHPO concluded that the Proposed Project will have No Adverse Effect upon historic properties. The Proposed Project would not have indirect effects on historic properties in the Study Area, including inducing developments on other sites in the Study Area that may be determined to be historic properties. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As such, it is not expected that the Proposed Project would induce additional developments in the surrounding highly-developed neighborhood that may have potential to have effects on historic properties.With respect to cumulative impacts, under the Proposed Project, dredging, bulkhead replacement, new fender installation, new wharf installation, removal of all buildings and structures, and construction of an O&M base would occur at SBMT. Under the Future without Project condition, current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the northern end of SBMT would be relocated. Adjacent to the Project Area at SBMT, the EW 1 Project underground cables and onshore substation would be constructed and then would operate. Past and present development actions have indirectly impacted five historic architectural resources in

the Project Area. Future (reasonably foreseeable) actions in the Project Area, including the EW 1 Project, are not anticipated to have adverse effects on the five resources. Federal, state, and local regulations would continue to minimize potential adverse effects to cultural resources from their actions. Therefore, there would be No Adverse cumulative effect on historic architectural resources within the Project Area.

3.8 Urban Design and Visual Resources

3.8.1 Introduction

This section considers the potential of the Proposed Project's impact on urban design and visual resources. It has been prepared in accordance with the *CEQR Technical Manual* methodologies that define urban design and visual resources. Urban design is the totality of components that may affect a pedestrian's experience of public space. Visual resources are the connection from the public realm to significant natural or built features, including views of the waterfront, public parks, landmark structures or districts, or otherwise distinct buildings, and natural resources. This section has also been prepared in compliance with the NYSDEC *Assessing and Mitigating Visual Impacts* (DEP-00-2, revised December 13, 2019), which provides guidance on assessing and mitigating effects on aesthetic and visual resources.

3.8.2 Regulatory Context

3.8.2.1 *CEQR Technical Manual* Guidelines

As defined in the *CEQR Technical Manual*, urban design is the totality of components that may affect a pedestrian's experience of public space. These components include the following:

- Streets – the arrangement and orientation of streets define location, flow of activity, street views, and create blocks on which buildings and open spaces are arranged. Other elements, including sidewalks, plantings, streetlights, curb cuts, and street furniture, also contribute to an area's streetscape.
- Buildings – a building's size, shape, setbacks, pedestrian and vehicular entrances, lot coverage, and orientation to the street are important urban design components that define the appearance of the built environment.
- Visual Resources – visual resources include significant natural or built features, including important view corridors, public parks, landmarks, structures or districts, or otherwise distinct buildings.
- Open Space – open space includes public and private areas that do not include structures, including parks and other landscaped areas, cemeteries, and parking lots.
- Natural Features – natural features include vegetation, and geologic and aquatic features that are natural to the area.

Sunlight and wind conditions also affect the pedestrian experience of a given area. According to the *CEQR Technical Manual*, the construction of large buildings at locations that experience high wind conditions, such as along the waterfront, may result in an exacerbation of wind conditions due to "channelization" or "downwash" effects that may affect pedestrian safety. Although the Proposed Project would be constructed along the Gowanus Bay waterfront, it would not involve the construction of tall buildings; therefore, an analysis of pedestrian wind conditions is not warranted. Regarding sunlight, the openness of the Project Area along the Gowanus Bay waterfront and the location of the Industry City buildings set back from the Project Area allow sunlight to reach much of the Project Area throughout the day. This condition would not be altered with the Proposed Project, and no further assessment of sunlight is warranted.

The *CEQR Technical Manual* suggests that a preliminary assessment of urban design is needed when a project may have an effect on one or more of the elements that contribute to the pedestrian experience described above. Because the Proposed Project would be located along the Gowanus Bay waterfront, adjacent to the Bush Terminal Historic District and along City streets, a preliminary assessment was conducted, as set forth below. A field visit was conducted on January 13, 2022, to assess these aesthetic and visual resources and the urban design of the area around the Project Area. Following the methodology of the *CEQR Technical Manual*, urban design impacts are determined "by considering the degree to which a project would result in a change to a built environment's arrangement, appearance, or functionality such that the change would negatively affect a pedestrian's experience of the area." In assessing the significance of a visual resource impact, key considerations include "whether the project obstructs important visual

resources and whether such obstruction would be permanent, seasonal, or temporary; how many viewers would be affected; whether the view is unique or do similar views exist; or whether it can be seen from many other locations."

3.8.2.2 NYSDEC Guidelines

As stated in **Section 3.8.1** (Introduction), in addition to following guidance in the *CEQR Technical Manual*, the following assessment is in compliance with NYSDEC *Assessing and Mitigating Visual Impacts* (DEP-00-2), which provides guidance on assessing impacts on aesthetic and visual resources.

NYSDEC has developed a methodology for assessing and mitigating visual effects (NYSDEC, 2019). This policy was developed for NYSDEC review of Projects and defines visual and aesthetic effects, describes when a visual assessment is necessary and how to review a visual effect assessment, differentiates state and local concerns, and defines avoidance, mitigation and offset measures that eliminate, reduce, or compensate for negative visual effects. The methodology and effect assessment criteria established by the policy are comprehensive and can be used by other state and local agencies to assess potential effects.

According to DEP-00-2, certain variables can affect a viewer's perception of an object or project and the visibility of the landscape (existing vegetation, buildings, and topography), size perspective (reduction of apparent size of objects as distance increases), and atmospheric perspective.[12] Consequently, according to the NYSDEC guidance, an "impact" would occur when there is a detrimental effect on an aesthetic resource that interferes with or reduces the public's enjoyment of a resource and when the mitigating[13] effects of perspective, such as vegetation, distance, and atmospheric perspective or other designed mitigation, do not reduce the visibility of a project to insignificant levels. Beauty plays no role in this concept. Further, a visual impact may also be considered in the context of contrast. Thus, objects that may be visible but are of a similar color or reflectance to background forms, would not constitute a visual impact. NYSDEC provides further definition of an "aesthetic impact," which occurs when there is a detrimental effect on the perceived beauty of a place or structure. Mere visibility, even startling visibility of a project proposal, should not be the threshold for decision making. Instead, a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation in the appearance of an inventoried resource.

Therefore, while the construction of the Proposed Project may be visible from certain vantage points, visibility alone is not a threshold of significance. A determination of significance depends on several factors: presence of designated historic or scenic resources within the viewshed of the project, distance between the viewer and the project, general characteristics of the surrounding landscape, and the extent to which the visibility of a project interferes with the public's enjoyment or appreciation of the resource. A significant adverse visual impact would only occur when the effects of design, distance, and intervening topography and vegetation minimize the visibility of an object and the visibility significantly detracts from the public's enjoyment of a resource (e.g., a cooling tower plume blocks a view from a State Park overlook, resulting in a diminishment of the public enjoyment and appreciation of the State Park or an impairment of the character or quality of such a place).

DEP-00-2 provides guidance for identifying scenic and aesthetic resources of statewide significance from one or more of the following categories:

- Properties on or eligible for inclusion in the National Register or State Register of Historic Places;
- State Parks;
- New York State Heritage Areas (formerly Urban Cultural Parks);
- State Forest Preserves;
- National Wildlife Refuges, State Game Refuges, and State Wildlife Management Areas;

[12] DEP-00-2 describes "atmospheric perspective" as follows: Even on the clearest of days, the sky is not entirely transparent because of the presence of atmospheric particulate matter. The light scattering effect of these particles causes atmospheric or aerial perspective, the second important form of perspective. In this form of perspective there is a reduction in the intensity of colors and the contrast between light and dark as the distance of objects from the observer increases. Contrast depends upon the position of the sun and the reflectance of the object, among other items. The net effect is that objects appear "washed out" over great distances.
[13] DEP-00-2 uses the term "mitigating" or "mitigation" to refer to design parameters that avoid or reduce potential visibility of a project. This should not be confused with the use of the term "mitigation" with respect to mitigation of significant adverse environmental effects as required by SEQR and CEQR.

- National Natural Landmarks;
- Sites on the National Park System, including Recreation Areas, Seashores, and Forests;
- National or State Wild, Scenic, or Recreational Rivers;
- Sites, areas, lakes, reservoirs, or highways designated or eligible for designation as scenic;
- Scenic Areas of State-wide Significance;
- State or federally designated trails, or those proposed for designation;
- Adirondack Park Scenic Vistas;
- State Nature and Historic Preserve Areas;
- Palisades Park;
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space Category; and
- National Heritage Areas.

This assessment of visual resources includes the presence of visually sensitive and aesthetic resources in the Study Area for the purposes of assessing the visual impacts and identifying Key Observation Points (KOPs). Significant aesthetic and visual resources were identified in accordance with the NYSDEC's Program Policy DEP-00-2.

A field visit was conducted on January 13, 2022, to assess aesthetic and visual resources, KOPs, and the physical limitations to views within the Study Area.

3.8.3 Affected Environment

3.8.3.1 Visual Study Area

The Study Area was identified based on locations from which the Project Area would potentially be visible to the casual observer from a publicly-accessible location. The "casual observer" is considered to be an observer who is not actively looking or searching for the Proposed Project facilities but is engaged in activities at locations with potential views of the Proposed Project. *CEQR Technical Manual* guidance suggests using a 400-foot study area around the Project Area, which reflects a typical viewshed within the City's dense urban environment. The City's heavily developed urban environment within the City limits with buildings around a project obstructs views of the project, and there are limited open and unobstructed views from potential aesthetic and visual resources. However, because of the proximity of the Proposed Project to the Gowanus Bay waterfront, which would allow longer views over open water beyond 400 feet, the Study Area was extended to four miles to include the entirety of the New York Bay and potential viewpoints from aesthetic and visual resources across the New York Bay to the west. The four-mile Study Area (hereafter referred to as Study Area) follows NYSDEC guidance in DEP-00-2.

The Study Area contains portions of Brooklyn, Manhattan, and Staten Island. These areas within the Study Area are heavily developed urban environments interspersed with parks and open spaces. Visibility across these areas is restricted by the dense urban environment and existing building structures that obstruct longer views within the Study Area. Immediately to the north of the Project Area is the Red Hook neighborhood in Brooklyn, which is situated between the Project Area and Manhattan to the north. The Red Hook urban environment obstructs existing views north from the Project Area to Manhattan and northern Brooklyn except for high rise buildings. These views are discussed in **Section 3.8.3.2** (Aesthetic and Visual Resources Inventory).

There are three islands to the northwest of the Project Area located within the New York Bay: Governors Island National Monument, the Statue of Liberty National Monument, and Ellis Island National Monument. These are sites of national historic significance as parts of the National Park System and function as tourist destinations. These areas are characterized by open park spaces. Views from both Governors Island National Monument and Ellis Island National Monument are over a long distance across the Upper New York Bay and partially obstructed by existing development in the Red Hook neighborhood. The view from the Statue of Liberty National Monument is unobstructed, but there is a long viewing distance to the Project Area. These views are discussed in **Section 3.8.3.2** (Aesthetic and Visual Resources Inventory).

The eastern shore of New Jersey is located in the western section of the Study Area across the New York Bay and the Project Area. This section of the Study Area contains port structures, a golf course, and Liberty State Park. The port structures are developed and functioning ports with public access, and the remaining park spaces and golf course open spaces are characterized by open park spaces with vegetation and access to the New York Bay waterfront. Views from the eastern shore of New Jersey are unobstructed, but there is a long viewing distance to the Project Area. These views are discussed in **Section 3.8.3.2** (Aesthetic and Visual Resources Inventory).

The affected environment within Study Area is the area around the Project Area where viewer groups may experience visual impacts of the Proposed Project. The viewer groups present in the Study Area are local residents, travelers and commuters, tourists, and recreational users. Distinctions among user groups and their expected sensitivity to landscape changes based on their activities and viewing characteristics were also assessed.

3.8.3.1.1 Project Area

The Project Area is a 80.3-acre site, of which approximately 66.10 acres are upland, and approximately 14.2 acres are underwater. The upland portion of the Project Area is bound by 39th Street to the south, 2nd Avenue to the east, the Sims Facility to the north at approximately 29th Street, and Gowanus Bay to the west. Pavement extends over the entirety of the Project Area with existing multi-story buildings on the 39th Street “Pier” and across from 33rd and 34th Streets. An operational rail line runs through the Project Area from 39th Street to the Sims Facility. A chain link fence approximately ten feet high lines the boundary of the SBMT site within the Project Area. There is little vegetation within the Project Area and includes scattered green grasses and bushy shrubs, particularly along the 35th Street “Pier”. In addition, weeds have grown through cracks in the pavement. Adjacent to the Project Area, landscaped planters have been constructed at the intersection of 39th Street and 2nd Avenue and along 2nd Avenue as part of landscaping for Industry City to the east of 2nd Avenue.

There is no public access available in the Project Area, so there are no publicly-accessible viewing areas within the Project Area. Views from 39th Street looking north, 2nd Avenue looking south, west, and north, and 29th Street looking south through the Project Area are obstructed by the existing features of the Project Area and are dominated by the chain link fence and buildings.

3.8.3.1.2 Urban Design near the Project Area

The Project Area is located on the Gowanus Bay waterfront bordered by 39th Street to the south, 2nd Avenue to the east, and 29th Street to the north. Gowanus Bay is part of the larger New York Bay. The Project Area is an underutilized industrial waterfront site with warehouse structures (referred to as sheds) and solid fill “pier” structures and is surrounded by chain link fencing approximately 10 feet high prohibiting any public access to the site or the Gowanus Bay waterfront within the Project Area. The area around the Project Area includes multiple aesthetic and visual resources and views of these resources. This area is also characterized by dense industrial, manufacturing, and utility land uses in the Industry City campus along 39th Street and 2nd Avenue and the Sims Facility to the north at 29th Street. The Industry City campus is located within the Bush Terminal Historic District. Industry City parking facilities are located along the north side of 39th Street and west side of 2nd Avenue directly adjacent to the Project Area and separated by a chain link fence. In addition, there are four Citi Bike docking stations along 2nd Avenue near the Project Area. Both the parking facilities and Citi Bike docking stations provide commuting and tourist transportation options for Industry City.

Vehicle access to the Project Area is located on 39th Street near the intersection of 39th Street and 1st Avenue and on 29th Street near the Sims Facility. Vehicles accessing the Project Area from 39th Street would likely use the 39th Street and 2nd Avenue intersection where there is also an exit ramp from southbound Gowanus Expressway (I-278).

3.8.3.2 Aesthetic and Visual Resource Inventory

A visual resource inventory was developed according to NYSDEC DEP-00-2. The NYSDEC guidance provides a list of 16 categories of state aesthetic and visual resources that should be evaluated (see **Section 3.8.2.2** (NYSDEC Guidelines)). In addition, NYSDEC guidance and the *CEQR Technical Manual* discuss evaluation of local resources without State or National importance. Following NYSDEC guidance and the *CEQR Technical Manual*, an inventory of sensitive aesthetic and visual resources within the Study Area was prepared and listed in **Table 3.8-1**. The aesthetic and visual resources inventory includes 29 resources across the following categories: National Register, National Register-eligible, State Historic Places, a State Park, New York State Heritage Areas, sites in the National Park System,

and locally important resources. **Figure 3.8-1** depicts all resources in relationship to the viewshed from the Project Area.

Table 3.8-1 lists the aesthetic and visual resource, resource category according to DEP-00-2, distance from the Project Area, and the visibility of the Project Area from that resource. Visibility was determined using a combination of a viewshed analysis and field visit. A viewshed analysis was conducted for an observer In the Project Area and from each aesthetic and visual resource using ESRI ArcMap 10.8.1 with the Spatial Analyst extension to process 1 meter Digital Elevation Models based on the National Elevation Dataset. This dataset also contains modeling for existing development in the New York City and New Jersey landscapes. Each viewshed was developed by identifying a viewing position on the pavement within the Project Area and a publicly-accessible viewing position on the ground in each aesthetic and visual resource. Each viewing position was adjusted to the height of a casual observer, and the resulting viewshed for each aesthetic and visual resource depicts what a casual observer could see from their viewing position on each resource. Aesthetic and visual resources within the Study Area that do not contain the Project Area within their viewsheds were eliminated from further analysis.

To supplement the viewshed analysis, a field visit was conducted on January 13, 2022, to assess the visual conditions around the Project Area and the visibility of the Project Area particularly from aesthetic and visual resources within the Brooklyn urban environment surrounding the Project Area. This field visit provided a visual assessment of the aesthetic and visual resources to the south, west, and north of the Project Area that could have views of the Project Area. Views of the Project Area within the Sunset Park and Red Hook urban environments and beyond 400 feet of the Project Area are completely obstructed due to the screening of existing development in the vicinity of the Project Area. However, there are potential unobstructed views of the Project Area beyond 400 feet of the Project Area when an observer is looking at the Project Area across open water to the west.

Views of the Project Area over the open water of New York Bay range in distance from 0.50 (Columbia Street Esplanade) to 4.00 miles (Hudson River Park). Long distance views of two miles or greater could have unobstructed views of the Project Area. However, development on the Project Area would blend into the overall urban environment around the Project Area, and the Proposed Project would not attract attention or be perceived to a casual observer over two miles away. Therefore, aesthetic and visual resources across the New York Bay and two miles away from the Project Area or greater were eliminated from further analysis. These long distance views are identified in **Table 3.8-1**.

Following guidance in the *CEQR Technical Manual*, views of the waterfront are considered visual resources, and the Gowanus Bay waterfront is located in the Project Area. The Project Area extends out into Gowanus Bay along two solid fill “pier” structures: the 35th Street and 39th Street “Piers”. Public access to the Project Area is prohibited. The closest point where pedestrians and vehicles can approach the Gowanus Bay waterfront near the Project Area is at the intersection of 1st Avenue and 39th Street, which is approximately 625 feet from the waterfront. From this intersection there is no public access to the waterfront, and all views of the waterfront are obstructed by existing buildings along the waterfront to the west of 1st Avenue. Nevertheless, the Gowanus Bay waterfront is considered an aesthetic and visual resource because of its proximity to the Project Area.

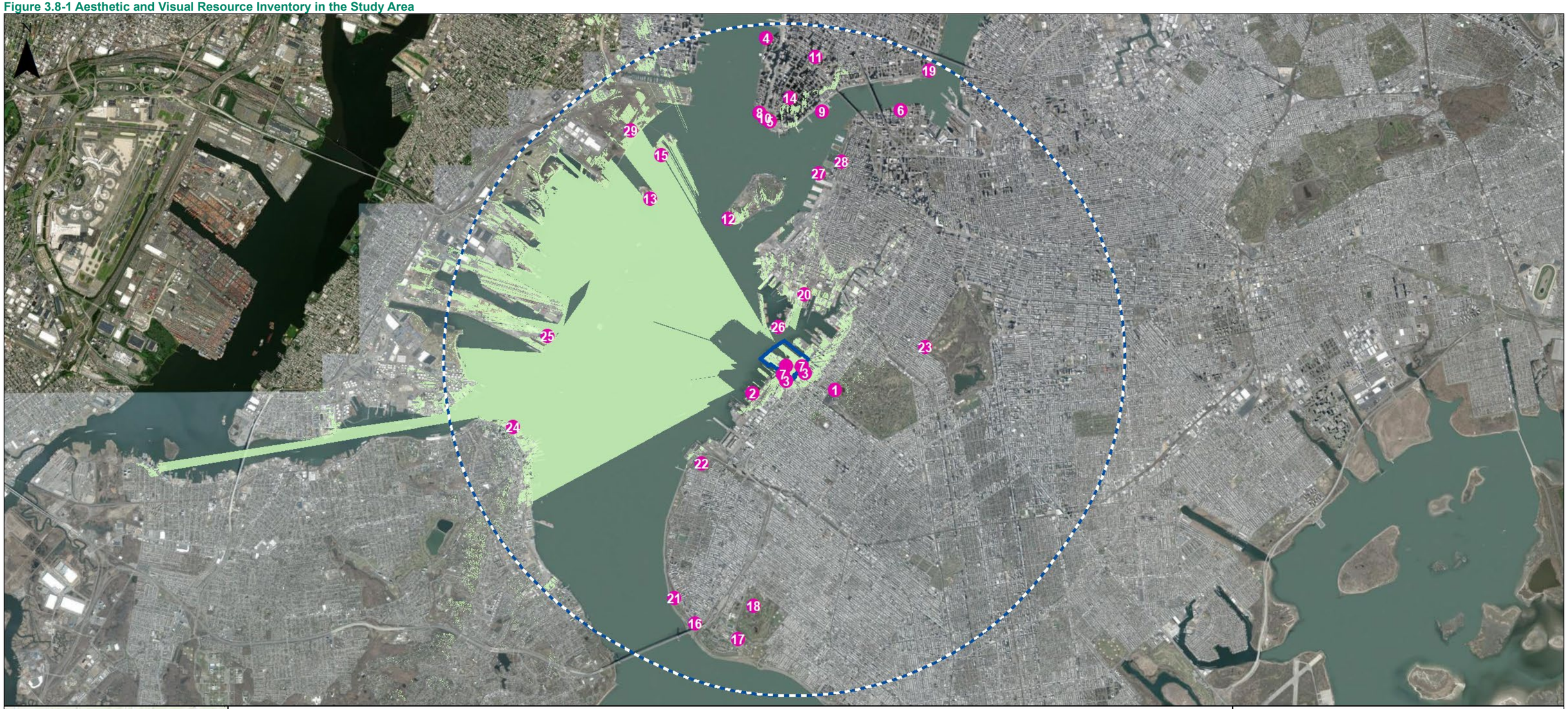
Table 3.8-1 Aesthetic and Visual Resources Inventory within the Study Area

Map ID	Resource	Category	Distance to Project Area (miles)	Proposed Project Visibility
1	Green-wood Cemetery	National Register, National Register-eligible, or State Historic Places	0.68	No views: screened by existing development
2	Bush Terminal Piers Park	National Register, National Register-eligible, or State Historic Places	0.55	Partial views: view of 39th Street “Pier” only
3	Bush Terminal Historic District (along 39th Street and 2nd Avenue)	National Register, National Register-eligible, or State Historic Places	0.11 – 0.19	View of Project Area
4	Hudson River Park	State Park	4.00	No views: screened by existing development
5	Battery Park	New York State Heritage Area	3.09	No views: screened by existing development

Map ID	Resource	Category	Distance to Project Area (miles)	Proposed Project Visibility
6	Empire Fulton Ferry	New York State Heritage Area	3.53	No views: screened by existing development
7	Gowanus Bay Waterfront (from 39th Street and 2nd Avenue)	New York State Heritage Area	0.–5 - 0.27	No views: screened by existing development in Project Area
8	Pier A	New York State Heritage Area	3.21	No views: screened by existing development
9	South Street Seaport	New York State Heritage Area	3.24	No views: screened by existing development
10	Castle Clinton National Monument	Site in the National Park System	3.14	No views: screened by existing development
11	African Burial Ground National Monument	Site in the National Park System	3.91	No views: screened by existing development
12	Governors Island National Monument	Site in the National Park System	2.01	Partial view: long distance view and partially screened by existing development
13	Statue of Liberty National Monument	Site in the National Park System	2.72	View of Project Area: long distance view
14	Federal Hall National Monument	Site in the National Park System	3.38	No views: screened by existing development
15	Ellis Island National Monument	Site in the National Park System	3.09	Partial view: long distance view and partially screened by existing development
16	Fort Hamilton	Locally Important Resource	3.45	No views: screened by existing development
17	Brooklyn Veterans Hospital	Locally Important Resource	3.50	No views: screened by existing development
18	Dyker Beach Park	Locally Important Resource	3.05	No views: screened by existing development
19	East River Park	Locally Important Resource	4.00	No views: screened by existing development
20	Red Hook Park	Locally Important Resource	0.93	No views: screened by existing development
21	Shore Road Park	Locally Important Resource	3.26	No views: screened by existing development
22	Owl's Head Park	Locally Important Resource	1.63	No views: screened by existing development
23	Prospect Park	Locally Important Resource	1.77	No views: screened by existing development
24	Staten Island September 11th Memorial	Locally Important Resource	3.53	View of Project Area: long distance view
25	Harbor View Park/Teardrop Memorial (New Jersey)	Locally Important Resource	3.03	View of Project Area: long distance view
26	Columbia Street Esplanade	Locally Important Resource	0.50	View of Project Area
27	Brooklyn Bridge Park	Locally Important Resource	2.46	No views: screened by existing development
28	Brooklyn Promenade	Locally Important Resource	2.67	No views: screened by existing development

Map ID	Resource	Category	Distance to Project Area (miles)	Proposed Project Visibility
29	Liberty State Park (New Jersey)	Locally Important Resource	3.55	View of Project Area: long distance view

Figure 3.8-1 Aesthetic and Visual Resource Inventory in the Study Area



Legend

- Study Area (4-mile Buffer)
- Project Area
- Aesthetic and Visual Resource
- Visibility from Project Area

Map Source:
ESRI ArcMap 10.8.1 with Spatial Analyst Extension; Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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

Aesthetic and Visual Resource Inventory

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 0.75 1.5 3 Miles

AECOM
New York, New York

3.8.3.3 Viewer Groups

Viewers in the Study Area include local residents; travelers, including commuters and motorists; and tourist and recreational users, including pedestrians and bicyclists. Local residents are those who live within the Study Area, particularly within the vicinity of views of the Project Area. Many local residents are present on a year-round basis and view the landscape from their yards, homes, and places of employment while engaged in daily activities. Regardless of their residence location, local residents may have similar reactions to views of the Proposed Project. Local residents' sensitivity to visual quality can be variable and may be tempered by the visual character and setting of their neighborhoods. Local residents are typically familiar with the local landscape and may be more sensitive to changes in particular views that are important to them. Residential neighborhoods are located approximately 0.25 miles to the east of the Project Area and on the eastern side of 3rd Avenue and the Gowanus Expressway (I-278) and one mile to the north of the Project Area in Red Hook. There are no unobstructed views of the Project Area from these residential areas.

Travelers, including commuters and motorists for business or personal travel, pass by or near the Project Area on their way to work or other destinations. Near the Project Area, travelers include vehicles and bicycles evidenced by the vehicle parking and Citi Bike docking stations associated with Industry City. Motorists on local streets have a relatively narrow field of view because they are focused on the road and traffic conditions. Passengers in commuter vehicles would have greater opportunities for prolonged off-road views toward landscape features and, accordingly, may have greater perception of changes in the visual environment. Commuters using bicycles also have a relatively narrow fields of view because they are focused on the road and traffic conditions. Generally, motorists and bicycle commuters are focused on driving or bicycling but have the opportunity to observe roadside scenery from time to time. They may take more notice of changes in the visual environment.

Tourists and recreational users, including pedestrians and bicyclists, in the vicinity of the Project Area are local and seasonal residents engaged in recreational activities, and tourists and recreational users visiting from outside of the local area. Tourists and recreational users come to the area for the purpose of experiencing its cultural, scenic, and/or recreational resources. They may view the landscape while traveling to these destinations on local roads or ferries, or from the sites themselves. Likely tourist and recreational destinations near aesthetic and visual resources with unobstructed views of the Project Area are Industry City, bicycle routes near the Project Area, Bush Terminal Piers Park, and the Columbia Street Esplanade in Red Hook. Most tourist and recreational viewers would only view the surrounding landscape from ground-level or water-level viewpoints. Tourist and recreational users' sensitivity to visual quality and landscape character would be variable, depending on their reason for visiting the area. However, tourists and recreational users are generally considered to have relatively high sensitivity to scenic quality and landscape character.

3.8.3.4 Key Observation Points

Based on the results of the viewshed analysis and field visit, four KOPs within the Study Area were selected for detailed study. Criteria used to select KOPs for the Proposed Project include:

- Locations that have unobstructed views of the Project Area as determined by the viewshed analysis and field visit (see **Section 3.8.3.2** (Aesthetic and Visual Resource Inventory));
- Locations within two miles of the Project Area as the Project Area would be indistinguishable to the casual observer (see **Section 3.8.3.2** [Aesthetic and Visual Resource Inventory]);
- Locations representing the most critical viewpoints near the Project Area, including the Gowanus Bay waterfront, the Bush Terminal Piers Park, the Bush Terminal Historic District, and the Columbia Street Esplanade; and
- Geographic distribution around the Project Area accounting for views from 39th Street and 2nd Avenue, which are the southern and eastern boundaries of the Project Area, respectively.

Table 3.8-2 lists the selected KOPs within the Study Area and visibility of the Project Area based on the viewshed analysis and field visit. **Figure 3.8-2** depicts the KOPs visually in relationship to the Project Area.

Table 3.8-2 Key Observation Points within the Study Area

Map ID	Name	Resource Type	Distance to Project Area (miles)	Proposed Project Visibility
1	2nd Avenue	Travel way	0.19	Visible
2	39th Street	Travel way	0.11	Visible
3	Bush Terminal Piers Park	Public recreational facility	0.55	Partially visible
4	Columbia Street Esplanade	Public recreational facility	0.50	Visible

As part of the assessment of aesthetic and visual resources, photographs were used to depict views of aesthetic and visual resources. **Figure 3.8-3** provides a numbered key that corresponds to the viewpoints of photographs used in this assessment.

The Sunset Park 197-a Plan (see **Section 3.2.2.3.2.7** [Sunset Park 197-a Plan]) identifies Green-wood Cemetery specifically for its panoramic views of the New York Harbor. Battle Hill, the highest natural point in Brooklyn, lies within its walls (NYCDCP, 2011). Given its importance to Sunset Park, consideration was given to Green-wood Cemetery as a potential KOP. Utilizing the viewshed analysis and field visit described in **Section 3.8.3.2** (Aesthetic and Visual Resource Inventory), it was determined that views of the Project Area from Green-wood Cemetery are obstructed by the tall Industry City campus buildings in the Bush Terminal Historic District, which is east of and immediately adjacent to the Project Area. There are long distance views of the New York Harbor far beyond the Project Area, including a view of the Statue of Liberty. Under the Proposed Project, the Industry City campus buildings would continue to obstruct views of the Project Area. Because the Proposed Project would include elements that would be shorter than the Industry City campus buildings, the Proposed Project would not obstruct the long distance views of the New York Harbor. The tallest element of the Proposed Project would be wind turbine blade staging, which would be approximately 69 feet tall (see **Section 3.8.4.2.1.1** [39th Street “Pier” Pre-assembly Area, Wind Turbine Blade Staging and Cranes]). The height of the wind turbine blade staging would be below the height of the adjacent Industry City buildings (approximately 90 feet tall). Both the O&M base and temporary facilities would be shorter in height than wind turbine blade staging. The O&M base would be 33 feet tall, the temporary facilities consisting of modular prefabricated mobile units would be up to 14 feet tall, and frame structure tensioned membrane units would be up to 40 feet tall.

Figure 3.8-2 Key Observation Points

Legend

- Project Area
- Key Observation Point
- National Register-Eligible Historic District (Bush Terminal Historic District)

Map Source:
NYC DoITT Orthoimagery, 2018.

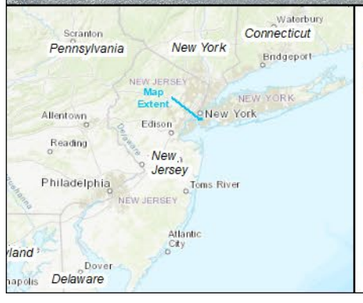
Key Observation Points

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 0.1 0.2 0.4 Miles

AECOM
New York, New York

Figure 3.8-3 Photograph Viewpoints



Legend

- Project Area
- Viewpoint

Map Source:
NYC DoITT Orthoimagery, 2018.

Photograph Viewpoints

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 0.1 0.2 0.4 Miles

AECOM
New York, New York

3.8.3.4.1 2nd Avenue KOP

The 2nd Avenue KOP is located on the eastern side of 2nd Avenue adjacent to Industry City between 34th Street and 35th Street in the Sunset Park neighborhood of Brooklyn, New York. This KOP is within the industrial and commercial area of Industry City and within the National Register-eligible Bush Terminal Historic District. 2nd Avenue begins just north of 28th Street and extends south and southwest approximately two miles to the Belt Parkway and provides access to industrial and commercial developments along the New York Bay waterfront. The area around 2nd Avenue is characterized by dense urban development with heavy industrial and commercial development, including in the vicinity of the Project Area. In the vicinity of the Project Area, the New York Bay waterfront is between 0.25 and 0.50 miles west of 2nd Avenue.

The 2nd Avenue KOP is surrounded by dense urban development associated with the industrial and commercial Industry City development along 2nd Avenue and 39th Street. Views from this KOP west to the Project Area include the parking lot associated with Industry City, the 10-foot high chain link fence surrounding the Project Area, and an electrical substation near the intersection of 39th Street and 2nd Avenue in the foreground (see **Figure 3.8-4** and **Figure 3.8-5**). In the middle ground viewers see the open paved lot and buildings within the Project Area, including the Tower Building and Scale House at the base of the 35th Street "Pier" and small portions of the buildings on the 39th Street "Pier" (see **Figure 3.8-4**, **Figure 3.8-5**, **Figure 3.8-6**, and **Figure 3.8-7**). There are light fixtures associated with the Project Area throughout the middle ground views. Small portions of the Gowanus Bay are visible through the chain link fence and Project Area buildings, but there are no unobstructed views of the Gowanus Bay waterfront from 2nd Avenue (see **Figure 3.8-4**, **Figure 3.8-5**, **Figure 3.8-6**, and **Figure 3.8-7**). In addition, there are no unobstructed views of the Gowanus Bay waterfront along 2nd Avenue to the north and south of the KOP (see **Figure 3.8-8** and **Figure 3.8-9**).

The southwestern section of the Bush Terminal Historic District and Industry City along 39th Street is visible from the 2nd Avenue KOP. This view is characterized by a parking lot and chain link fence in the foreground with the open paved lot and electrical substation in the middle ground. The buildings along 39th Street rise above these obstructions, so a viewer at the 2nd Avenue KOP has a partially obstructed view of the Bush Terminal Historic District and Industry City along 39th Street from the 2nd Avenue KOP. As a viewer moves north from the 2nd Avenue KOP, the view of the Bush Terminal Historic District and Industry City along 39th Street diminishes because of visual obstructions in the parking lot on the western side of 2nd Avenue and the Tower Building and Scale House within the Project Area in the middle ground (see **Figure 3.8-10** and **Figure 3.8-11**).

Figure 3.8-4 Viewpoint 1 –Obstructed View of Gowanus Bay Waterfront and Project Area Looking Northwest from 2nd Avenue

Figure 3.8-5 Viewpoint 2 – Obstructed View of Gowanus Bay Waterfront with Electrical Substation in the Foreground Looking West from 2nd Avenue

Figure 3.8-6 Viewpoint 3 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking North from 2nd Avenue

Figure 3.8-7 Viewpoint 4 – Obstructed View of Gowanus Bay Waterfront, Industry City, and Project Area Looking West from 2nd Avenue

Figure 3.8-8 Viewpoint 5 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking Northwest from 2nd Avenue north of the 2nd Avenue KOP

Figure 3.8-9 Viewpoint 6 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking North from 39th Street and 2nd Avenue south of the 2nd Avenue KOP

Figure 3.8-10 Viewpoint 7 – Obstructed View of Bush Terminal Historic District on 39th Street Looking Southwest from 2nd Avenue north of 2nd Avenue KOP

Figure 3.8-11 Viewpoint 8 – Obstructed View of Gowanus Bay Waterfront, Bush Terminal Historic District, and Project Area Looking Southwest from 2nd Avenue north of 2nd Avenue KOP

3.8.3.4.2 39th Street KOP

The 39th Street KOP is located on the southern side of 39th Street adjacent to Industry City at the intersection of 39th Street and 1st Avenue in the Sunset Park neighborhood of Brooklyn, New York. This KOP is within the industrial and commercial area of Industry City and within the National Register-eligible Bush Terminal Historic District. 39th Street begins just west of 1st Avenue and extends southeast approximately 2.27 miles to Dahill Road and provides access to industrial and commercial developments in the New York Bay waterfront and the residential neighborhoods to the south of Green-wood Cemetery. The area around 39th Street is characterized by dense urban development with heavy industrial and commercial development in the vicinity of the Project Area and residential neighborhoods to the east of the Project Area beginning around 3rd Avenue and the Gowanus Expressway. In the vicinity of the Project Area, the New York Bay waterfront is approximately 0.11 miles west of the 39th Street KOP.

The 39th Street KOP is surrounded by dense urban development associated with the industrial and commercial Industry City development along 2nd Avenue and 39th Street. Views from this KOP west to the Project Area include the 10-foot high chain link fence surrounding the Project Area, a parking lot associated with Industry City at the intersection of 39th Street and 2nd Avenue, an Metropolitan Transportation Authority (MTA) bus turnaround location, and the sheds on the 39th Street "Pier" within the Project Area in the foreground (see **Figure 3.8-12**, **Figure 3.8-13**, and **Figure 3.8-14**). In the middle ground viewers see the open paved lot and buildings within the Project Area, including the sheds on the 39th Street "Pier" (see **Figure 3.8-12** and **Figure 3.8-15**). There are light fixtures associated with the Project Area throughout the middle ground views. Small portions of the Gowanus Bay are visible through the chain link fence and Project Area buildings, but there are no unobstructed views of the Gowanus Bay waterfront from the 39th Street KOP or locations west and east of the KOP (see **Figure 3.8-12**, **Figure 3.8-13**, **Figure 3.8-14** and **Figure 3.8-15**).

The northeastern section of the Bush Terminal Historic District and Industry City along 2nd Avenue is visible from the 39th Street KOP. This view is characterized by a chain link fence in the foreground with the open paved lot in the middle ground. The buildings along 2nd Avenue are screened by the chain link fence, so a viewer at the 39th Street KOP has a partially obstructed view of the Bush Terminal Historic District and Industry City along 2nd Avenue from the 39th Street KOP (see **Figure 3.8-16**). As a viewer moves southwest on 1st Avenue from the 39th Street KOP, the view of the Bush Terminal Historic District, Industry City, and the Gowanus Bay waterfront diminishes because of the surrounding buildings within the dense urban environment associated with Industry City (see **Figure 3.8-17**).

Figure 3.8-12 Viewpoint 9 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking North from the 39th Street KOP

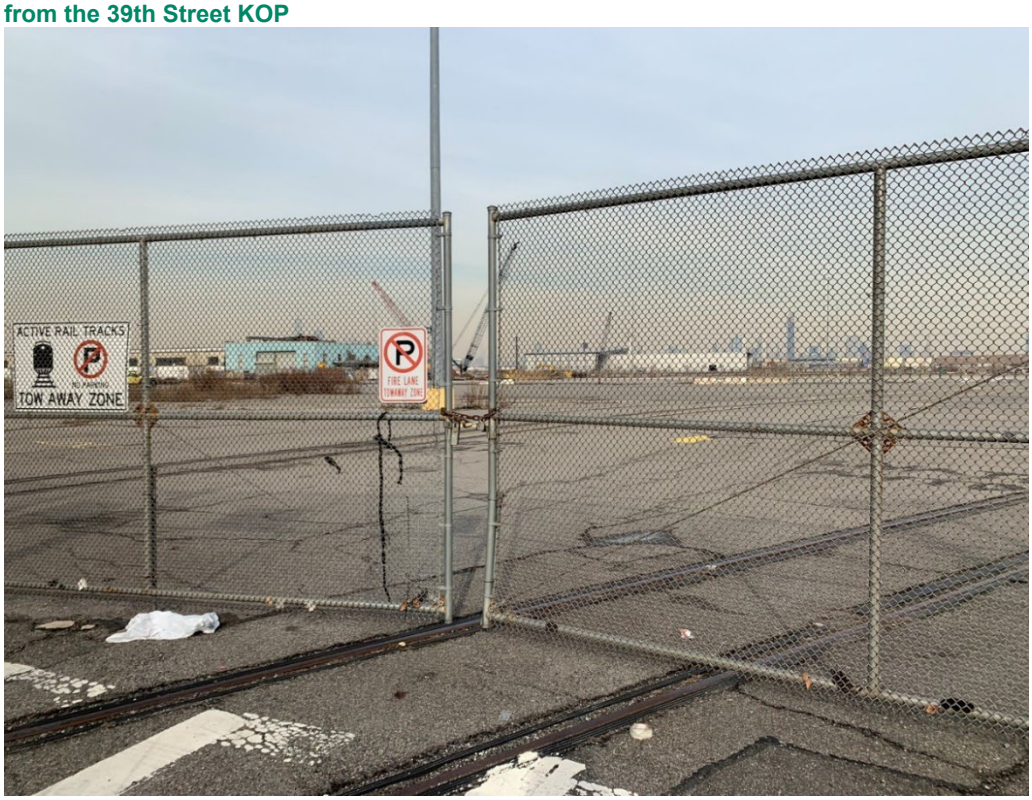


Figure 3.8-13 Viewpoint 10 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking Northwest from 39th Street east of the 39th Street KOP

Figure 3.8-14 Viewpoint 11 – Obstructed View of Gowanus Bay Waterfront and Project Area Looking North from Industry City Parking Lot at 2nd Avenue and 39th Street Intersection East of the 39th Street KOP

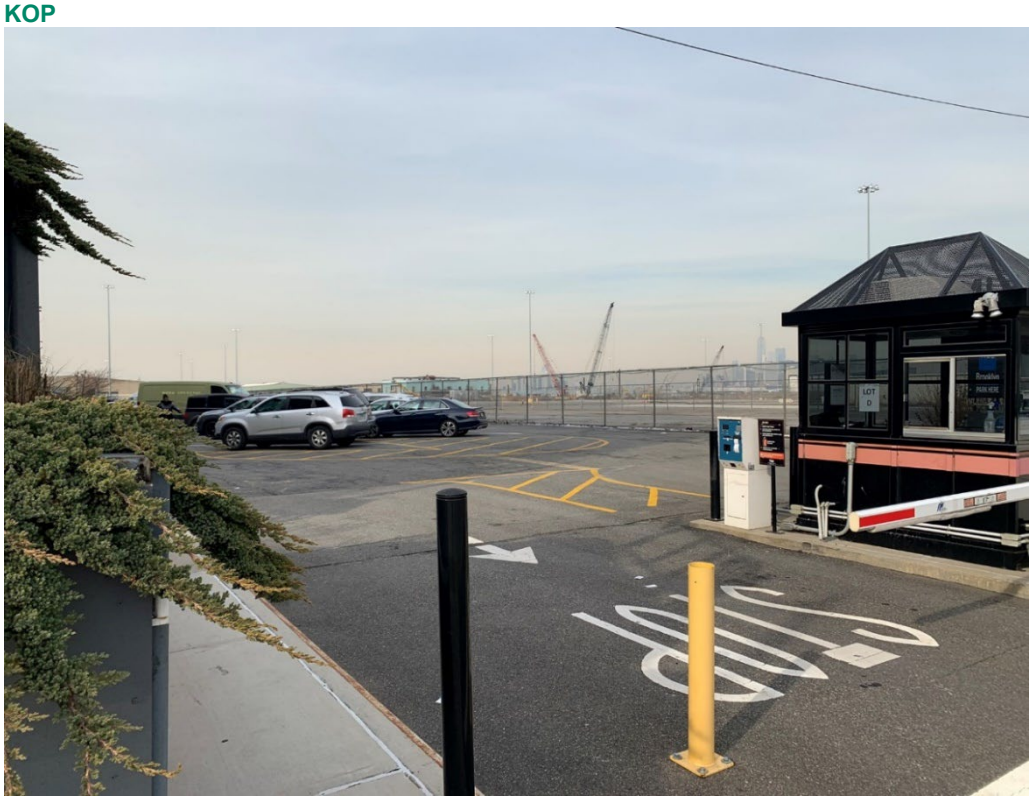


Figure 3.8-15 Viewpoint 12 – Obstructed View of Gowanus Bay Waterfront Looking Northwest into the Project Area West of the 39th Street KOP

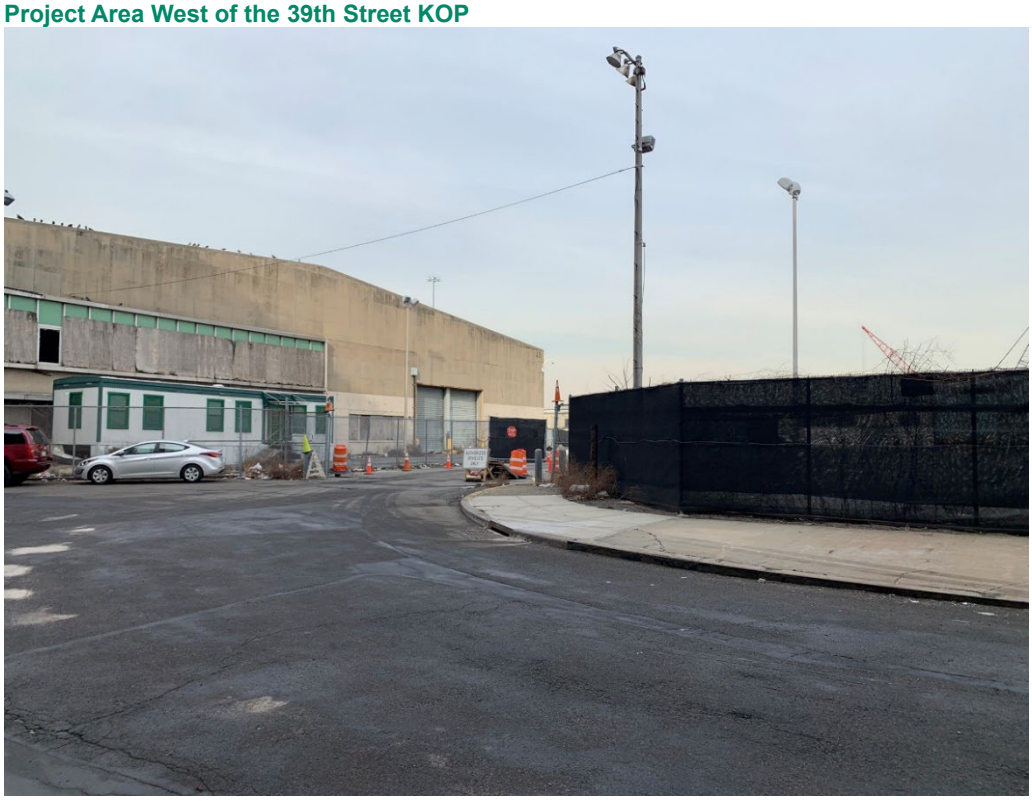


Figure 3.8-16 Viewpoint 13 – Obstructed View of Bush Terminal Historic District Looking Northeast from the 39th Street KOP

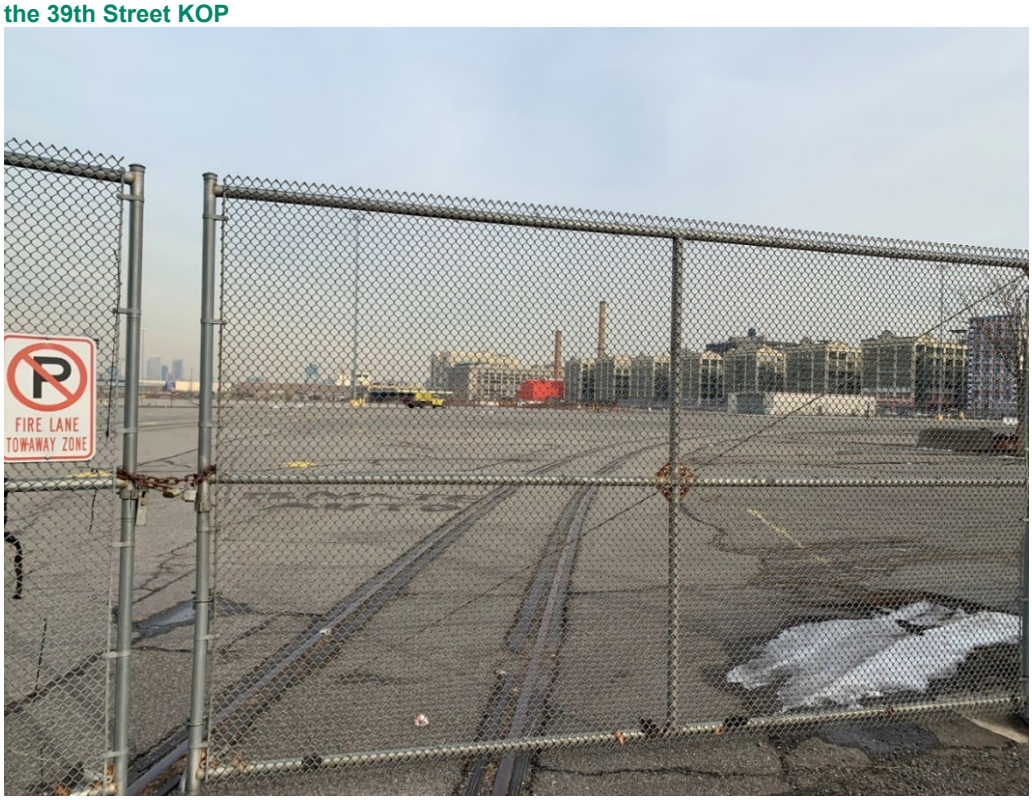
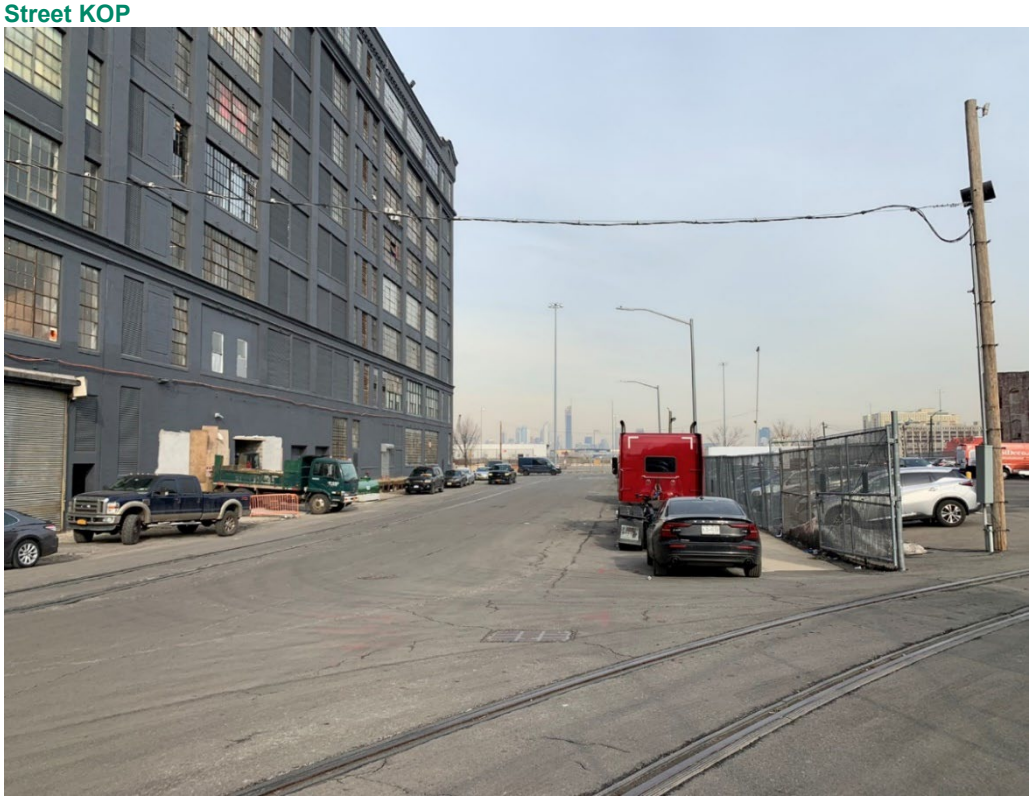


Figure 3.8-17 Viewpoint 14 – Obstructed View of Bush Terminal Historic District, Industry City on 2nd Avenue and the Gowanus Bay Waterfront Looking Northeast from 1st Avenue Southwest of the 39th Street KOP



3.8.3.4.3 Bush Terminal Piers Park KOP

The Bush Terminal Piers Park KOP is located on the New York Bay waterfront on Marginal Street approximately 0.33 miles southwest of the Project Area in the Sunset Park neighborhood of Brooklyn, New York. This KOP is a publicly-accessible waterfront park within the National Register-eligible Bush Terminal Historic District and industrial

and commercial developments along 1st Avenue. The Bush Terminal Piers Park includes open park spaces with publicly-accessible walking paths and bicycle routes and open park spaces with grass lawns, shrubs, and trees. The area around Bush Terminal Piers Park is characterized by dense urban development with heavy industrial and commercial development in the vicinity of the Project Area and 1st Avenue and New York Bay open water to the west.

The Bush Terminal Piers Park KOP provides elevated views of the New York Bay and the 39th Street "Pier" within the Project Area. The remaining sections of the Project are screened by existing development. Views from this KOP northeast to the Project Area include unused pier structures to the south of the Project Area in the foreground and the southern shed (J1) on the 39th Street "Pier" in the middle ground approximately 0.43 miles away. The dense urban environment and tall buildings of the Manhattan and Brooklyn skylines are visible in the background. Views of the 39th Street "Pier" are partially screened by vegetation, including trees, on the pier structures southwest of the Project Area. The Bush Terminals Piers Park KOP provides unobstructed views of the New York Bay and Gowanus Bay, but the sheds on the 39th Street "Pier" screen views of the Gowanus Bay and Red Hook northeast of the Project Area (see **Figure 3.8-18** and **Figure 3.8-19**).

Figure 3.8-18 Viewpoint 15 – Partially Obstructed View of the 39th Street "Pier", New York Bay, and Manhattan and Brooklyn Skylines Looking Northeast from Bush Terminal Piers Park KOP

Figure 3.8-19 Viewpoint 16 – Partially Obstructed View of the 39th Street "Pier", New York Bay, and Manhattan and Brooklyn Skylines Looking Northeast from Bush Terminal Piers Park north of the KOP

3.8.3.4.4 Columbia Street Esplanade KOP

The Columbia Street Esplanade KOP is located at the end of Columbia Street on the Gowanus Bay waterfront approximately 0.50 miles north of the Project Area in the Red Hook neighborhood of Brooklyn, New York. The Columbia Street Esplanade is a publicly-accessible waterfront walkway of local importance that runs along the east side of a pier extending into Gowanus Bay. Amenities include benches, lighting, and a bikeway. The Columbia Street Esplanade is privately owned and maintained but is open and accessible to the public. The landscape surrounding the esplanade includes warehouses along the pier to the west and north and Gowanus Bay to the east and south. The Project Area is located south of the Columbia Street Esplanade across the Gowanus Bay.

The landscape surrounding the Columbia Street Esplanade KOP is characterized by open water and dense urban development. Because of the dense urban development along the eastern side of Gowanus Bay, views from the Columbia Street Esplanade are limited to waterfront developments and industrial and commercial developments adjacent to the waterfront. From this KOP views of the Project Area are unobstructed (see **Figure 3.8-20** and **Figure 3.8-21**).

Figure 3.8-20 Viewpoint 17 – Unobstructed View of Project Area Looking South from Columbia Street Esplanade KOP

Figure 3.8-21 Viewpoint 18 – Unobstructed View of Project Area and Columbia Street Esplanade Amenities Looking South from Columbia Street Esplanade North of the KOP

3.8.4 Environmental Impacts

3.8.4.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook

Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The onshore substation would be located in the vicinity of 29th Street and 2nd Avenue north of the Project Area and would be visible to viewers along 2nd Avenue and across the open waters of Gowanus Bay and Upper New York Bay. However, views of and from aesthetic and visual resources in the vicinity of the onshore substation are obstructed by dense urban development in Sunset Park along the Gowanus Bay waterfront or are diminished over long viewing distances across open water. Obstructed views and views with long viewing distances of aesthetic and visual resources would remain similar to existing conditions. No changes to views or view corridors would occur with the Future without Project condition. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.8.4.2 Future with Project

The following section describes the Proposed Project in relationship to its urban design and potential for adverse impacts on views and viewer groups of aesthetic and visual resources from the KOPs identified in **Section 3.8.3.4** (Key Observation Points).

3.8.4.2.1 Proposed Project Description

The Proposed Project would be consistent with existing land uses in the area surrounding the Project Area and constructed as-of-right according to the existing M3-1 zoning district. The Proposed Project would contain the following elements that could be visible to a casual observer at the KOPs.

3.8.4.2.1.1 39th Street "Pier" Wind Turbine Pre-assembly Area, Blade Staging and Cranes

The existing sheds (J1, J2, and N2) and the Graffiti Building on the 39th Street "Pier" would be demolished (see **Figure 1.3-2**). This area would be developed for wind turbine blade staging and WTG pre-assembly. In addition, two crane pads would be constructed on the 39th Street "Pier" on its southern and western ends and named 39S and 39W (see **Figure 3.8-23)**. Mobile cranes would operate on each pad. The cranes would be 37 feet high from their bases to the bases of their crane arms and extend their crane arms to a maximum of 400 feet. Crane pad locations would be associated with barge berthing areas where barges would dock. Wind turbine blades would be staged in stacks of three with each stack corresponding to one wind turbine. The maximum height of the wind turbine blades would be approximately 69 feet high, and each stack would be 380 feet long.

These existing buildings on the 39th Street "Pier" currently obstruct views of the Gowanus Bay waterfront from 39th Street, 2nd Avenue, and the Bush Terminal Piers Park (see **Section 3.8.3.4** (Key Observation Points)). These buildings would be replaced by a wind turbine blade staging approximately 69 feet high and cranes approximately 37 feet high. The Proposed Project on the 39th Street "Pier" is graphically rendered in **Figure 3.8-24**.

3.8.4.2.1.2 Nacelle Staging

Nacelles associated with the wind turbines would be staged in the southeastern portion of the Project Area near the intersection of 39th Street and 2nd Avenue. Nacelles are approximately 40 feet high and 90 feet long with rectangular shapes. Nacelles contain electrical equipment, so they would be staged in this area as it has the highest elevation in the Project Area.

Located in the southeast corner of the Project Area along 39th Street, the intersection of 2nd Avenue and 39th Street, and 2nd Avenue to approximately 35th Street, the nacelle staging area would be constructed in an area that already obstructs views of the Gowanus Bay waterfront and Bush Terminal Historic District and Industry City buildings. This staging area is depicted in **Figure 3.8-23** and **Figure 3.8-24**.

3.8.4.2.1.3 Tower Staging

Towers associated with the wind turbines would be staged in the center of the Project Area at the bases of the 35th Street "Pier" and abut the operational rail line running parallel to 2nd Avenue. There are multiple types of tower sections ranging from approximately 63 feet to 146 feet long and 32 feet high. Tower sections would be long tube-like structures lying on their sides.

Located from approximately 35th Street to 34th Street along 2nd Avenue and down the 35th Street "Pier", the wind turbine tower staging and transport area would be located in an area that already obstructs views of the Gowanus Bay waterfront and views of the Bush Terminal Historic District looking from 2nd Avenue southwest to 39th Street. This area of the Proposed Project is depicted in **Figure 3.8-23** and **Figure 3.8-24**.

3.8.4.2.1.4 35th Street "Pier" Tower Staging and Crane

Development on the 35th Street "Pier" would include a wharf and crane pad at the end of the 35th Street "Pier" and referred to as the 35W. Mobile cranes would operate on each pad. The cranes would be 37 feet high from their bases to the bases of their crane arms and extend their crane arms to a maximum of 400 feet. This crane pad

location would be associated with a barge berthing area where barges would dock. In addition, towers associated with the wind turbines would be staged along the 35th Street "Pier," and their components would range from 63 feet to 146 feet long and 32 feet high. Tower sections would be long tube-like structures lying on their sides.

3.8.4.2.1.5 Temporary Facilities

During the operational phase of the Proposed Project, the crew assigned to operate the OSW staging area would need temporary facilities like offices, warehouse facilities and support areas. Such facilities would be procured on a rental basis to suit the specific needs for the OSW Operator for the given project and duration. The facilities would consist of modular prefabricated mobile units for offices and wardrobes and frame structure tensioned membrane units for warehouse facilities and workshops. The base assumption is that the office space would be approximately 5,000 sf of office trailers, and the temporary warehouse structure would typically be 11,000 sf. A typical duration for a project would be eight to 12 months followed by three to four months of decommissioning and clearing before the next project would take over. The locations of these temporary facilities would be dependent on the needs and functions of each project.

3.8.4.2.1.6 Operations and Maintenance Base

The existing Tower Building and Scale House at the base of the 35th Street "Pier" would be demolished, and a new O&M base would be built further north and set back approximately 60 feet from the "interpier" basin between the Sims Facility and the 35th Street "Pier". The new O&M base would have a total floor area of approximately 60,000 sf and would be 33 feet tall. The new facility would have white siding with landscaping using grass and shrubs around facility the facility to enhance the exterior design of the facility.

A new O&M base, as described above, would be constructed north across from 32nd Street. Access to this facility would be at the 29th Street entrance north of the Project Area. This area is graphically rendered in **Figure 3.8-24**. This section of the Project Area currently obstructs views of the Gowanus Bay waterfront from 2nd Avenue due to screening from the existing parking lot, chain link fence, and distance between the publicly-accessible sidewalk and the Gowanus Bay Waterfront. The Proposed Project would demolish the existing Tower Building and Scale House and construct a new O&M base further north.

3.8.4.2.2 Impact Assessment Methodology

There are multiple considerations in assessing the overall impact the Proposed Project may have on views of the Project Area and views of aesthetic visual resources. According to the *CEQR Technical Manual*, key considerations in the assessment of the significance of a visual resource impact may include whether the Proposed Project obstructs important visual resources, how many viewers would be affected, whether the view is unique or if similar views exist, or whether the visual resource can be seen from many other locations. As discussed above, views of aesthetic and visual resources and the Project Area are obstructed or partially obstructed due to long viewing distances and screening from the surrounding urban environment. In addition, the Project Area is in an industrial area, and the uses of the Proposed Project would be permitted as-of-right for the SBMT and blend in with the surrounding industrial uses along the waterfront. Due to these considerations, the visual "contrast" was used as a key consideration in assessing the Proposed Project's impact on aesthetic and visual resources.

Public enjoyment of an aesthetic and visual resource is subjective and highly dependent on the viewer's perception of beauty and scenery. The addition of the Proposed Project may be detrimental to one viewer's enjoyment of a location but may have a negligible impact for a different viewer. Therefore, a process using the concept of "contrast" based on the U.S. Bureau of Land Management Visual Resource Management (BLM VRM) system is often used to objectively measure potential changes to landscape features of inventoried aesthetic and visual resources. In the BLM VRM system, potential visual effects are assessed by considering the level of contrast the Proposed Project would introduce to the existing landscape. The BLM's visual contrast rating process (Manual 8431-1 Visual Resource Contrast Rating) was used as the basis for reviewing potential landscape changes resulting from the Proposed Project (BLM, 1986).

Assessing the degree of visual contrast is a means to evaluate the level of modification to the existing landscape features that would result from the Proposed Project. In the context of the Proposed Project, existing landscape scenery is defined by the visual characteristics (form, line, color, and texture) associated with the landform (including water), vegetation, and existing facilities within and adjacent to the Proposed Project. Descriptions of each visual character element are listed below:

- Form: the shape and mass of landforms or structures;
- Line: the edge of shapes or masses, silhouettes, or bands;
- Color: the property of reflecting light of a particular intensity of wavelength that the eye can see; and

- Texture: the nature of the surface of landforms, vegetation, or structures.

The level of visual contrast introduced by the Proposed Project can be measured by changes in form, line, color, and texture. The greater the difference between these character elements found within the landscape and the Proposed Project, the level of visual contrast becomes more apparent, which typically increases perceived contrast.

The degree of contrast introduced to a particular viewpoint by the Proposed Project, in combination with the sensitivity of viewers at that viewpoint, will determine the level of visual effect. The following general criteria are used by the BLM when rating the degree of contrast and are utilized here to describe the visibility/noticeability of the Proposed Project components:

- None: the element contrast is not visible or perceived;
- Weak: the element contrast can be seen but does not attract attention;
- Moderate: the element contrast begins to attract attention and begins to dominate the characteristic landscape; and
- Strong: the element contrast demands attention, will not be overlooked, and is dominant in the landscape.

3.8.4.2.3 Key Observation Points with the Proposed Project

3.8.4.2.3.1 2nd Avenue KOP

The 2nd Avenue KOP represents motorists and bicyclists along 2nd Avenue, and viewers in publicly-accessible areas on sidewalks and in Industry City on the east side of 2nd Avenue. Views toward the Project Area are partially obstructed by intervening a parking lot, chain link fence and intervening buildings within the Project Area. The Tower Building and Scale House is visible from 2nd Avenue. Views toward the Gowanus Bay waterfront are obstructed by the parking lot, chain link fence, and buildings in the Project Area. The wind turbine nacelle and tower staging adjacent to 2nd Avenue and the new O&M base would be visible in the context of other existing development, including the parking lots, Sims Facility, and Industry City. The wind turbine nacelle and tower staging would be located in areas that are currently open and paved and rise above the existing obstructions as the nacelles and towers would be 40 feet and 32 feet high, respectively. Therefore, these elements would be highly visible compared to the existing conditions. The new O&M base would be constructed north of the existing Tower Building and Scale House, but it would not attract attention compared to the existing buildings. Due to the proximity of the wind turbine nacelle and tower staging to 2nd Avenue, the Proposed Project would attract attention and dominate the view. As such, the Project would introduce strong visual contrast from this KOP.

3.8.4.2.3.2 39th Street Avenue KOP

The 39th Street KOP represents motorists and bicyclists along 39th Street, and viewers in publicly-accessible areas on sidewalks and in Industry City on the south side of 39th Street. Views toward the Project Area are partially obstructed by intervening a parking lot, chain link fence and intervening buildings within the Project Area. Views toward the Gowanus Bay waterfront are obstructed by the parking lot, MTA bus turnaround, chain link fence, and buildings in the Project Area, particularly the sheds on the 39th Street “Pier”. The wind turbine nacelle and blade staging from 2nd Avenue to the base of the 39th Street “Pier” would be visible in the context of other existing development, including the parking lots, MTA bus turnaround, and Industry City. The wind turbine nacelle staging would be located in an area that is currently open and paved and rise above the existing obstructions as the nacelles would be 40 feet high. The wind turbine blade staging would be located on the 39th Street “Pier” and would be 69 feet high. Therefore, these elements would be highly visible compared to the existing conditions. Due to the proximity of the wind turbine nacelle and blade staging to 39th Street, the Proposed Project would attract attention and dominate the view. As such, the Project would introduce strong visual contrast from this KOP.

3.8.4.2.3.3 Bush Terminal Piers Park KOP

The Bush Terminal Piers Park KOP represents recreational users in a publicly-accessible elevated park south of the Project Area on the Gowanus Bay waterfront. Views toward the Project Area are partially obstructed by intervening urban development, and only the 39th Street “Pier” is visible. Views toward the Gowanus Bay waterfront to the north of the 39th Street “Pier” are obstructed by the 39th Street “Pier” buildings, particularly the sheds, in the Project Area. The pre-assembly area, wind turbine blade staging and cranes on the 39th Street “Pier” would be visible in the context of other existing development, including industrial and commercial urban environment of the Gowanus Bay waterfront and Industry City. The wind turbine blade staging would be located in an area that currently has three sheds and the Graffiti Building, but these buildings would be demolished. The wind turbine blade staging would be approximately 69 feet high, and the cranes would be approximately 37 feet high. The scale of the wind

turbine blade staging and cranes would be similar to the existing sheds from the long viewing distance of (0.43 miles). Due to the viewing distance from the KOP and that the Proposed Project would replace existing buildings with wind turbine blade staging, these elements would not be dominant features. The Proposed Project would have weak visual contrast from this KOP.

3.8.4.2.3.4 Columbia Street Esplanade KOP

The Columbia Street Esplanade KOP represents recreational users in a publicly-accessible walkway north of the Project Area on the Gowanus Bay waterfront. Views toward the Project Area and the Gowanus Bay are unobstructed. The wind turbine blade staging and cranes on the 39th Street "Pier" and wind turbine tower staging and crane on the 35th Street "Pier" would be visible in the context of other existing development to the east and south of the Project Area, including industrial and commercial urban environment of Industry City. The wind turbine blade staging would be located in an area that currently has three sheds and the Graffiti Building, but these buildings would be demolished. The wind turbine blade staging would be approximately 69 feet high, and the cranes would be approximately 37 feet high. The wind turbine tower staging and crane on the 35th Street "Pier" would be developed on an area that is currently not occupied by structures. However, the scale of the Proposed Project elements would be similar to the existing buildings and blend into the taller Industry City buildings to the east and south of the Project Area with a viewing distance of 0.50 miles). Due to the viewing distance from the KOP, and that the Proposed Project elements would be similar to existing buildings and not taller than the buildings to the east and south, these elements would not be dominant features. The Proposed Project would have weak visual contrast from this KOP.

Figure 3.8-22 Proposed Project Demolition Locations

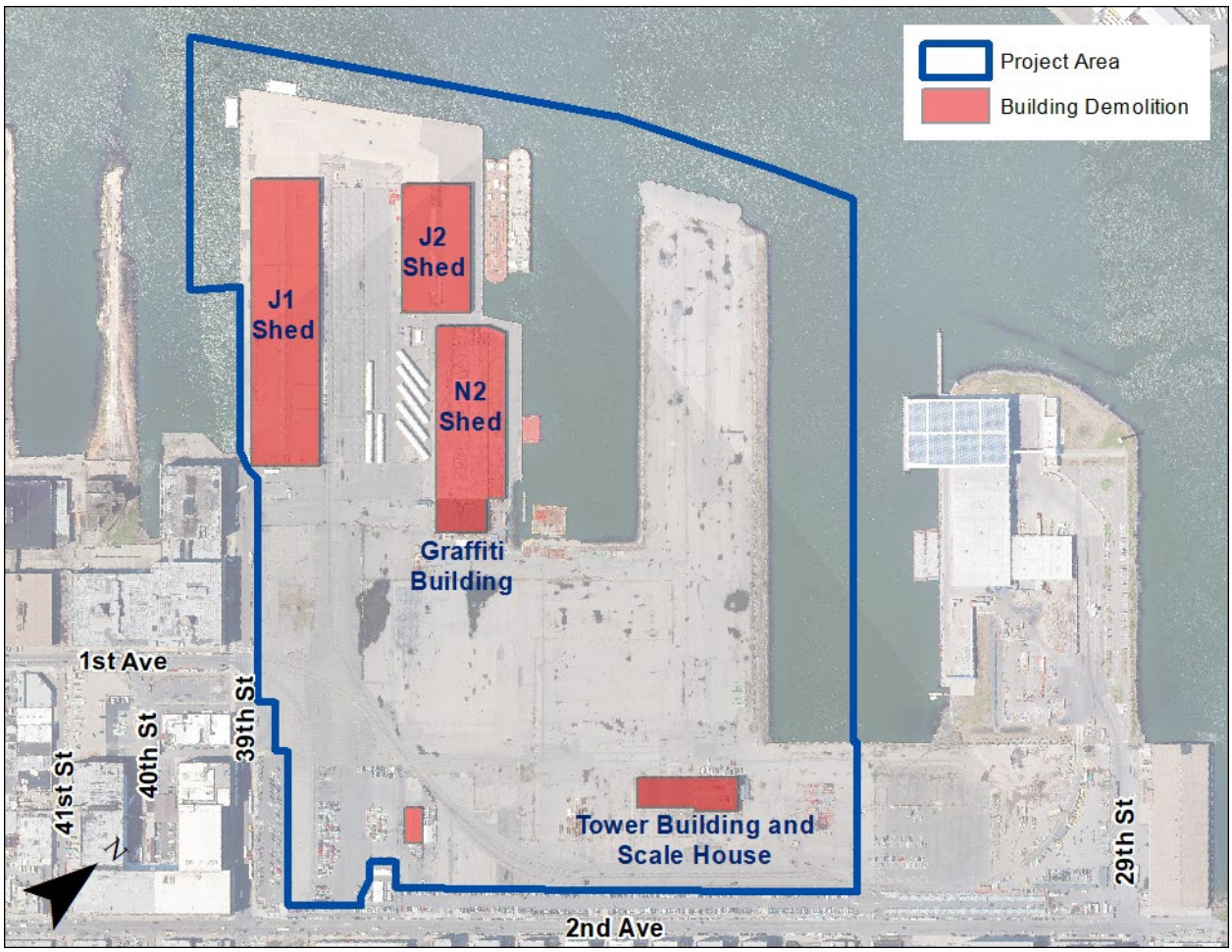


Figure 3.8-23 Proposed Project Site Plan - Conceptual

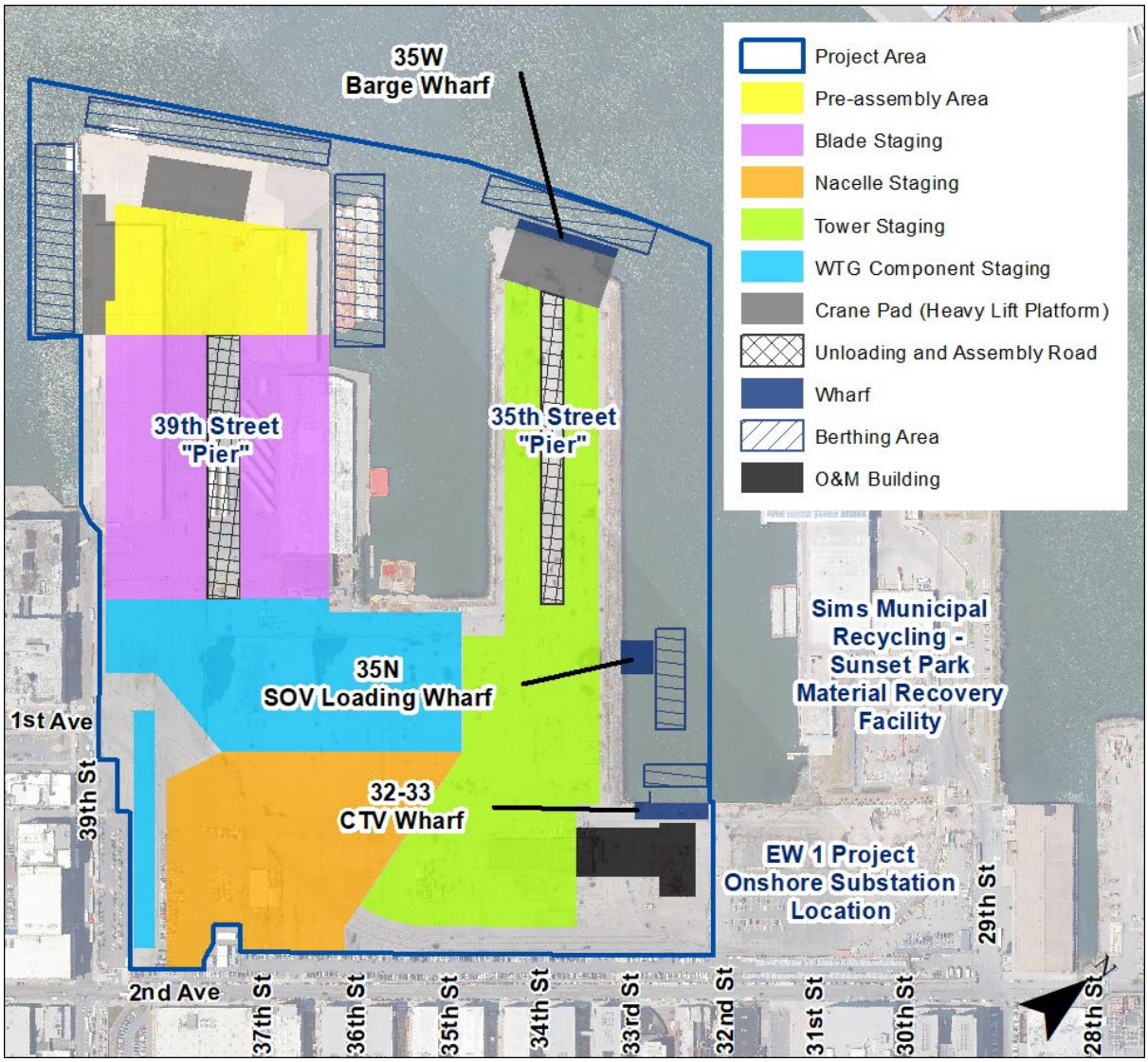
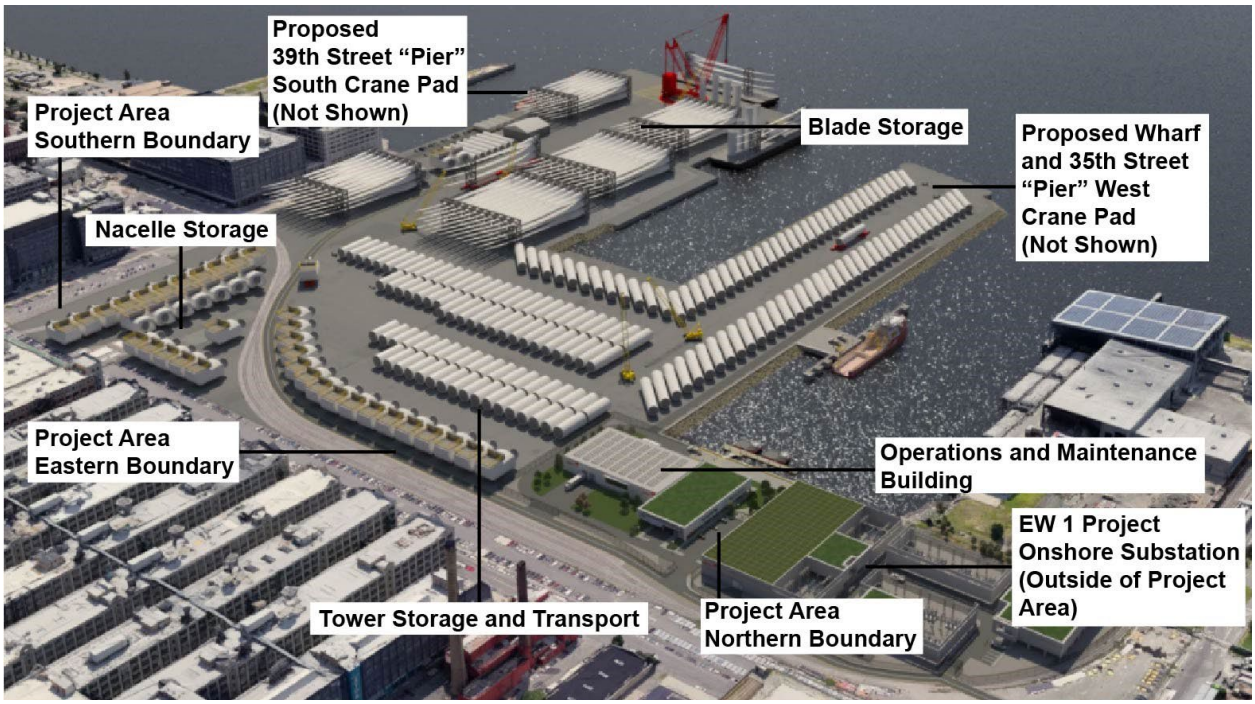


Figure 3.8-24 Proposed Project Artistic Rendering – Pre-Conceptual



3.8.4.2.4 Urban Design

The Proposed Project would be consistent with existing land uses in the area surrounding the Project Area and constructed as-of-right according to the existing M3-1 zoning district. The Proposed Project would be located within the Project Area boundaries, correspond to existing sidewalk and Industry City parking structures on 39th Street, the electrical substation on 2nd Avenue, and Industry City parking structures along 2nd Avenue. Access to the Project Area would be located on 29th Street north of the Project Area and approximately 800 feet north of Industry City. The Proposed Project would not alter the Industry City parking structures on 39th Street and 2nd Avenue, the Citi Bike docking stations on 39th Street and 2nd Avenue, or the pedestrian sidewalks on 2nd Avenue. In addition, in a letter dated March 21, 2022, SHPO determined that the Proposed Project will have No Adverse Effect upon historic properties in the vicinity of the Project Area (see **Section 3.7** [Historic and Cultural Resources]).

3.8.4.3 Conclusion

As shown in **Section 3.8.3.4** (Key Observation Points), views of aesthetic and visual resources in the Study Area, particularly the Gowanus Bay waterfront and buildings in the Bush Terminal Historic District are obstructed by existing structures in or adjacent to the Project Area and long viewing distances from publicly-accessible sidewalks to aesthetic and visual resources. The Proposed Project would demolish existing buildings in the Project Area, implement staging areas for wind turbine elements, and add a new O&M base. The Proposed Project would continue obstructing views of aesthetic and visual resources in the Study Area in a similar manner as the existing conditions. The Proposed Project would introduce strong visual contrast along 2nd Avenue and 39th Street due to the construction of wind turbine blade, nacelle, and tower staging compared to the existing conditions because these staging areas would be located on a portion of the Project Area that is open and paved, and the turbine components would rise above the existing visual obstructions. Although the Proposed Project would introduce strong visual contrast, it would not create additional obstructions to views of aesthetic and visual resources because existing views are currently completely or partially obstructed. In addition, the Proposed Project would not alter the urban environment around the Project Area as the existing Industry City parking areas, Citi Bike docking stations, and sidewalks would remain in place. Access to the Project Area would be located north of the Project Area on 29th Street and 800 feet away from Industry City. **The Proposed Project would have no significant adverse impact on urban design and aesthetic and visual resources.**

3.8.4.4 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts on existing views of aesthetic and visual resources in the Study Area, but the Proposed Project would introduce strong visual contrast on views of the Project Area from 2nd Avenue and 39th Street. The Proposed Project would introduce WTG component staging within the Project Area parallel to 2nd Avenue and 39th Street that would be visible to a casual observer. A separate visual impact assessment was conducted for the EW 1 Project; that assessment determined that the EW 1 Project would

introduce strong visual contrast along 2nd Avenue that would be visible to the casual observer. Both the Proposed Project and the EW 1 Project uses would be permitted at SBMT as-of-right and would be consistent with existing waterfront industrial uses in the Study Area. Based on the strong visual contrast introduced by the Proposed Project and EW 1 Project, there would be minor adverse cumulative impacts to urban design and visual resources.

The Proposed Project would not have indirect effects on urban design and visual resources in the Study Area, including inducing developments that could create additional visual contrast or obstruct views of aesthetic and visual resources. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on urban design and visual resources in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments in the surrounding highly-developed neighborhood that may introduce additional visual contrast or obstruct views.

3.8.5 References

BLM. 1986. BLM Manual 8431 – Visual Resource Contrast Rating. Available online at: https://www.blm.gov/sites/blm.gov/files/program_recreation_visual%20resource%20management_quick%20link_BLM%20Handbook%20H-8431-1%2C%20Visual%20Resource%20Contrast%20Rating.pdf. Accessed on March 1, 2022.

NYCDCP. 2011. *New Connections/New Opportunities: Sunset Park 197-a Plan*. Available online at: https://www1.nyc.gov/assets/planning/download/pdf/community/197a-plans/bk7_sunset_park_197a.pdf. Accessed on February 14, 2022.

NYSDEC. 2019. Assessing and Mitigating Visual Impacts (DEP-00-2). Available online at: https://www.dec.ny.gov/permits/115147.html. Accessed on March 1, 2022.

3.9 Natural Resources

3.9.1 Affected Environment

3.9.1.1 Habitats

This section identifies the natural resources and regulated habitats and species within and immediately adjacent to the Project Area. The Project Area, which includes 35th Street and 39th Street "Piers" and their adjacent waters, is located in a heavily developed area with a long history of urban and industrial activity. The habitats are typical of a highly urbanized harbor port with bulkheads and riprap shorelines and dominated by man-made surfaces and structures. Upland vegetation is limited, and no wetland vegetation or aquatic vegetation is present. Open water areas are urban brackish estuarine habitats.

3.9.1.1.1 Terrestrial Habitat

The upland portion of the Project Area is an intensely developed urban waterfront parcel dominated by a paved lot and warehouse buildings, with over 95 percent impervious surfaces. The site is comprised of reclaimed urban land, with 0-to-3 percent slopes. The ground has been filled and paved and there is no evident open soil. Lot and "pier" surface grade is approximately 200 cm (79 in) over standing estuary water. Vegetation is limited to an approximate 30-feet x 100-feet planted area between the 35th Street and 39th Street "Piers," and patches of volunteer vegetation, notably a line of poplar (*Populus* sp.) trees on the north side of the 35th Street "Pier." Patches of goldenrod (*Solidago* sp.) and common mugwort (*Artemisia vulgaris*) are also present. The upland surfaces are separated by impervious bulkheads and riprap-stabilized slopes from the adjacent open water bay and "interpier" basin habitats.

Subsurface borings done in 2020 showed the soils of the terrestrial portion of the Project Area are approximately 20 to 60 feet of heterogenous granular fill (Stratum 1); followed by around 20 to 35 feet of soft Organic Silt (Stratum 2) in marine locations; approximately 5 to 20 feet of medium dense Upper Sands (Stratum 3); about 30 to 65 feet of medium stiff to very stiff Clay and silt (Strata 4 and 5); about 70 feet of very dense Glacial Sand (Stratum 6) followed by competent Gneiss Bedrock (Stratum 7). Based on observation wells, groundwater levels were measured between 3 to 6 feet below ground surface.

The Project Area is within a FEMA-designated Special Flood Hazard Area (see **Figure 3.9-1**; based on FEMA FIRM #360497, effective Sept 5, 2007). The majority of the upland area in the Project Area is Flood Zone AE (1 percent annual chance of flooding), with a Base Flood Elevation varying between 10 and 11 feet. The southern corner of

the Project Area is in Zone X (0.2 percent annual chance of flooding). Work at the western ends of the 35th Street and 39th Street "Piers," including installation of the 39th Street wharf, would occur in Flood Zone VE (1 percent annual chance of flooding with additional hazards from storm waves).

Figure 3.9-1 FEMA Flood Zones Within and Adjacent to the Terrestrial Project Area. Zone AE = 1 Percent Annual Chance of Flooding, Zone X = 0.2 Percent Chance of Flooding.

3.9.1.1.2 Marine Habitat

The Project Area is located in Upper New York Bay adjacent to the nexus of the federally designated Bay Ridge Channel and Gowanus Bay. Bay Ridge Channel connects directly to the Narrows between Upper New York Bay and Lower New York Bay at its southern end about two miles south (offshore of the neighborhood of Bay Ridge). The north end of Bay Ridge Channel, located just offshore of the Project Area, splits into channels providing access to the Gowanus Canal (via Red Hook Channel) and Buttermilk Channel (see Permit Info Packet – Section 1). The Project Area experiences a typical tidal variation from +4.9 to 0.2 feet (MHW to Mean Low Water [MLW], all elevations in North American Vertical Datum of 1988 [NAVD 88]), receiving water from currents of New York Bay, and outflow from Gowanus Canal. Water depths in the Project Area extend to a maximum of approximately 35 feet below MLLW west of the outer solid fill "pier" structures.

The Project Area has no evident reefs or other fish aggregating features. There is no submerged aquatic vegetation (SAV) in the Project Area; however, a small patch of SAV is located on the south side of a degraded pier structure (Pier 7), separated from the footprint of the Project Area by a distance of approximately 700 feet of open water (see **Figure 3.9-2**).

Figure 3.9-2 Approximate Location of Submerged Aquatic Vegetation in Relation to Project Area

3.9.1.1.2.1 Water Quality

The "interpier" basins and adjacent waters of Upper New York Bay are classified as E1UBL(x). These are subtidal estuarine waters with unconsolidated bottoms. Waters of the Project Area are classified by the NYSDEC as "I" (Impaired). As defined in 6 New York Codes, Rules and Regulations (NYCRR) 701.13, "The best usages of Class I waters are secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish, and wildlife propagation and survival. In addition, the water quality shall be suitable for primary contact recreation, although other factors may limit the use for this purpose."

Physical evidence and previous records show that the entire site has been disturbed during development as an industrial marine terminal (see Table 5-1 in the Permit Information Packet submited with the JPA). The adjacent Bay Ridge Channel is regularly dredged by the USACE to maintain navigation depth. The channel was last dredged in 2021, to a design depth of -35 feet MLW [-34.4 feet MLLW] (+2 feet over depth).

Based on water quality samples collected in Summer 2020, dissolved oxygen (DO) levels ranged from approximately 74 percent in open water to 54-32 percent in the "interpier" basins (data collected by AECOM in July 2020). DO levels below 57 percent (4.8 milligrams per liter [mg/L] in 24 degrees Celsius water) are considered below optimal (NYSDEC, 2008) and could be a result of reduced rates of tidal exchange and mixing, as well as proximity to wastewater outflows in the "interpier" basin to the north of the 35th Street "Pier." During the same Summer 2020 period, salinity of approximately 24 parts per thousand (ppt) (brackish) was measured throughout the Project Area. Water quality measurements were taken from the locations shown in **Figure 3.9-3**; the data recorded are shown in **Table 3.9-1.**

Figure 3.9-3 Location of Water Quality Measurements

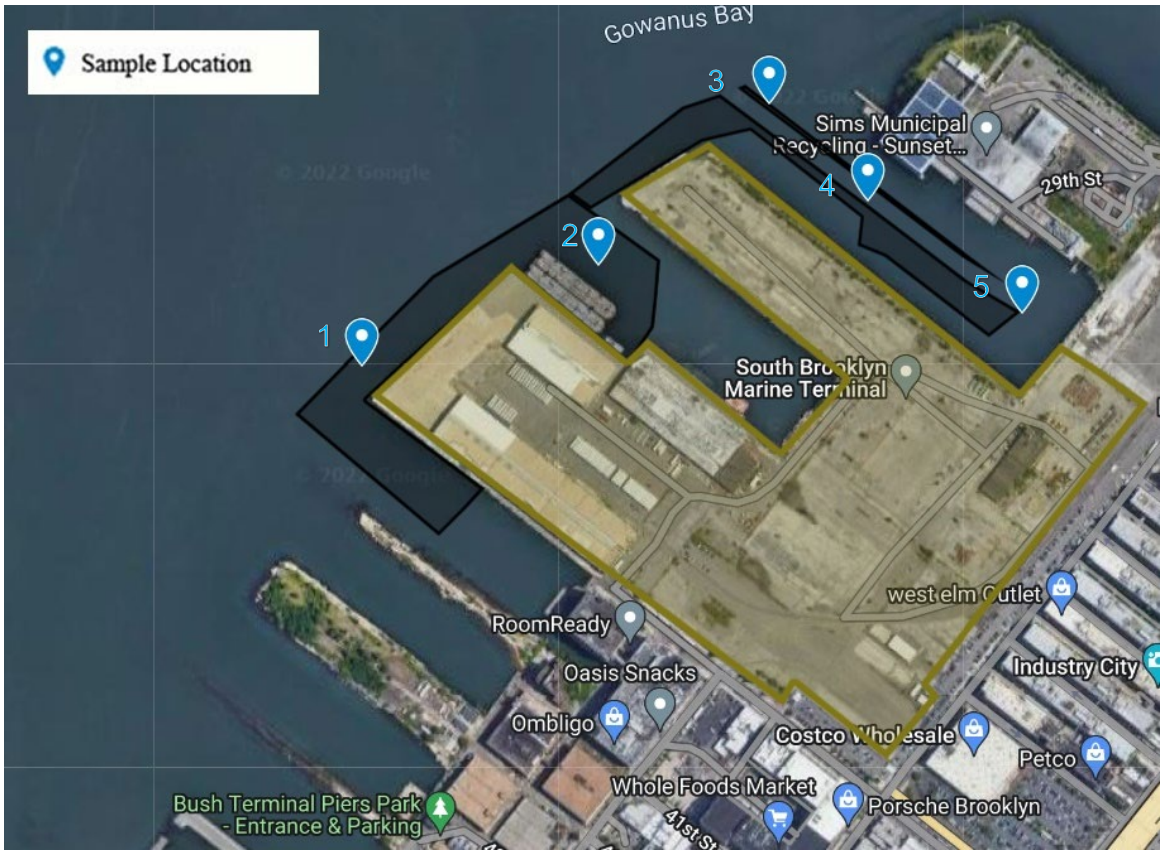


Table 3.9-1 Full Water Quality Data (Summer 2020)

Sample Location	Sample Depth (ft)	Water Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	pH	Oxidation-Reduction Potential (mV)	Turbidity (NTU)
1	1	23.54	36.92	101.2	7.52	7.93	95.7	-3.3
1	7	23.6	36.88	89	6.61	7.82	90.3	-4.4
2	1	23.32	35.72	44.9	3.37	7.86	119.1	-5.1
2	7	23.6	37.19	41.4	3.07	7.89	119.8	-4.6
3	1	23.6	36.67	26.6	1.98	7.9	133.5	-5.1
3	7	23.68	37	25.4	1.87	7.85	131.2	-4.5
4	1	23.65	36.44	40.4	2.98	7.87	123.6	-5
4	7	23.65	37.02	38.3	2.83	7.86	124.1	-4.7
5	1	23.68	36.99	32.9	2.43	7.9	134.5	0
5	7	23.7	37.04	32.2	2.38	7.85	127.8	-4.9

NYCDEP monitors water quality of Upper New York Bay, which has seen improvement over historically low water quality levels. In particular, DO has increased and bacterial levels have decreased versus the past 40 years of data (NYSDEC 2018), though recent data reflect spikes in bacteria levels during rain events (NYSDEC, 2022), likely due to overflow of untreated sewage. NYSDEC maintains a monitoring station ["G2"] at the mouth of the Gowanus Canal, in close proximity to the Project Area. Summer readings in 2020 and 2021 reflect similar salinity (23.4 ppt), but an improved DO (80.8 percent) in open water, total nitrogen of 0.7 mg/L (Kjeldahl measure), a Secchi depth of 5.4 feet, total suspended solids of 9.9 mg/L (top) and 14.4 mg/L (bottom), and chlorophyll at concentrations of 19.1 ug/L (NYSDEC, 2022).

3.9.1.1.2.2 Marine Sediments

Physical evidence and previous records show that the entire site has been disturbed during development and operation of the industrial marine terminal. Sediments of Gowanus Bay, and those of the Project Area and vicinity, have been negatively affected by centuries of industrial, sewage, and transportation discharge.

The benthic substrate is predominantly unconsolidated silts or sandy silts, with small patches of riprap and broken concrete debris from landside development of the marine terminal. Direct sampling of the sediment in the Project Area (113 sediment cores and 24 grab samples) in September and October 2021 showed unconsolidated silt or sandy silt material at the top of the sediment profile (see **Figure 3.9-4**). These silts were black in color (Munsell: 2.5/N) and had a total organic content typically between 3-4 percent (as measured during direct analysis in 2021). Black color of sediments typically indicates high organic content and carbon loading, possibly augmented by low oxygen conditions (Pembroke 2013). Silts were present down to at least 2.5 feet below the mudline throughout the Project Area, but more often comprised the entire sampled sediment vertical profile, up to depths of 20 feet below the mudline. Bathymetric maps show that the bottom gently slopes away from the bulkhead towards the open channel.

Figure 3.9-4 Typical Sediment Collected by Benthic Grabs

Sediments are contaminated with various chemical pollutants typical of an urbanized industrial area in New York Harbor. The full description of sediment chemical contamination sampling and results is included as part of the JPA.

3.9.1.1.3 Wetlands

3.9.1.1.3.1 Federal and State Mapping and Regulatory Authority

3.9.1.1.3.1.1 Federal

The open waters of the Project Area are classified by the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (USFWS, 2022) as E1UBL, which indicates subtidal estuarine waters with unconsolidated

bottoms. Portions of the Project Area are rated as E1UBL(x), which represents disturbed condition; however, all sediments are disturbed by the development of adjacent "piers," as well as continuing human activity in the area.

In tidal areas, the USACE takes jurisdiction up to the spring high water (SHW) elevation as waters of the United States. The waters are regulated under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Section 404 authorizes the USACE to regulate certain activities occurring below the SHW line, within the waters of the United States, such as permanent or temporary discharge of dredge or fill materials.

The limit of Section 10 regulation is the MHW elevation. Under Section 10, a permit or approval is required from the USACE prior to the accomplishment of any work (such as placement of fill) in or over navigable waters of the United States, or which affects the course, location, condition or capacity of such waters.

3.9.1.1.3.1.2 New York State

Under Article 25, Environmental Conservation Law Implementing Regulations – 6 NYCRR Part 661, the NYSDEC regulates tidal wetlands in New York State from MHW to 6 feet below MLW. In addition, in New York City, the NYSDEC regulates a tidal wetland Adjacent Area up to 150 feet inland from the tidal wetland boundary. The regulated adjacent area terminates at the 10-foot elevation or any functional and substantial fabricated structure (e.g., bulkheads and sea walls, and riprap walls, etc.) that has been in existence since August 20, 1977.

3.9.1.1.3.2 Wetlands in the Vicinity of the Project Area

There are no vegetated tidal wetlands in the Project Area. The NYSDEC tidal wetland maps identify all marine portions of the Project Area as LZ wetlands. The limits of LZ classified tidal wetlands is from MHW to 6 feet below MLW. Bathymetry measurements show that water depths in the majority of the Project Area are greater than 6 feet below MLW (see the Permit Drawings submitted with the JPA for bathymetry of the Project Area). A field investigation conducted in 2020 identified that no tidal wetland vegetation was observed within and/or immediately adjacent to the Project Area. Based on measured tidal elevations, areas of NYSDEC Article 25 Tidal Wetlands are shown in **Figure 3.9-5** and are summarized in **Table 3.9-2**. Five areas of wetlands were identified in the vicinity of the Project Area, with three (Areas B, C, and D) located within the Project Area. Only Area B would be affected by the Proposed Project.

Figure 3.9-5: Tidal Wetlands in the Vicinity of the Project Area

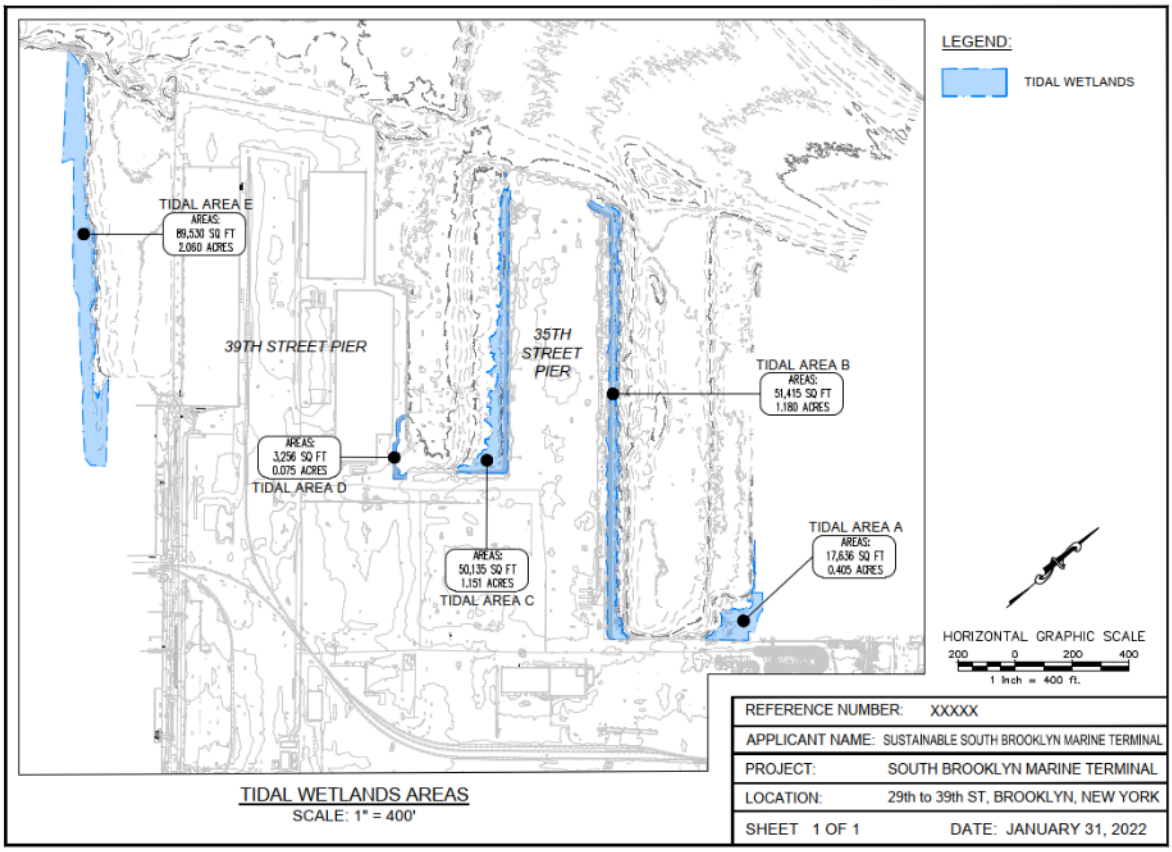


Table 3.9-2: Tidal Wetlands in the Vicinity of the Project Area

Area ID#	Location	Area (acres)	Surface
A	Sims Pier (31st Street Pier) (Beyond Project Area)	0.405	Riprap
B	North side of 35th Street "Pier" (35N)	1.180	Riprap
C	South side of 35th Street "Pier" (35S)	1.151	Riprap
D	North side of 39th Street "Pier" (39N)	0.075	Riprap
E	Pier 7 (41st Street Pier) (Beyond Project Area)	2.060	Sand fill

NYSDEC Article 25 Tidal Wetland areas within the Project Area are limited to riprap-covered slopes consisting of a layer of bedding stone covering a graded slope, which is then covered with a 3-feet depth of riprap over the entire slope. The bedding and rip rap extend from paved surfaces at the top of slope to water depths greater than the LZ limit. Though these slopes are classified as wetlands, their function to support wetland-dependent species is severely compromised, with available soil limited to sedimentation atop the installed stone. The upland limit of all riprap slopes in the Project Area ends at an impervious surface (bulkhead and asphalt surface) that has been in existence since the current configuration of the urban port facility in the 1960s; therefore, there is no Adjacent Area associated with these wetlands.

All other intertidal areas in the Project Area have been bulkheaded with concrete or metal faces. For all bulkheads, the landward side of the bulkhead shows no evidence of wetland characteristics, and seaward side of the bulkhead is at water depths greater than 6 feet below MLW.

Wetland Area A, at the adjacent shore north of the Project Area, is also a riprap slope similar to Areas B, C, and D. The areas upland of the riprap are vegetated, but are separated from the slope by an impervious bulkhead. These vegetated areas are not classified as wetlands or Adjacent Areas and would not be impacted by the Proposed Project. Area E is a slope in tidal elevations comprised of sand fill from a collapsed bulkhead that was part of Pier 7. There is no vegetation evident in this area. Upland vegetated areas are separated from these wetland areas by impervious materials (predominantly fragmented concrete and metal bulkhead remnants).

Tidal wetlands in the vicinity of the Project Area are compromised. Due to coverage by riprap and other fill, the ecological function of tidal wetland habitats and their ability to support any plant or animal species typical of tidal wetland habitats in the region is significantly reduced relative to that of an undisturbed wetland habitat. No wetland vegetation was observed in the Project Area during field investigations and sediment sampling conducted in 2020 and 2021.

There are no mapped or otherwise evident NYSDEC-regulated Article 24 freshwater wetlands or regulated Adjacent Areas for state-freshwater wetlands in the vicinity of the Project Area.

3.9.1.2 Finfish

Fish species found in the Upper New York Bay can be classified into two categories: migratory (present only seasonally) and resident (present year-round).

The MSFCMA, also known as the Sustainable Fisheries Act, charges NOAA Fisheries with designating and conserving Essential Fish Habitat (EFH) for species managed under existing Fishery Management Plans (FMPs). The Act is intended to minimize, to the extent practicable, any adverse effects on habitat caused by fishing or non-fishing activities, and to identify other actions to encourage the conservation and enhancement of such habitat. As such, a review of the NOAA EFH Mapper indicated that 13 species of finfish and invertebrates have designated EFH for various life stages within the Project Area (NOAA Fisheries, 2021a).

Table 3.9-3 shows a summary of the species with EFH designation within the Project Area and their life stages which may be found at any time during the year. A full description and life history of these species can be found in the JPA (PIP Appendix E – EFH Report).

Table 3.9-3: Summary of EFH Designations in the SBMT Project Area

Managed Species	Eggs	Larvae	Juveniles	Adults
Atlantic Mackerel, Squid and Butterfish FMP (Mid-Atlantic Fisheries Management Council [FMC]) Atlantic Butterfish (*Peprilus triacanthus)*		X		
Atlantic Mackerel, Squid and Butterfish FMP (Mid-Atlantic Fisheries Management Council [FMC]) Longfin Inshore Squid *(Loligo pealeii)*	X			
Atlantic Herring FMP (New England FMC) Atlantic Herring (*Clupea harengus*)		X	X	X
Bluefish FMP (Mid-Atlantic FMC) Bluefish *(Pomatomus saltatrix)*			X	X
Northeast Multispecies FMP (New England FMC) Red Hake *(Urophycis chuss)*	X	X	X	X
Northeast Multispecies FMP (New England FMC) Silver Hake *(Merluccius bilinearis)*	X	X		
Northeast Multispecies FMP (New England FMC) Windowpane Flounder *(Scophthalmus aquosus)*	X	X	X	X
Northeast Multispecies FMP (New England FMC) Winter Flounder *(Pseudopleuronectes americanus)*	X	X	X	X
Northeast Multispecies FMP (New England FMC) Yellowtail Flounder *(Limanda ferruginea)*			X	
Summer Flounder, Scup, and Black Sea Bass FMP (Mid-Atlantic FMC) Summer Flounder *(Paralichthys dentatus)*		X	X	X
Northeast Skate Complex FMP (New England FMC) Clearnose Skate *(Raja eglanteria*)			X	X
Northeast Skate Complex FMP (New England FMC) Little Skate (*Leucoraja erinacea*)			X	X
Northeast Skate Complex FMP (New England FMC) Winter Skate *(Raja ocellata*)			X	X

A study by the USACE on demersal species within New York Bay (USACE, 2015a) found that the most common species found in the bay include five EFH managed species: Atlantic herring (*Clupea harengus*), red hake (*Urophycis chuss*), silver hake (*Merluccius bilinearis*), windowpane flounder (*Scophthalmus aquosus*), and winter flounder (*Pseudopleuronectes americanus*); four NYS-managed species: alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), and striped bass (*Morone saxatilis*); and six additional common species: American sandlance (*Ammodytes americanus*), Atlantic silverside (*Menidia menidia*), Atlantic tomcod (*Microgadus tomcod*), bay anchovy (*Anchoa mitchilli*), spotted hake (*Urophycis regia*), and white perch (*Morone americana*). Midwater trawls throughout Upper New York Bay (USACE, 2015b) showed a pelagic fish community dominated by bay anchovy, with notable numbers of blueback herring, and spring populations of alewife and Atlantic herring.

Within this same study, non-channel (shallow water) demersal trawls in the vicinity of the Project Area indicated the following species were of notable abundance: bay anchovy, blueback herring, striped bass, silver hake, Atlantic tomcod, Atlantic croaker (*Micropogonias undulatus*), Atlantic silverside, spot (*Leiostomus xanthurus*), American shad, and American eel (USACE, 2015a). Abundance and diversity of fish community varies by season, with diversity and abundance higher in the spring (USACE, 2015a).

Overall, the existing Project Area represents a small portion of finfish habitat type commonly available throughout the Upper New York Bay and vicinity. Further, the historic and ongoing high-intensity industrial and marine transportation uses of marine habitats located in the vicinity of the Project Area have resulted in compromised water quality and habitat conditions that are stressful for any finfish life stages. The following sections discuss species of particular interest that are known to occur in the vicinity of the Project Area.

3.9.1.2.1 Sturgeon (*Acipenser*)

Two federally endangered fish species, the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the shortnose sturgeon (*Acipenser brevirostrum*) are known to occur in Upper New York Bay and may occur in the Project Area. Atlantic sturgeon opportunistically forage year-round as they migrate along the coast to and from their natal spawning grounds (Hilton *et al.*, 2016).

Existing data and studies on acoustically tagged Atlantic sturgeon indicate that adults and subadults are the only life stages likely to occur in the general vicinity of SBMT. No aggregations occur anywhere near the Project Area (NMFS, 2022). The literature suggests that Atlantic sturgeon use New York Bay in the general vicinity of SBMT as a migratory corridor and that their occurrence in this area is highly transitory (NMFS, 2022). Atlantic sturgeon migrate inbound through upper New York Bay towards upriver spawning and foraging areas in May, continuing into June. They use deeper main-channel waters for this in-migration and are unlikely to occur in the nearshore areas where work at SBMT will be occurring. Atlantic sturgeon migrate back to the ocean during summer through fall, again using main-channel waters as their travel corridor. Their likelihood of occurrence near SBMT is anticipated to be particularly low in October and November, as most will have moved back to the nearshore ocean prior to those months (Breece *et al*., 2021; NMFS, 2022).

They are expected to typically remain at depths less than 165 feet (Erickson *et al.* 2011) but may be found out to the Exclusive Economic Zone (Stein *et al.* 2004). Atlantic sturgeon are typically found further upriver during summer months, and out in the open ocean during winter months (Dunton *et al*., 2015) and migrate between the two habitats with water temperature changes (BOEM and USACE, 2013). Adult Atlantic sturgeon have been observed in Upper New York Bay during spring and fall migrations.

Shortnose sturgeon require freshwater for spawning (limit of about 0.5 ppt). They spawn at or above the head-of-tide (the farthest point upstream affected by tidal fluctuations), which mature adults migrate to in spring. After hatching, the young-of-year remain in freshwater for about one year before moving downstream to the zone where fresh and salt water interface. Juveniles (3 to 10 years of age) occur at the fresh-saline water interface in most rivers, where they shift slightly upstream in spring and summer and downstream in fall and winter. Adults are generally found upstream while spawning in the spring and spend the remainder of the year at the fresh and saltwater interface. In estuarine systems, juveniles and adults occupy areas with little or no current over a bottom composed primarily of mud and sand (SSSRT, 2010). Individual shortnose sturgeon do not disperse far along the coastline beyond their home river estuaries (NMFS, 1998). The range of the shortnose sturgeon is typically limited to the Hudson River and tributaries, but individuals are occasionally recorded in Upper New York Bay, and have been recorded in the Atlantic Ocean.

The Project Area is an infinitesimally small portion of total habitat of the Upper New York Bay used by sturgeon during their seasonal migrations. Any sturgeon that might occur in the vicinity of the Project Area would be transient. Additionally, Atlantic sturgeon prefer to forage in coarser sandy sediments (Stein *et al*., 2004), unlike the fine silty sediments present in the Project Area. See **Section 3.9.1.** (Threatened and Endangered Species) for further discussion on these and other protected species with potential to occur in the Project Area, as well as the Biological Assessment appended to the JPA as Appendix D of the PIP.

3.9.1.2.2 Striped Bass (*Morone saxatilis*)

The Hudson-Raritan Estuary is recognized as an important spawning and nursery habitat for striped bass. A study by the USACE on demersal species in the New York/New Jersey Harbor showed striped bass juveniles were sporadically present in all seasons (USACE, 2015b).

Striped bass overwintering locations are influenced by temperature and salinity (Hurst and Conover 2002). The juvenile striped bass overwintering locations fluctuate with the tide, with overwintering striped bass remaining within an optimum salinity range of between 10 and 25 psu when water temperatures are cold (Hurst and Conover 2002). As a result, overwintering striped bass may be carried into or out of the Upper Bay, resulting in varying yearly winter residence periods within the Harbor.

USACE (2015b) makes conservation recommendations for striped bass, including a seasonal dredging restriction from November 15 to April 15 to protect fish that are overwintering in the Buttermilk, Red Hook and Bay Ridge Channels of upper New York Bay. However, several studies suggest that dredging has no demonstrable effect on migratory fishes such as striped bass and the NMFS conservation recommendations may be overly conservative or unnecessary for most waterways and typical dredging projects in the Harbor (USACE, 2015b).

3.9.1.2.3 Winter Flounder (*Pseudopleuronectes americanus*)

EFH for all stages of Winter Flounder are mapped in the Project Area (Section 5), including potential spawning and nursery habitat for winter flounder (in waters less than 6 m (19.6 ft)). NOAA Fisheries recommends avoiding in-water construction from January 15 to May 31 in water depths less than 6 m.

3.9.1.2.4 River Herring

River herring is a management category, combining the species of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*). River herring populations throughout the mid-Atlantic have been designed as Species of Concern by NOAA. NOAA Fisheries typically recommend a time-of-year restriction on in-water work from March 1 to June 30 any year during the upstream migration of these species to their spawning grounds. The implementation of this time-of-year restriction may only be necessary in limited circumstances. While both alewife and blueback herring are managed by NY State, and known to occur throughout the Upper New York Bay, no EFH was identified for either species in the vicinity of SBMT.

3.9.1.3 Benthic Invertebrates

Benthic habitat quality in the Project Area has been impacted by historic development and contamination from adjacent intensive development for industrial, marine transportation, and residential use. Macroinvertebrate communities observed in the Project Area reflect these degraded conditions. Previous water quality studies have documented sediment chemical contamination within the NY/New Jersey (NJ) Harbor (NOAA, 1995; Adams *et al.*, 1998). A 1998 U.S. Environmental Protection Agency (USEPA) water quality report (Adams *et al.*, 1998) reported that nearly every sample collected in the NY/NJ Harbor had at least one chemical exceeding a NOAA Sediment Quality Guideline, Effects Range Low concentration and one-half of the area in the Harbor had at least one chemical exceeding Effects Range Median concentration. The most prevalent contaminants at levels of biological concern were mercury, chlordane, and total polychlorinated biphenyls (PCBs) (Adams *et al.*, 1998). The Upper New York Bay is listed on the New York State 2018 303(d) list of impaired waters for sediments contaminated with PCBs and other toxics which may include mercury, dioxins/furans, polycyclic aromatic hydrocarbons (PAHs), pesticides and other heavy metals (NYSDEC, 2020).

3.9.1.3.1 Blue crab (*Callinectes sapidus*)

In eastern United States estuaries, the blue crab is known to occur in shallow to deep waters and in a variety of substrate types, including sand, mud, and submerged vegetation (Meise and Stehlik, 2003; Stehlik et al., 2004). In the colder portions of its range, blue crabs become less active in the winter, stop feeding and burrow in soft sediments to overwinter. In the spring, the adults become active and disperse throughout the estuary (Meise and Stehlik, 2003; Stehlik et al., 2004). The diet of the blue crab is generally mollusks, crabs, and fish.

A USACE survey found that blue crab are present in the Upper New York Bay, with the lowest populations in winter months (USACE, 2008). Other studies that used otter trawls also found blue crabs to be scarce from January through May or June (USACE, 2008); however, this may be because the crabs had burrowed into the sediment and were not accessible to otter trawls (Meise and Stehlik, 2003). Commercial crab dredgers report catches of large numbers of overwintering blue crabs from December through March in the Lower New York Bay (Stehlik et al., 2004).

The Project site, located in the Upper Bay, is shallow (20-ft depth), brackish, with heavy urban uses. The sediment is characterized by unconsolidated silts and a compromised benthic community that lacks diversity and is dominated by pollutant tolerant oligochaetes. Due to the limited suitable habitat and preferred prey, the Project Area likely does not support a large population of blue crabs.

3.9.1.3.2 Indices of Benthic Habitat Quality in Upper New York Bay

Habitat and water quality can be gauged by the abundance of organisms, the diversity and evenness of the community, and the characteristics of species present. Taxa can be considered either intolerant (pollution-sensitive) or tolerant (pollution-indicative). Pollution-sensitive taxa are those for which average abundance, average percent of abundance, and frequency of occurrence are all higher at reference than degraded sites, and for which percent of abundance at reference sites averaged at least 0.2 percent. Pollution-indicative taxa are those for which average abundance, average percent of abundance, and frequency of occurrence are all higher at degraded versus reference sites (Adams *et al.*, 1998). Habitats in New York Bay compromised by pollution have decreased species richness, decreased diversity, a species composition dominated by pollution-indicative species, compared to locations with less pollution (Adams et al. 1998). Between 1993 and 1998, the percentage of sediment sampling locations with benthic macroinvertebrate communities considered impacted, or of degraded quality decreased throughout the NY/NJ Harbor Estuary with the percentage of benthic communities within the Upper Harbor considered impacted decreasing from 75 percent in 1993 to 48 percent in 1998 (Steinberg *et al.*, 2004).

3.9.1.3.3 Benthic Macroinvertebrate Survey of the Project Area

AECOM conducted a benthic macroinvertebrate survey of the Project Area and nearby reference area in August 2020. Eight stations were located in the open water portion of the Project Area to provide a representative cross-section of the benthic community within and outside of the solid fill "pier" structures (see **Figure 3.9-5**). Two stations were located south of the Project Area to serve as reference samples. A description of the Sample Locations is as follows:

- Sample Locations 1 and 7 were midway down the "interpier" basins;
- Sample Locations 2, 5, and 6 were at the mouths of "interpier" basins;
- Sample Locations 3 and 4 were in the open bay;
- Sample 8 was at the furthest point from the bay within an "interpier" basin; and
- Two reference samples (Ref1 and Ref2) were taken at the mouth and midway point of a basin approximately 800 feet to the south of the Project Area.

Figure 3.9-6: Location of Benthic Sampling Grabs

As described in **Section 3.9.1.1.2.2** (Marine Sediments), sediments at all sample locations were predominantly unconsolidated silts. Reference sample locations had similar sediment characteristics. Grab samples collected at Sample Station 8 contained fragmented concrete debris and a lower volume of material, indicating anthropogenic material mixed with the unconsolidated silt sediments. Maps indicate combined sewer outflows adjacent to Samples 8 and Ref2 (see **Figure 3.9-5**) (locations from ESRI, 2022) which would be expected to discharge overflow of untreated residential and commercial wastewater and collected runoff during heavy rain events.

At each location, three benthic grabs sampling a surface area of 1.08 sf (0.1 square meters) each were collected via a Van Veen grab sampler and washed through a 500-micron (µm) metal mesh screen. After sediment particles were washed through the mesh via a saltwater hose, the remaining material (including macroinvertebrates,) was transferred to a sample jar and stained with Rose Bengal solution containing 10 percent formalin preservative. Sample jars were sent to a lab for analysis, including identification of all individual macroinvertebrate specimens to species or nearest identifiable taxon and tallying of all individuals observed. This data was used to calculate organism abundance, as well as diversity, evenness, and characteristics of the community.

A diversity index is a quantitative measure of biodiversity, taking into account the number of species and the weighting/dominance of each species over the community. The Shannon-Weiner index was used to evaluate

benthic invertebrate species diversity for the Project Area. A higher diversity index number indicates a more diverse community.

A total of 10,909 individuals representing 108 taxa were enumerated for the 24 grab samples collected at the eight sample locations in the Project Area. A total of 251 individuals representing 36 taxa were enumerated over six grab samples at the two reference stations. **Table 3.9-4**, **Table 3.9-5** and **Table 3.9-6** summarize the community parameters, community composition per taxonomic group, and bivalve species identified in each sample location, respectively. Full data are included as Appendix C of this document.

Table 3.9-4: Parameters at Each Sampling Location

Sample Station	1	2	3	4	5	6	7	8	Ref1	Ref2
Location	*39S-Mid*	*39S-Mouth*	*39W-Open*	*39W-Open*	*39N-Mouth*	*35N-Mouth*	*35N-Mid*	*35N-End*	*Mouth*	*Mid*
Density (/m^2)	160	1,080	10,433	12,473	3,740	4,483	1,073	2,938	573	263
Species Richness	16	27	53	65	36	52	40	56	27	19
Diversity (H')*	2.34	2.21	2.11	2.16	1.65	2.48	2.66	2.62	2.51	2.36
Evenness**	0.84	0.67	0.53	0.52	0.46	0.63	0.72	0.65	0.76	0.80

* - Shannon-Weiner Diversity Index
** - Evenness indicates the relative abundance of species in an area

Table 3.9-5: Percentage Community Composition by Taxonomic Group

Site	1	2	3	4	5	6	7	8	Ref1	Ref2
Location	*39S-Mid*	*39S-Mouth*	*39W-Open*	*39W-Open*	*39N-Mouth*	*35N-Mouth*	*35N-Mid*	*35N-End*	*Mouth*	*Mid*
Annelida	46%	32%	61%	58%	13%	35%	37%	14%	51%	49%
Nematoda	0%	0%	1%	2%	0%	4%	0%	14%	0%	0%
Nemertea	0%	0%	3%	3%	1%	1%	0%	0%	0%	0%
Platyhelminthes*	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Gastropoda	33%	36%	29%	31%	76%	52%	20%	6%	15%	9%
Bivalvia	6%	4%	4%	1%	1%	2%	15%	2%	2%	1%
Arthropoda	15%	27%	2%	4%	7%	5%	28%	37%	31%	20%
Cnidaria	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%
Urochordata (Tunicates)	0%	0%	0%	0%	0%	0%	0%	23%	1%	18%

* - Platyhelminthes were recorded at Locations 3, 6, and 8, but at a frequency of <0.5%.

Table 3.9-6: Bivalve Species Density Recorded at Sampling Locations

Latin name	Common name	Sample Location *Average*	1 *39S-Mid*	2 *39S-Mouth*	3 *39W-Open*	4 *39W-Open*	5 *39N-Mouth*	6 *35N-Mouth*	7 *35N-Mid*	8 *35N-End*	REF *AVG*	Ref1 *Mouth*	Ref2 *Mid*
Amertilla agilis	N/A	5.4	0.0	0.0	23.3	3.3	3.3	0.0	10.0	3.3	0.0	0.0	0.0
Crepidula fornicata	N/A	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Crepidula sp.	Slipper snail	0.8	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ensis leei	Atlantic jackknife clam	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Lyonsia hyalina	N/A	34.2	0.0	0.0	206.7	33.3	10.0	6.7	3.3	13.3	0.0	0.0	0.0
Macoploma tenta	N/A	0.4	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0
Mercenaria mercenaria	Hard clam	2.9	0.0	0.0	6.7	6.7	0.0	3.3	0.0	6.7	0.0	0.0	0.0
Modiolus modiolus	Northern horse mussel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	6.7	0.0
Mulinia lateralis	Dwarf surf clam	28.3	0.0	36.7	10.0	6.7	26.7	23.3	106.7	16.7	1.7	3.3	0.0
Nucula proxima	Atlantic nut clam	4.2	0.0	3.3	16.7	10.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Pandora inflata	N/A	16.7	0.0	0.0	76.7	26.7	10.0	20.0	0.0	0.0	0.0	0.0	0.0
Pitar morrhuanus	False quahog (also *Agripoma*)	0.8	3.3	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turtonia minuta	N/A	3.8	0.0	0.0	10.0	13.3	3.3	3.3	0.0	0.0	0.0	0.0	0.0
Yoldia limatula	File yolida	14.2	3.3	6.7	46.7	30.0	0.0	6.7	16.7	3.3	0.0	0.0	0.0
Yoldia myalis	Comb yolida	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0
Yoldia sapotilla	Short yoldia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	3.3
Yoldia sp.	Yolidia sp.	7.5	3.3	0.0	26.7	10.0	0.0	6.7	6.7	6.7	0.0	0.0	0.0
TOTAL	N/A	120.4	10.0	46.7	426.7	146.7	53.3	73.3	156.7	50.0	6.7	10.0	3.3

Note: N/A = not applicable

No reef building species (e.g., oysters, striped mussels) were observed, or species that would otherwise indicate establishment of a reef or other biotic habitat. Though bivalves were collected in all samples (see **Table 3.9-6**), visual observations recorded no large individuals or individuals attached to rigid structures. The dominant bivalve species observed in the Project Area *were Lyonsia hyaline* and *Mulinia lateralis.*

Within the Project Area, grab samples from the two stations located in open water (Stations 3 and 4) showed higher density of organisms, with over twice the count of individuals of other stations, as well as higher species richness. Samples collected near the mouth of the "interpier" basins had higher abundance and richness than samples collected further within the inlets. Species richness also decreased within the inlets, with the lowest numbers observed at the mid inlet station located near the southern boundary of the Project Area (Station 1, 39S). Open water samples were dominated by Oligochaeta, which is a pollution-indicative taxon (Adams *et al.*, 1998; Llanso *et al.*, 2002b).

The diversity index and evenness of the community varied between sample locations, with lower measures of both at the sites with the largest number of individuals (Stations 3, 4, and 5), indicating dominance by only a few species, notably oligochaete worms and the gastropods *Acteocina canaliculate* and *Japonactaeon punctostriatus*. Open harbor areas are particularly dominated by the phylum Annelida (that includes oligochaetes). Gastropods are also dominant in open harbor waters, but diminish in dominance further into inlets, and are almost completely absent in the Reference Areas. Oligochaeta are particularly abundant and present in most sample locations and is the dominant species group in the open bay. Reference samples, matching observations indicating the taxa to be a habitat generalist (Llanso *et al.*, 2002a, Villnas *et al.*, 2012), and pollution-tolerant (Adams *et al.*, 1998; Llanso *et al.*, 2002b). Of other frequently collected species within the Project Area, Llanso *et al*. (2002a) also lists *A. canaliculate* and *Mediomastus ambiseta* as similarly widespread in saline and brackish habitats. *A. canaliculate* is listed as pollution intolerant (Llanso *et al.*, 2002b), indicating that the benthic habitat may not be solely dominated by pollution tolerant species.

Station 8 has a distinctly different community composition relative to the other samples, possibly attributable to its location at the end of an inlet with concrete debris observed and influence from an adjacent CSO. Station 8 has four dominant taxa that are mainly absent from other samples, and an overall low percentage of annelids and gastropods compared to other samples, with arthropods and tunicates in turn more dominant. Two dominant species at Station 8 (amphipods *Grandidierella japonica* and *Microdeutopus ryllotalpa*) are exotic species that do not occur in any of the other sample locations. The tunicate *Molgula manhattensis* is dominant in both Stations 8 and Ref2, but not present in any other sample. As a free-floating tunicate, *M. manhattensis,* commonly known as sea grapes, is expected to be common throughout Upper New York Bay. It likely settles in the sheltered inlets but is swept up into the water column in more exposed areas and is therefore not collected by the benthic grab method.

3.9.1.3.4 Comparison of Project Area Macroinvertebrate Community with Other Studies

Diversity measurements for the eight sets of grab samples collected in the Project Area yielded an overall diversity index of 2.3, which is identical to mean diversity index of a 1998 USEPA study for all of New York Harbor which also had an index of 2.3 (Adams *et al*., 1998).

With the exception of Station 1, density and species richness in the Project Area was higher than the two reference stations. When compared to historical data for Upper New York Bay (taken from Adams *et al.*, 1998; USACE, 2006), species richness observed in most of the Project Area samples is indicative of a comparatively good quality site. Macroinvertebrate abundance at the open water (Stations 3 and 4) and 39N and 35N "interpier" basin mouth (Stations 5 and 6, respectively) samples is indicative of good quality; however, the dominance of pollution-tolerant Oligochaeta in these locations indicate that conditions are still compromised. Lower macroinvertebrate abundances in 39S mouth and "interpier" basin (Stations 1 and 2), and samples within the 35N basin (Stations 7 and 8), indicate compromised communities.

USACE sampled the Bay Ridge Channel approximately 200 feet waterward of 39W (just beyond the Project Area) in 2005 (USACE, 2006). Community composition in these samples was similar to the 39W samples, with Oligochaeta the dominant species, although the density of organisms and species richness was lower in the channel (100 total individuals/square meter (m^2) and 7 species) than the Project Area 39W samples. This may indicate that open water near-shore areas provide more productive habitat than the channel, which is generally deeper and exposed to higher current velocity and vessel traffic.

NYSDEC sampled the benthic community in the Sunset Park waterfront located to the south of the Project Area as part of an assessment of nearshore waters in western Manhattan and Brooklyn (e4sciences, 2015). Sediment profile

imagery (SPI) and benthic infaunal sampling were performed at seven stations along the Sunset Park waterfront. The benthic invertebrate community was limited to the top 6 inches and dominated by small opportunistic tube-dwelling polychaetes and oligochaetes, identified as Stage I (early successional) species, but Stage III (equilibrium) organisms were also present. Community composition indicates limited improvement of the Upper New York Bay habitat (e4sciences, 2015). Community composition in the Sunset Park waterfront samples was similar to that found in the Project Area.

3.9.1.4 Avifauna

The Project Area is located within the Atlantic Flyway for avian migration (USFWS, 2021). The Atlantic Flyway follows the eastern coast of the United States from the Caribbean to the tip of Maine, with major migration routes intersecting in southern South Carolina and the Delaware Bay. The flyways follow topographical features in a north-south direction. The flyways are recognized as a complex of important habitats and resources (food, shelter, etc.) required by a grouping of migrating avian species.

The habitat of the Project Area is of low value for avian species, consisting of intensively developed paved surfaces, with less than five percent open soil and less than one percent vegetation coverage, adjacent to open bay waters. The nearest higher-value terrestrial avian habitat, Green-wood Cemetery, is approximately 0.5 miles from the Project Area and consists of 478 acres of predominantly trees with maintained lawn with medium-level human activity.

3.9.1.4.1 Potential Endangered Avian Species in the Project Area

Pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, rare, threatened, and endangered species information was obtained from the USFWS Information for Planning and Consultation (IpaC) system and the NYSDEC Environmental Resources Mapper. No critical habitat was identified in the area. The following ESA-listed avian species (see **Table 3.9-7**) were identified by the USFWS to potentially be present within the Project Area. The listed avian species are not expected to forage, roost, or nest in the vicinity of the Project Area. No NY State-listed species were mapped as likely to occur in the Project Area (NYSDEC, 2022).

Table 3.9-7 ESA-listed Avian Species with Potential to Occur within the Project Area

Common Name	Species Name	ESA Status	NYS Status	Critical Habitat Onsite
Piping Plover	*Charadrius melodus*	Threatened	Endangered	No
Red Knot	*Calidris canutus rufa*	Threatened	Threatened	No
Roseate Tern	*Sterna dougallii*	Endangered	Endangered	No

3.9.1.4.2 Avian Survey of the Project Area

A survey of all avian species was completed by AECOM from August 22 to October 22, 2020, to determine the number and species of birds using the Project Area. The survey entailed spot-count sampling at the four locations shown on **Figure 3.9-7.** A total of 72 spot-counts (total of 18.25 hours of recording time) were conducted to provide a representative sampling of the habitat in the Project Area. During each spot-count, a pair of wildlife scientists observed the landscape over a full 360-degree circle for 15 minutes and recorded all birds observed by sight or sound (all counts were conducted during times of unlimited visibility). Data are given in **Table 3.9-8**.

Figure 3.9-7: Location of Spot-count Sample Locations (with 200-foot and 500-foot radius identified from each point)

Table 3.9-8 Avifauna Recorded During Surveys in Fall 2020.

Species	Scientific Name	Total Observed	Using Site
Ring-billed Gull	*Larus delawarensis*	2,051	852
European Starling	*Sternus vulgaris*	1,086	246
Canada Goose	*Branta canadensis*	596	197
Gull sp.	Laridae	413	14
Rock Dove	*Columba livia*	353	21
House Sparrow	*Passer domesticus*	145	10
Double-crested Cormorant	*Phalacrocorax auratus*	123	11
Brant	*Branta bernicla*	105	11
Herring Gull	*Larus argentatus*	78	28
Unknown Sparrow	Passeridae	48	28
Greater Black-backed Gull	*Larus marinus*	39	15
Duck sp.	Anatidae	26	1
Mourning Dove	*Zenaida macroura*	24	3
Great Blue Heron	*Ardea Herodias*	16	5
Mallard	*Anas platyrhynchos*	16	1
American Black Duck	*Anas rubripes*	15	5

Species	Scientific Name	Total Observed	Using Site
Cliff Swallow	*Petrochelidon pyrrhonota*	10	1
Song Sparrow	*Melospiza melodia*	10	8
Osprey	*Pandion haliaetus*	8	1
Black-crowned night heron	*Nycticorax nycticorax*	6	0
Eastern Phoebe	*Sayornis phoebe*	6	6
Sandpiper sp.	Scolopacidae	6	2
Yellow-rumped Warbler	*Dendroica coronataj*	6	6
American Crow	*Corvus brachyrhynchos*	5	2
Laughing Gull	*Leucophaeus atricilla*	5	2
Common Yellowthroat	*Geothlypis trichas*	4	4
Least sandpiper	*Calidris minutilla*	4	4
Savannah Sparrow	*Passerculus sandwichensis*	4	4
Tern sp.	*Laridae*	4	0
Unknown	Unknown	4	3
American Goldfinch	*Spinus tristis*	3	2
Black-backed gull	*Larus sp.*	3	0
Palm Warbler	*Setophaga palmarum*	3	3
American Kestrel	*Falco sparverius*	3	2
Crow sp.	*Corvus sp.*	2	0
Gadwall	*Mareca strepera*	2	0
American Wigeon	*Mareca americana*	1	1
Black and White Warbler	*Mniotilta varia*	1	1
Blue Jay	*Corvus cristata*	1	0
Common Tern	*Sterna hirundo*	1	1
Belted Kingfisher	*Megaceryle alcyon*	1	0
Kildeer	*Charadrius vociferus*	1	1
Kinglet sp.	*Regulidae*	1	1
Magnolia Warbler	*Dendroica magnolia*	2	2
Northern Mockingbird	*Mimus polyglottos*	1	0
Peregrine Falcon	*Falco peregrinus*	1	0
Common Raven	*Corvus corax*	1	1
Red-breasted Merganser	*Mergus serrator*	1	1
Warbler sp.	*Parulidae*	1	1
Grand Total	-	5246	1508

A total of 5,246 birds were recorded during the Fall 2020 survey. Of this total, 2,261 birds were observed in the Project Area, including 1,508 utilizing or interacting with the site (including resting, foraging, or any other activity constituting 'use' of the site), and 753 'in transit' (flying over, but not interacting with the Project Area). An additional 88 birds were observed utilizing the open water habitat (foraging or swimming) within 200 feet beyond the Project Area limits. The remaining birds were observed off-site, often in open water of New York Harbor, or interacting with the Sims Facility adjacent to the North. A full accounting of all birds recorded is presented in **Table 3.9-9**.

None of the species observed during the survey are ESA-listed species (including those listed in **Table 3.9-7**). State-listed species observed during the survey are listed in **Table 3.9-9**, with information about each observation.

Table 3.9-9: State-listed Avian Species Surveyed On or Near the Project Area

Utilizing Site

Species	Scientific Name	NYS Status	Location of Avian	Action	Number / Date
Common Tern	*Sterna hirundo*	Threatened	35W bulkhead	Resting	1 / Aug 22
Osprey	*Pandion haliaetus*	Special Concern	39S basin	Foraging in water	1 / Oct 20 1 / Sep 3
American Black Duck	*Anas rubripes*	High Priority Species	39N basin & 39W open bay	Swimming	2 / Oct 3 1 / Oct 22

In Transit Over or Adjacent to Site

Species	Scientific Name	NYS Status	Location of Avian	Action	Number / Date
Peregrine Falcon	*Falco peregrinus*	Endangered	39S basin	Transit to South	1 / Oct 11
Osprey	*Pandion haliaetus*	Special Concern	Inland	Transit to South	2 / Sep 3 5 / Oct 20
American Black Duck	*Anas rubripes*	High Priority Species	39N basin & 39W open bay	Swimming	1 / Sep 19 2 / Oct 3

The Project Area does contain two features with notably higher utilization by avian species than the surrounding habitat. The existing buildings on the north side of the 39th Street "Pier" were observed to be a heavily utilized resting location for multiple gull species. In addition, a line of poplar trees and low brush along the north side of the 35th Street "Pier" was used by multiple songbird species not observed in any other area of the site. Species observed in this habitat included eastern phoebe (*Sayornis phoebe*), palm warbler (*Setophaga palmarum*), magnolia warbler (*Dendroica magnolia*), black and white warbler (*Mniotilta varia*), savannah sparrow (*Passerculus sandwichensis*), and yellow-rumped warbler (*Dendroica coronataj*). These songbirds were recorded only in late September and early October, indicating that the habitat is being used during migration.

Two off-site features were also observed to have higher avian utilization than other adjacent habitats: the Sims Facility adjacent to the Project Area to the north, and the dilapidated piers to the southwest. The Sims Facility was occupied throughout the survey period by large populations of species typical of urban environments, including European starlings, house sparrows, and rock doves. The dilapidated piers located at the Bush Terminal complex south of the site provide a small area of vegetated waterfront habitat that was observed to be used more frequently than adjacent developed habitat by a variety of avifauna species (i.e., passerines, waterfowl, wading birds, and raptors).

During the course of the survey, avian populations were observed to follow expected seasonal patterns. For example, cliff swallows were observed in late August, but were not recorded for the remainder of the fall sample period. During surveys, brants were rarely observed until October, when they were observed more frequently, mirroring their common migration pattern in Upper New York Bay. Songbirds were recorded chiefly in late September, when they are expected to be at peak migration activity, and were largely absent in October, when they are expected to have migrated to warmer climates.

Overall, the existing Project Area provides low value to the avian community due to the limited vegetation and food resources, as well as overall poor quality habitat (i.e., paved surfaces and volunteer vegetation) that is common to the harbor waterfront area. Observations of the NYSDEC-listed species of common tern, osprey, and black duck indicated minimal utilization of the Project Area. The species were resting, foraging in open waters, and swimming in open water, respectively. The habitat type of the Project Area is common in the vicinity.

3.9.1.5 Marine Mammals

Although marine mammals are not mapped in the vicinity of the Project Area, there are rare reports of marine mammals in the Upper New York Bay and research to suggest they may occur (e.g. Rosenbaum *et. al.*, 2011). However, marine mammals are not expected to occur in the Project Area; the shallow nearshore habitat is undesirable for cetaceans,

and pinnipeds are not expected to approach an urban, high-traffic habitat with limited resources. Further information on Threatened and Endangered species is provided in the Biological Assessment appended to the JPA as Appendix D of the PIP.

3.9.1.6 Threatened and Endangered Species

The NOAA Fisheries Endangered Species Mapper, the USFWS IpaC system, and the NYSDEC Environmental Resources Mapper were consulted to determine the presence of critical habitat and protected species in the Project Area.

The Project Area is in the range of six threatened or endangered species under the jurisdiction of NOAA Fisheries, and four under the jurisdiction of USFWS. The protected species under the jurisdiction of NOAA Fisheries with ranges overlapping the Project Area are listed below with their associated Federal Register (FR) and Species Recovery Plan citations.

- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914; Critical habitat 82 FR 39160) Endangered/Threatened,
- Shortnose sturgeon (*Acipenser brevirostrum*) (32 FR 4001; Recovery plan: NMFS, 1998) Endangered,
- Loggerhead turtle (*Caretta caretta*) (76 FR 58868; Recovery plan: NMFS and USFWS, 2008; Critical habitat 79 FR 4837) Endangered,
- Leatherback turtle (*Dermochelys coriacea*) (35 FR 8491; Recovery plan: NMFS and USFWS, 1992) Endangered,
- Green turtle (*Chelonia mydas*) (81 FR 20057; Recovery plan: NMFS and USFWS, 1991) Threatened,
- Kemp's ridley turtle (*Lepidochelys kempii*) (35 FR 18319; Recovery plan: NMFS et al., 2011) Endangered.

Review of the USFWS IpaC system website indicated that the Proposed Project is within range of four endangered or threatened species and one candidate species under the jurisdiction of USFWS. These species include:

- Piping Plover, *Charadrius melodus* – Threatened,
- Red Knot, *Calidris canutus rufa* – Threatened,
- Roseate Tern, *Sterna dougallii dougallii* – Endangered,
- Seabeach Amaranth, *Amaranthus pumilus* – Threatened.
- Monarch Butterfly, *Danaus plexippus* – Candidate.

Review of the NYSDEC Environmental Resource Mapper does not show any NYS-listed endangered or threatened species; however, there were several avian observations of NYS-listed species, listed in **Section 3.9.1.4.2** (Avian Survey of the Project Area), indicating that these species will occur in the area, though are not likely to utilize the habitat. Protected Marine Species.

None of the above-listed sturgeon or sea turtle species have been routinely documented around the Project Area. Though they are known to occur in Upper New York Bay during migration periods, these species are unlikely to intentionally transit or forage in the Project Area vicinity due to the industrialized, disturbed, and high-traffic nature of the SBMT. Further information on Threatened and Endangered species is provided in the Biological Assessment appended to the JPA as Appendix D of the PIP.

3.9.1.6.1 Protected Bird Species

All listed avian species are unlikely to utilize the Project Area or occur in the vicinity. The listed avian species are not expected to forage, roost, or nest in the vicinity of the Project Area. The piping plover, red knot, and roseate tern are all shore-nesting birds. The habitat types required by these species are not present within or immediately adjacent to the Project Area.

An avian survey conducted from August to October 2020 (discussed in **Section 3.9.1.4** (Avifauna)) did not identify any of the above-listed species. The survey did record the presence of the following NYS protected species:

- Common tern, *Sterna hirundo* – NYS Threatened, observed once, resting on a bulkhead
- Peregrine falcon, *Falco peregrinus* – NYS Endangered, observed once, transiting the site (not utilizing the habitat)
- Osprey, *Pandion haliaetus*, NYS Special Concern, observed transiting the site (not utilizing the habitat)
- American Black Duck, *Anas rubripes*, NYS High Priority Species, observed swimming in open bay waters

Overall, the Project Area has low value to these species due to low resource levels, high levels of disturbance, and overall low quality habitat for nesting, roosting, and foraging. Further information on Threatened and Endangered species is provided in the Biological Assessment appended to the JPA as Appendix D of the PIP.

3.9.1.6.2 Protected Invertebrate Species

On December 17, 2020, the USFWS announced a 12-month finding to list the monarch butterfly (*Danaus plexippus*) as a threatened species under the ESA (85 FR 81813). Eastern North American monarch butterflies undergo long-distance migration. In the fall, monarchs begin migrating to their overwintering sites, a migration that can take monarchs distances up to 2,500 miles and last for over two months (Watt, 2021) before returning late the next spring. Monarch butterflies forage on vegetation during their migration. The Project Area has sparse vegetation cover, and larger areas of vegetation, including nearby parks and even margin areas of Busch Terminal, are expected to present a more attractive resource to monarch butterflies. The likelihood of monarch butterflies foraging in the Project Area is considered to be very low.

3.9.1.6.3 Protected Plant Species

Site visits conducted by AECOM in August to October 2020 included a survey of the vegetation of the Project Area. Seabeach amaranth (federal- and State-listed threatened species) was not observed. The habitat requirements for the species (undisturbed sand dune habitats) do not exist in the Project Area or in the vicinity of the Project Area. As such, the site does not include habitat for this species, and the species is not anticipated to occur in the vicinity. Further information on Threatened and Endangered species is provided in the Biological Assessment appended to the JPA as Appendix D of the PIP.

3.9.2 Environmental Effects

3.9.2.1 Future without Project

3.9.2.1.1 Habitats

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Dredging of the marine habitats would occur due to anticipated Sims Facility maintenance dredging and the EW 1 Project's cable installation. The EW 1 Project would also backfill the cable installation alignment, replace the bulkhead at the cable landing location, and construct and operate the upland substation. **Under the Future without Project condition, impacts to habitats would be limited to insignificant and temporary impacts associated with EW 1 Project and Sims Facility.** See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.9.2.1.2 Finfish

It is anticipated that under the Future without Project condition, there would be insignificant and temporary impacts to finfish populations in the Project Area associated with maintenance dredging for the neighboring Sims Facility and dredging for the installation of the EW 1 Project cable. Water quality, habitat availability and forage populations (benthic invertebrates) would be expected to return to current conditions. **Under the Future without Project condition, there would be temporary and insignificant impacts to finfish and EFH.**

3.9.2.1.3 Benthic Invertebrates

Under the Future without Project condition, it is expected that benthic invertebrate communities in the Project Area would rebuild and retain the population dynamics currently observed after maintenance dredging for the neighboring Sims Facility and dredging for the installation of the EW 1 Project cable, which would create a single disturbance event, with the post-dredging habitat being at deeper water depths. The Project Area would continue to be subject to continued comparable levels of sedimentation. It is expected that species capable of tolerating impaired conditions would continue

to be dominant. **Under the Future without Project condition, impacts to the benthic community would be temporary and insignificant.**

3.9.2.1.4 Avifauna

It is expected that impervious surfaces and buildings within the Project Area would continue to inhibit natural vegetation growth and formation of avian habitat, and other planned projects would not impact avian habitat use or population levels. Habitat would remain low quality and use by the avian community would remain at similar levels to those observed during the survey of 2020. **Under the Future without Project condition, there would be no anticipated impacts to avifauna.**

3.9.2.1.5 Threatened and Endangered Species

Analysis of Threatened and Endangered species is provided in the PIP and in the Biological Assessment appended to the JPA as Appendix D of the PIP. Under the Future without Project condition, there would be no anticipated impacts to protected species in the Project Area. With continued species management, Atlantic sturgeon numbers are expected to continue to increase as reflected by the recent population recovery observed in the Hudson River estuary (ASMFC, 2017).

3.9.2.2 Future with Project

3.9.2.2.1 Habitats

Natural habitats in the Project Area are very limited due to the extensive development that has occurred in the area over centuries. Changes in Project Area habitats are anticipated from the physical changes due to construction (including dredging and installation of structures and clean sand cap), increased use of the upland and marine habitats by the Project, and shadows from new structures (discussed in more detail in **Section 3.6** (Shadows)). None of these changes are expected to significantly alter the current habitat composition.

3.9.2.2.1.1 Terrestrial

The Project Area would be consistent with the existing habitat, with similar levels of vegetation cover, impervious surfaces, and building structures. The addition of the two heavy lift cranes on the west and south sides of the 39th Street “Pier” and one on the west side of the 35th Street “Pier” would increase verticality of the site versus existing conditions. Impacts of these three cranes to specific resources (e.g., avian species and visual impacts) are discussed in the respective sections. Shading from above-grade structures and stored materials is expected to impact only a small area and is not expected to have a significant impact on the habitats or any natural resources. **The Proposed Project is not expected to cause significant long-term adverse impacts to terrestrial habitats in the Project Area.**

3.9.2.2.1.2 Marine

The mudline of the benthic surface would be at greater water depths, with steeper side slope areas, versus the existing benthic surface. Based on sediment characterization studies conducted for the Proposed Project, the post-construction benthic surface is anticipated to be of similar character (unconsolidated black silts with no features), except in areas receiving a clean sand cap, which will be unconsolidated sediments of a sandy texture.

The dredged areas will have increased water depths. Newly exposed benthic surfaces would be eventually covered by sedimentation from adjacent habitats, which would slowly decrease the water column depth and would be expected to return sediment pollution levels to a condition similar to the surrounding area. There is a small net removal of marine habitat (approximately 0.03 acres) due to project activities, filling of areas for bulkheads, and creation of a small area of new marine habitat by removal of the existing cofferdam and fill.[14] Shading from above-grade structures and stored materials is expected to impact only a small area and is not expected to have a significant impact on any habitats or natural resources. Therefore, impacts to marine habitats are anticipated to be limited to localized deepening from dredging. **The Proposed Project is not expected to cause significant long-term adverse impacts to marine habitats in the Project Area.**

3.9.2.2.1.3 Wetlands

Tidal wetland areas would remain similar to pre-construction conditions, other than net creation of 0.02 acres of wetland habitat (a product of removal of the existing cofferdam and fill), and new shading during construction discussed in **Section 3.9.1.1.3** (Wetlands). Disturbance of wetlands from removal of riprap during structure installation is expected

[14] Quantities have been rounded to the nearest hundredth decimal.

to be minimal. Sedimentation from adjacent dredging is expected to be minimal and temporary versus existing sedimentation rates. Wetland habitats not impacted or shaded by construction would be of similar condition to those currently existing on site. Shading from above-grade structures and stored materials is not anticipated to affect wetland habitats. **The Proposed Project is not expected to cause significant long-term adverse impacts to wetlands in the Project Area.**

3.9.2.2.2 Finfish

While the removal of the existing benthic community during construction activities and establishment of a new community may influence local distributions of fish that feed on benthic prey items on a small spatial scale, no population-level effects due to the Proposed Project are expected since the Project Area represents only an infinitesimally small portion of a common habitat type in Upper New York Bay. Further, these impacts are expected to be temporary, as the dredge footprint is expected to be quickly re-colonized by similar species from areas adjacent to the dredge area (Guerra-Garcia, 2003), and the exposed post-dredge surface is expected to be covered by continuous sedimentation from surrounding areas.

3.9.2.2.2.1 Vessel Traffic

Increases in boat traffic due to operation of the SBMT would present a negligible increase in the risk of boat strike to finfish. During operations, vessel traffic in Upper New York Bay would increase a very small amount versus existing levels. Vessel traffic to the new SBMT facility has been estimated to be approximately nine vessels a week, representing 18 vessel trips (both arrival and departure). Existing traffic levels of the Port of New York are approximately 5,355 vessels per week (extrapolating the daily rate of 166 arrivals and 166 departures recorded in October 2021). Seven of the weekly vessel visits would be CCV or barges, which typically operate at slow speeds (tug and barge typically do not exceed 5 knots), and due to their large vessel envelope, displace a large amount of water, which would push fauna fish away and therefore minimize the risk of take by vessel strike.

3.9.2.2.2.2 Contaminant Impact

The pre- and post-dredging surface sediments contain potentially bio-accumulative contaminants (including mercury and dioxins) that have the potential for uptake by finfish via direct exposure or by bioaccumulation through ingestion of benthic invertebrates that re-colonize the dredged area. The area of benthic habitat represented by the Project Area is miniscule relative to the available habitat for benthic invertebrates in Upper New York Bay. The post-dredging surface is expected to rapidly be covered by sediments from the surrounding area, resulting in lower contaminant levels and reducing the potential for contaminant impacts. In addiiton, the potential for impacts from residual contaminants will be reduced by the placement of a one-foot sand cap over approximately 5.6 acres of the post-dredge surface where levels of bioaccumulative contaminants are elevated (see **Section 3.10.3**). The placement of this sand cap will result in future sediment surface concentrations that will be equal to or better than the current sediment surface concentrations when considered on an average Project-wide basis.

When Proposed Project activities are considered together with the characteristics of existing EFH in the Project Area, the potential for negative effects associated with the operation and maintenance of the Proposed Project are limited in scale, impacting approximately 14.2 acres of existing compromised habitat in an area (Upper New York Bay) with thousands of acres of similar or higher quality habitat. **In summary, the Proposed Project is not expected to cause significant impacts to finfish or protected fish species populations or cause significant negative impacts to EFH fish species in the vicinity of the Project Area.** Impacts to Atlantic and shortnose sturgeon are discussed in **Section 3.9.2.4** (Threatened and Endangered Species).

3.9.2.2.3 Benthic Invertebrates

Benthic invertebrates are expected to rapidly begin recolonizing the post-dredging surface and installed sand cap in the Project Area following completion of construction activities. The benthic community observed during sampling in 2020 indicated a highly motile species assemblage, comprised primarily of pollution tolerant species, which would facilitate rapid re-colonization. The increase in water depth due to dredging, and the increased particle size of the sand cap are not expected to present a significantly different habitat condition.

Recolonization rates by benthic invertebrates are affected by several factors: spatial and temporal scale, dredging depth, species, life cycle characteristics, mobility, sediment type and stratification, water quality, water flow (lotic versus lentic environments) and physical barriers. Studies of small-scale dredging projects have shown that benthic

invertebrate populations tend to return to pre-dredging levels of species richness within six months to a year (Guerra-Garcia, 2003). Tolerance to contamination and water quality characteristics such as DO levels will vary by species.

Due to the rapid expected recolonization and negligible impact of increased water depths and sediment particle size, the Proposed Project is not expected to adversely affect benthic community abundance or composition.

3.9.2.2.3.1 Sedimentation Impact

New York Harbor sediment was found to consist predominantly of 35 percent silt-clay and 39 percent mud (Adams *et al.*, 1998). Average deposition rates in the vicinity of the Project Area (estimated by comparing data from the USACE concerning recent dredge events in 2007 and 2012, versus existing bathymetry) are as high as 6 to12 inches per year. Deposition is fastest wherever bottom currents are slow and little wave energy reaches the bottom: in coves and channels, around piers, and near the ends of salinity intrusions. (Olsen *et al.*, 1978, 1984; Abood *et al.*, 1992).

After dredging, the newly exposed benthic bottom of the Project Area would continue to integrate loadings of contaminants, organic materials, and sediments from the watersheds and airsheds surrounding it. Exposed post-dredging surface would be expected to be gradually covered by new sediment based on natural sedimentation rates. The Project Area experiences natural deposition of sediments, as evidenced by the historic decrease in water column bathymetry of the Area after previous dredging events. Assuming constant ambient conditions, sedimentation would gradually bury sediments to a point that would cover post-dredging surface with sediments from the surrounding area to a depth that would effectively remove the post-dredging surface from infauna, gradually eliminating the influence of any residual contamination.

Resuspended sediment is expected to resettle shortly after initial disturbance. Seafloor habitats are predicted to be recolonized shortly following dredging activities. Seabed disturbance causing turbidity and displacement, or disturbance of benthic flora and fauna would be temporary and not have long-term ecosystem impacts that could affect species found in the Project Area. Species with greater mobility will be better able to survive burying by sedimentation than sessile species.

The marine habitat present after dredging is expected to be unconsolidated sediment of a similar texture as the existing substrate. Though sediments at the final depth of dredging are occasionally of a different texture (i.e., clay or sandy sediments), the predominant sediment type (both existing and post-dredge depths) of locations sampled were black sediments of silt texture. Increased water depths (by a maximum of approximately 21 feet) are expected to have an insignificant impact on benthic community makeup.

3.9.2.2.3.2 Contaminant Impact

The pre- and post-dredging surface sediments contain potentially bio-accumulative contaminants (including mercury and dioxins) that have the potential for uptake into the tissues of benthic invertebrates that re-colonize the dredged area. The area of habitat represented by the Project Area is tiny relative to the available habitat in Upper New York Bay. As such, any impact on the benthic community from residual contaminants in the post-dredge surface is expected to be negligible. The potential for impacts from residual contaminants will be minimized by the placement of a one-foot sand cap over approximately 5.6 acres of the post-dredge surface where levels of bioaccumulative contaminants are elevated (see **Section 3.10.3**). The placement of this sand cap will result in future sediment surface concentrations that will be equal to or better than the current sediment surface concentrations when considered on an average Project-wide basis. Further, as noted above, the post-dredge surface is expected to rapidly be covered by sediments from the surrounding area reducing the potential for contaminant impacts.

In summary, the Proposed Project is not expected to have significant adverse impacts to benthic invertebrates in the Project Area. Any impacts to the benthic community would be temporary and insignificant.

3.9.2.3 Avifauna

It is expected that if the proposed actions were taken in the Project Area, impacts to avian species would be minor, as the already developed site would be replaced with a similar proportion of buildings and paved areas.

The post-construction condition of the site, with two two-story buildings, three heavy lift cranes, and new pavement would not represent a significant difference from the current site habitat for avian species. For birds, collisions with buildings, particularly at windows and other glassy surfaces, represent the largest source of collision mortality in North America (Machtans, 2013). Collisions are influenced by factors such as reflectivity of glass panes in relation to the

position of the sun and anthropogenic lighting, which can attract and disorient nocturnally migrating birds (Van Doren, 2017).

In addition to the temporary facilities described above, the Proposed Project includes the construction of two buildings. The O&M base and maintenance warehouse (occupying 60,000 sf) would have a similar vertical dimension to the buildings currently onsite. The surface of the new building would not be reflective, similar to the existing buildings on the site. The site is surrounded by much larger structures, often with reflective surfaces. For comparison, buildings on adjacent properties along 2nd Avenue are six-story buildings with large multi-paned, reflective windows. Therefore, the obstacle and strike-risk potential of the two new two-story buildings associated with the Proposed Project would be comparable to the existing site structures and less than structures associated with the surrounding development.

Eighteen existing high mast light poles would be demolished and replaced with 13 new high mast light poles fixtures. The reduction of the number of fixtures would reduce the potential impact via physical strike. The new masts would be 120-foot tall, with 12, 500-watt CLED2 fixtures per pole. The selected fixtures are rated Zero Up light Rating (U0) per the Illuminating Engineering Society (IES) BUG system, which would minimize impact to migrating avian species by disorientation from night-time lighting.

The operational requirements for the intended use of SBMT necessitate three heavy-lift cranes to suspend and transfer loads to barges and CCVs to transport WTG materials to offshore sites. The three cranes are proposed to be Liebherr 13000, with a maximum boom height of 807 feet above the grade of the 35th Street and 39th Street “Piers.” Cranes of similar height are installed throughout Upper New York Bay, including on nearby Red Hook Terminal. The cranes present a nominal increased risk of bird strike due to their size. Multiple similar cranes are erected throughout Upper New York Bay in connection with other marine industry sites.

Cranes of the type proposed to be installed often have greased cables for worker safety and machine efficiency (Roberts, 2022). Contact with these cables can pose a hazard for avian species; excessive contact could result in oil sticking to feathers, causing matting and separation, impairing waterproofing and flight performance, and exposing the animal’s sensitive skin to the environment (Maggini, 2017). Attempts to remove the oil by preening can result in the animal ingesting the oil and potentially damaging internal organs (International Bird Rescue, 2022). To minimize potential impacts, the Proposed Project would include placing deterrents to avian species at the top of cranes to keep birds from landing and contacting grease; these deterrents are expected to be bird ‘spikes’ or reflective flagging.

It is anticipated that once the site is operational, avian presence and use of the site would be comparable to present levels. Moreover, it is anticipated that the construction and operation of the Proposed Project would have minimal impacts to habitats to the north and the dilapidated piers to the south. In fact, there may be light long-term positive effects through the reduction of high mast lighting.

Regarding federally-protected species, the Proposed Project would impact “interpier” basin areas and synthetic shorefront habitats, with no effects on habitat that could potentially be used by any protected avian species. As the New York Harbor/Gowanus Bay area normally has vessel traffic and activity, no measurable additional vessel disturbances would occur to protected species.

In summary, the Proposed Project is not expected to have significant adverse impacts to avian species in the Project Area.

3.9.2.4 Threatened and Endangered Species

Analysis of Threatened and Endangered species is provided in the PIP and in the Biological Assessment appended to the JPA as Appendix D of the PIP and summarized in this section.

It is anticipated that the operation of the Proposed Project would have minimal effects on protected species. The Upper New York Bay, including the Project Area, does not provide critical habitat for shortnose or Atlantic sturgeon, or the loggerhead, Kemp’s ridley, green, or leatherback turtles. Proposed Project construction and operation would not destroy, or adversely modify critical habitat for these species. The Proposed Project’s operation would not serve as an impediment to movement or migration and noise levels would be similar to existing levels. As mentioned in **Section 3.9.2.3** (Avifauna), the habitat types required by the federally protected avian, invertebrate, and plant species are not present within or immediately adjacent to the Project Area, no impact on these species from Proposed Project construction and operation is expected.

Increases in boat traffic due to operation of the SBMT would present a negligible increase in the risk of boat strike to marine protected species. During operations, vessel traffic would increase a small amount relative to existing levels. Vessel traffic to the new SBMT facility has been estimated to be approximately nine vessels a week, representing 18 vessel trips (both arrival and departure). Existing traffic levels of the Port of New York are approximately 5,355 vessels per week (extrapolating the daily rate of 166 arrivals and 166 departures recorded in October 2021). Seven of the weekly vessel visits would be CCV or barges, which typically operate at slow speeds (tug and barge typically do not exceed five knots), and due to their large vessel envelope, displace a large amount of water, which would repel fauna and therefore minimize the risk of take by vessel strike. Shortnose and Atlantic sturgeon are highly motile species generally found near the bottom of the water column, with limited potential for vessel contact. Barge and vessel movement in shallow areas would occur at very slow speeds, further lessening the chance for impacts. There is no anticipated effect on these species from vessel traffic associated with the Proposed Project. Further, sturgeon are considered highly transitory in the Project Area and are only expected to occur in the area during migration. During migration, sturgeon utilize deeper main-channel waters and are unlikely to occur in the nearshore areas where Proposed Project work will occur. Sea turtles are not expected to utilize the site extensively due to lack of resources (e.g. food, shelter) present.

The Proposed Project is not expected to affect protected species that could potentially occur on site due to the low quality of the habitat present and urban location and high area usage that would deter individuals from remaining in the vicinity.

As discussed in the NOAA Fisheries Letter of Concurrence that Incidental Take is Unlikely to Occur, an incidental take of marine mammals is unlikely to occur (see Attachment 5 of the Biological Assessment appended to the JPA as Appendix D of the PIP).

In summary, the Proposed Project is not expected to have significant adverse impacts to Threatened and Endangered species that may occasionally be present in the vicinity of the Project Area. Neither modification of current habitats nor operational activities of the Proposed Project are anticipated to adversely impact species that may occur.

3.9.2.5 Indirect Effects and Cumulative Impacts

The existing natural resources in the Project Area, including terrestrial, marine, and wetland habitats, are significantly altered, typical of a highly industrialized marine port in the New York Harbor. Long-term operations of the Proposed Project are not expected to have significant adverse impacts on natural resources.

The Project Area represents an infinitesimally small portion of a compromised common habitat type in Upper New York Bay. Increases in boat traffic due to the operation of SBMT would present a negligible increase in the risk of boat strike to finfish or other aquatic organisms relative to existing levels. In the Future without Project condition, it is anticipated that maintenance dredging adjacent to the Sims Facility and in Bay Ridge Channel would occasionally be necessary to maintain water depths for marine transportation (USACE last dredged the Bay Ridge Channel in 2021). The long-term operations of SBMT are not anticipated to influence these future activities and, as such, would not have incremental impacts to benthos, finfish, marine mammal, or Threatened and Endangered species.

Upland and shoreline habitat in the Project Area is typical of a highly urbanized harbor port with bulkheads and riprap shorelines and dominated by man-made surfaces and structures. Upland vegetation is extremely limited, and no wetland vegetation is present. The Proposed Project includes construction of two two-story buildings and three heavy lift cranes. The EW 1 Project includes construction of an onshore substation and the installation of underground cables. A number of buildings already exist in the vicinity of the Project Area, including several much taller structures. The cumulative impacts to upland natural resources, including avifauna, from the addition of structures associated with the Proposed Project and the Future without Project condition would not be significant.

Taking into consideration the above, the incremental long-term operational impacts of the Proposed Project when added to Future without Project condition would have no significant adverse cumulative impacts to natural resources.

The Proposed Project would not have indirect effects on natural resources resources in the Study Area, including inducing developments that could result in in-water dredging activities or impacts to terrestrial, marine, and wetland habitats. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no long-term

significant adverse impacts on natural resources in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could impact terrestrial, marine, and wetland habitats and threatened and endangered species.

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3.10 Hazardous Materials

3.10.1 Introduction

The Proposed Project would span most of the waterfront between 32nd and 39th Streets in Sunset Park, Brooklyn. The Project Area is approximately 80.3 acres that includes approximately 66.1 acres of upland area and approximately 14.2 acres that are underwater**.** The upland portion of the Project Area is identified on tax maps as Block 662, portion of Lot 1, Lot 130, Lot 137, Lot 136, and Lot 155. The purpose of the Proposed Project is to upgrade the marine terminal to enable it to serve as a staging and O&M base for the OSW industry.

This section will discuss the analysis of the potential for hazardous materials within the SBMT property (Terrestrial) as well as the underwater portion as it relates to sediments to be dredged (Aquatic), and whether the Proposed Project may increase the exposure of people or the environment to hazardous materials. A hazardous material is defined in the *CEQR Technical Manual* as "any substance that poses a threat to human health or the environment", which includes heavy metals, volatile and semi-volatile organic compounds (VOC/SVOC), methane, PCBs, pesticides and hazardous wastes.

3.10.2 Terrestrial

The upland portion of the Project Area would include demolition of existing site buildings, utility improvements, and bulkhead improvements. This would include removal and replacement of existing pavement (concrete and asphalt) and excavations of soil/fill to install structural piles and utilities. Preliminary quantities of terrestrial materials include approximately 25,000 tons of soil/fill and 725,000 tons of asphalt/concrete. A number of environmental and hazardous materials assessments have been conducted to date. The sections below provide a summary of each assessment as well as analysis of potential impacts.

3.10.2.1 Phase I Environmental Site Assessments

Two Phase I ESAs have been conducted pursuant to the American Society for Testing and Materials (ASTM) Standard Practice Designation E 1527-13 for ESAs. The first ESA was conducted in May 2018, and, since the initial ESA was more than six months old, a second ESA Update was completed in March 2022. Both ESAs concluded that contamination exists or is likely to exist in the Project Area. The findings of the Phase I ESAs are summarized in the following paragraphs.

3.10.2.1.1 Phase I Environmental Site Assessment, South Brooklyn Marine Terminal, 2nd Avenue between 33rd and 39th Streets, Brooklyn, New York, AECOM, May 2018

AECOM performed a Phase I ESA Update of the subject property in accordance with the scope and limitations of ASTM E 1527-13. At the time of the assessment, there were a number of site-related limiting conditions including inaccessible areas of existing site buildings, inaccessible vaults located inside the garage area of the tower building, condition of asphalt beneath a noted debris pile, the inability to interview a knowledgeable site contact as part of site reconnaissance, or the inability to speak with site operators to discuss current operations including waste handling and the potential use of hazardous materials.

The subject property is identified on the New York Spills, Resource Conservation and Recovery Act (RCRA) Non-Generators (NonGen)/No Longer Regulated (NLR), MANIFEST, Facility Index System (FINDS), Enforcement and Compliance History Online (ECHO), Underground Storage Tanks (UST), and RCRA Corrective Action Sites (CORRACTS) databases reviewed for this assessment. Seven spills were reported for the subject property, all of which have been closed. One facility (SBMT) was identified at the foot of 39th Street and 1st Avenue and was listed on the UST database in association with the removal of five 4,000-gallon diesel steel/carbon steel USTs, two 550-gallon gasoline steel/carbon steel USTs, and one 550-gallon used oil steel/carbon steel UST. The USTs were removed in 1998. The locations of these USTs and the dates of when they were installed were not available. The remainder of the listings were associated with the former generation of hazardous wastes.

According to the environmental database report, numerous (over 400) sites were identified within their respective ASTM and/or Environmental Data Resources (EDR) search distances from the subject property. Based on AECOM's review of the remaining database listings, none of these sites are expected to present a Recognized Environmental Condition (REC) to the subject property based on their distance from the subject property, regulatory status (i.e., closed, no violations found), media impacted (i.e., soil only), and/or topographical position from the subject property (i.e., down-gradient or cross-gradient).

The following RECs were identified in connection with the subject property:

- Due to the history of the subject property, the potential for orphan USTs and historic urban fill used to create the majority of the subject property including several of the current piers, the possibility exists for subsurface contamination on and in immediate vicinity of the subject property related to the potential USTs and historic urban fill.

- According to historical research conducted by AECOM, four, 160,000-gallon aboveground bulk storage tanks (ASTs) were located in the area of the current N Shed between 1940 and 1953. Information concerning the decommissioning of these tanks and the removal of any impacted soil resulting from the operation of these tanks was not available. Therefore, the historic operation of these four tanks is considered an REC.
- A brass cap was observed imbedded within a concrete pad surface in the rear of the two temporary structures. Based upon AECOM's professional judgement, the presence of the brass cap and the concrete pad suggests the possible presence or former presence of an UST or other structure. Although there is no staining or other visible evidence of a release of any kind, the brass cap and possible UST is considered a REC for the subject property.
- An abandoned transformer labelled as containing PCB fluids was present along the northern portion of the Tower Building in an area that was gated and inaccessible. Staining was observed in the vicinity of this abandoned transformer (approximately 15 sf); however, AECOM was unable to determine if the staining was water or transformer oil. Until a detailed inspection and evaluation can be made, this staining is considered a REC at the subject property based on the labelling of the transformer as containing PCBs and the existence of the stain.
- Based on AECOM's professional judgement, observations made at the subject property and historical information suggest the possible presence of a Vapor Encroachment Condition (VEC). Although there are currently no structures on the property, the REC listed herein has the potential to include open vapor intrusion exposure pathways during future development or construction at the property. This potential VEC is considered a REC.
- The following historic RECs (HRECs) were identified in connection with the subject property:
- USTs were removed from the subject property in March 1999 (location not identified) when impacted soils around the tanks and pumps were encountered. The spill was closed in April 2015.
- The subject property was identified in the database with four spill numbers (9714187, 9714188, 9714189, 9714190) related to unknown petroleum in the soil. All four spill numbers were issued on March 20, 1998 and closed on January 14, 2015.

Based on the above-described activities, no controlled RECs (CRECs) were identified in connection with the subject property.

The following *de minimis* conditions (DMCs) were identified during this assessment:

- Areas of *de minimis* soil staining (approximately 5 feet by 10 feet) were present throughout the subject property. The majority of the sources of these minor leaks could not be identified due to the age and use of the subject property but are likely related to motor fuels and hydraulic fluid and poor housekeeping practices observed.
- A leaking hydraulic trash compactor was observed located along the southern wall of the larger temporary structure which contained *de minimis* staining (approximately 3 sf).

A copy of this report is provided in Appendix D.

3.10.2.1.2 Phase I Environmental Site Assessment Update, South Brooklyn Marine Terminal, Block 662, Portions of Lot 1, Lot 130, Lot 136, Lot 137, and Lot 155, Brooklyn, New York, AECOM March 2022

AECOM performed a Phase I ESA Update of the subject property in accordance with the scope and limitations of ASTM E 1527-13. At the time of the assessment there were numerous site-related limiting conditions including the inaccessible interior of the Tower Building and inaccessible areas and roofs of existing site buildings. There were also numerous data gaps identified. As agreed upon in our scope of work, a title search and environmental lien search were not conducted; all obvious uses of the entire property from the present back to the property's first obvious developed use could not be achieved; historical local street directories were not obtained in the timeframe of this assessment; past owners, operators, and occupants of the subject property were not interviewed, and the NYCDEP did not respond to a request for information by the time the report was issued. Based on review of the available data, these data gaps are not expected to impact the results of the assessment.

No visual evidence of USTs (e.g., vent pipes, fill ports), potable water wells, clarifiers, dry wells, septic tanks, or leach fields was observed during the site visit. One monitoring well cover was observed near the entrance to the Graffiti Building. Four ASTs ranging in capacity from approximately 100 to 500 gallons were observed on the subject property. One approximately 500-gallon AST reportedly contain diesel to power temporary generators at the Graffiti Building, one approximately 100-gallon AST was located in the abandoned Diesel Fire Pump Room and is assumed to have contained diesel, and two approximately 250-gallon fuel oil tanks powered heating vents in the one-story structure N2 Shed. No staining was observed around these ASTs. One abandoned transformer labelled as PCB-containing was observed inside the N2 Shed with staining from oil or moisture on the concrete floor underneath it.

Based on AECOM's site reconnaissance of the surrounding neighborhood, no off-site sources of concern were identified.

The subject property is identified on the NY Spills, RCRA NonGen/NLR, MANIFEST, FINDS, ECHO, and UST databases reviewed for this assessment. The RCRA, Manifest, FINDS and ECHO listings are compliance-related listings associated with the former generation of hazardous wastes. No violations were noted associated with these listings. Five spills were reported for the subject property, all of which have been closed (two Spill Numbers that occurred in the waters surrounding the subject property listed as on-site in the 2018 Phase I ESA were reclassified as having occurred surrounding the subject property). One facility (SBMT) was identified at the 'foot of 39th Street and 1st Avenue' and was listed on the UST database in association with the removal of five 4,000-gallon diesel steel/carbon steel USTs, two 550-gallon gasoline steel/carbon steel USTs, and one 550-gallon used oil steel/carbon steel UST. The USTs were removed in 1998.

According to the environmental database report, numerous (over 300) sites were identified within their respective ASTM and/or EDR search distances from the subject property. Based on AECOM's review of the remaining database listings, none of these sites are expected to present a REC to the subject property based on their distance from the subject property, regulatory status (i.e., closed, no violations found), media impacted (i.e., soil only), and/or topographical position from the subject property (i.e., down- gradient or cross-gradient).

The following RECs were identified during this assessment:

- The subject property has a long historical use for commercial and industrial purposes, including the presence of urban fill and USTs. This historical use has driven numerous on-site subsurface investigations. The soil and groundwater data obtained from these subsurface investigations indicated SVOC and metals are present in the soil and groundwater at the subject property at concentrations exceeding regulatory standards. These soil and groundwater impacts are considered a REC.
- An abandoned transformer labelled as PCB-containing with less than 50 parts per million (ppm) PCBs was observed in the southeastern portion of the N2 Shed. Staining on the floor underneath the transformer was observed; however, AECOM was unable to determine if this was oil or water. The labelled PCB transformer with staining visible on the floor underneath it is considered a REC.
- During the 2018 Phase I ESA, an abandoned transformer was observed in the Tower Building. Subsequent to the 2018 Phase I ESA, the soil around the transformer was sampled and elevated PCBs were detected. Information pertaining to the current status of this abandoned transformer or the impacted soil is unknown as AECOM did not have access to the interior of this building at the time of the current site visit. Based on the lack of additional information, this transformer and associated PCB-impacted soil is considered a REC, in AECOM's opinion.

Based on the above-described activities, no CRECs were identified in connection with the subject property.

The following HRECs were identified during this assessment:

- Based on the information provided, Spill Nos 9714187, 9714188, 9714189, and 9714190 were assigned when impacted soils were identified during the removal of eight USTs, two ASTs, associated fuel pumps and piping, and four hydraulic lifts from the subject property on March 20, 1998. These Spill Numbers were closed at different times from January to July 2005. The USTs ranged in size from 550 gallons to 4,000 gallons and contained gasoline, diesel, and waste oil. Post-excavation soil sampling was conducted and revealed VOC, SVOC, and lead regulatory exceedances. The Spill Numbers were closed in 2005 after soil and groundwater

investigations were completed to the NYSDEC's satisfaction. Based on the closed status, these releases are considered an HREC, in AECOM's opinion.

- An additional Spill No 8801529 was assigned on May 17, 1988, due to a release of mustard oil by UPS and was closed the next day. Based on the closed status, this Spill is considered an HREC, in AECOM's opinion.

In addition, VECs were identified during completion of a Tier I vapor encroachment screening following ASTM International, Designation: E2600-15, *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions* dated October 2015 (ASTM E2600-15).

- The subject property has a long history of commercial and industrial use including the presence of USTs. Based on previous subsurface investigations including a February 2022 Phase II ESA that included soil, groundwater, and soil vapor sampling, SVOCs are present above standards in on-site soil and groundwater, and elevated concentrations of VOCs were detected in the soil vapor samples. Based on this information, a VEC exists and is considered a REC, in AECOM's opinion.
- The following DMCs were identified during this assessment:
- Areas of *de minimis* staining were observed on concrete and asphalt surfaces (ranging in size from approximately 1 sf to 20 sf) throughout the subject property, both inside the buildings and in the open exterior areas. The majority of the sources of these minor stains could not be identified due to the age and multiple uses of the subject property but are likely related to motor fuels and hydraulic fluid. Based on the limited extent of the staining, these areas of staining are considered DMCs, in AECOM's opinion.

A copy of this report is provided in Appendix E.

3.10.2.2 Phase II Environmental Site Assessments

A number of previous investigations have been conducted at the site over the past 20 to 25 years including a recent Phase II ESA Report completed by Tetra Tech in January 2022. Below is a summary of findings based on reports reviewed by AECOM.

3.10.2.2.1 Supplemental Site Investigation Report, TRC, April 2004

The TRC Companies, Inc (TRC) investigation report summarized the following tank removal work and investigations conducted by Ballard in a Site-Specific Investigation Plan, July 1998. In March 1998, two 550-gallon USTs containing gasoline, four 4,000-gallon USTs containing gasoline, one 4,000-gallon UST containing diesel fuel, one 550-gallon AST containing waste oil, one 550-gallon UST containing waste oil, and one 1,000-gallon AST with unknown contents were removed from the property. Additionally, four hydraulic lifts were removed from the property during this same period. Two spill cases were opened due to stained soil observed during removal of the tanks and assigned NYSDEC case numbers (97-14188 and 97-14190) in March 1998. Stained soil surrounding the removed tanks was excavated and disposed of off-site. Post-excavation soil sampling indicated exceedances of New York State regulatory criteria in place at the time for VOCs, SVOCs, and lead. Ballard recommended further soil and groundwater investigations based on the post-excavation sampling results. These recommendations were eventually implemented by URS Corporation (URS) between 2000 and 2005. Work included additional soil sampling around the former tank locations and the installation of 13 monitoring wells. Results indicated some remaining contamination related to the former tanks but recommended no further action to site soils and continued monitoring of groundwater until contaminants were below state criteria over two consecutive quarters. NYSDEC approved this approach in a letter dated October 21, 2003.

TRC conducted additional investigations in 2002 based on a TRC Phase I also conducted in 2002. The findings of the 2002 TRC Phase II indicated soil exceedances of soil criteria in place at the time of VOCs, SVOCs, and metals. TRC's primary recommendation based on this Phase II was additional soil investigations to completely characterize areas impacted by former tank operations around the site; primarily in the vicinity of the N-shed building. TRC subsequently conducted additional site investigation work in 2003 that included additional geophysical surveys, a test pit investigation of geophysical survey anomalies (10 test pits), and 12 soil borings were advanced in areas previously identified as areas of potential concern. The test pit investigation indicated a number of concrete slabs, brick walls, and concrete foundation footings. No indications of tanks were observed, no organic vapors were detected, and no soil samples were collected. The boring investigation indicated varying soil profiles of sands with varying amounts of gravel, silt, and clay. Debris was also encountered including brick, concrete, slag, and cinders. Soil samples collected from boring were analyzed for VOCs, SVOCs, metals, and PCBs. No VOCs or PCBs were detected above criteria in place at the time.

Exceedances of several SVOCs and metals were noted in multiple borings. Further soil investigations were recommended. Groundwater monitoring was on-going by others (URS) during the TRC Phase II reporting period.

A copy of this report is provided in Appendix F.

3.10.2.2.2 Groundwater Sampling Report to Support the NYSDEC SPDES Permit for Construction Activity at the South Brooklyn Marine Terminal, Brooklyn, New York, HDR, August 2007

The purpose of this investigation was to evaluate groundwater for potential site upgrades or reconstruction that may require dewatering and potentially expose construction workers to contamination. Six temporary well points were installed and sampled in July 2007. The well points were installed to depths between eleven and fifteen feet beneath the ground surface and were installed in areas thought to potentially require dewatering during proposed site upgrades at that time. Six groundwater samples were collected and analyzed for the parameters listed on NYSDEC Region 2 Dewatering Projects Sampling Information sheet for discharge to a storm sewer. The parameter list included VOCs, metals, PCBs, and other parameters: carbonaceous bioassay oxygen demand, chloride, hexavalent chromium, flash point, non-polar material, nitrite nitrate, total phenolics, pH, settleable solids, total solids, and total suspended solids.

Analytical results were compared to NYSDEC Surface Water Quality Standards provided in Part 703.5 based on surface water classification of I for upper New York Harbor and NYCDEP limitations for effluent to sanitary or combined sewers. Exceedances of criteria were limited to metals (including mercury, copper, zinc, led, nickel, and total suspended solids. The elevated metals concentrations were attributed to high turbidity of the samples and suggested that if dewatering fluid were allowed to settle in a collection tank, the concentration of these metals would be significantly lower.

A copy of this report is provided in Appendix G.

3.10.2.2.3 Final Soil Characterization Findings Report, Louis Berger Group, May 2009

This soil characterization report was conducted to characterize soils in a section along the 39th Street “Pier” bulkhead that was to be excavated and reconstructed as a rip-rap revetment and concrete barrier. Eleven borings were installed in the area to be excavated along the bulkhead and a twelfth boring was installed between the bulkhead and nearest building in order to evaluate soils in the vicinity of proposed utility replacement. Borings were advanced to a depth of twenty feet beneath the ground surface. Seven discrete grab samples were collected and submitted for analysis of VOCs, SVOCs, pesticides, PCBs, and metals. The discrete sample intervals were collected in randomized six-inch intervals ranging between 5 and 20.5 feet beneath the ground surface. Six composite samples were collected (each sample consisting of soils from two separate boring locations and all depth intervals) and analyzed for Toxicity Characteristics Leaching Procedure (TCLP) and RCRA waste characteristics. One groundwater sample was collected from one of the boreholes and analyzed for VOCs, SVOCs, pesticides, PCBs and metals.

The results of the soil and groundwater analyses indicated no exceedances of VOCs, pesticides, or PCBs when compared to criteria in place at the time. Exceedances of several metals and SVOCs were noted. The results of the TCLP and RCRA characteristics sampling indicated no exceedances of either TCLP or RCRA hazardous waste characteristics indicating hazardous waste is not present in this area. The results of the groundwater sample analyses indicated exceedances of NYSDEC groundwater standards for several metals including arsenic, lead, and mercury. One SVOC compound, bis(2-ethylhexyl)phthalate, was detected above NYSDEC groundwater standards.

The report concluded that soils along the section of the 39th Street “Pier” were contaminated but characterized as non-hazardous waste and potentially re-usable on-site in accordance with New York State Solid Waste Regulations NYCRR Part 360. If excavated material was not re-usable on-site, it would still be subject to New York State Solid Waste Regulations and disposed of off-site at a permitted disposal/recycling facility.

A copy of this report is provided in Appendix H.

3.10.2.2.4 Phase II Limited Site Investigation Results Report, AECOM, December 2018

This Limited Phase II Site Investigation was conducted to assess potential environmental impacts from VOCs and SVOCs to soil and groundwater from former site operations and/or off-site sources which may impact proposed redevelopment of the property. Additionally, investigative work was performed around the location of an abandoned transformer labelled as containing PCBs which was observed during the Phase I ESA site visit by AECOM in 2018. Work was performed on a portion of Block 662 and a portion of Lot 1. The investigation focused on the area of Lot 1 between 33rd and 39th Streets.

The investigation consisted of a geophysical survey to determine if there were structures or utilities present in the proposed boring locations. Fifteen soil borings were advanced for the collection of shallow and subsurface soil samples. Two samples were collected from each boring; one from the 0 to 2 feet below ground surface (bgs) and one from a deeper interval no greater than 14 feet. Soil samples were analyzed for VOCs and SVOCs and in the area of the abandoned transformer (Tower Building) PCBs. Eight grab groundwater samples were collected from temporary well points; groundwater samples were analyzed for VOCs and SVOCs. The sample collected from the temporary well point installed nearest the abandoned transformer was analyzed for PCBs.

Soil analytical results indicated no exceedances of NYSDEC Part 375 Soil Cleanup Objectives (SCOs) for VOCs. Several SVOCs compounds (primarily PAHs) were detected above NYSDEC Part 375 Unrestricted SCOs, Restricted SCOs, and Commercial SCOs. SVOC exceedances were located around the N Shed building and the former auto repair shop. PCBs were detected above commercial SCOs the shallow soil sample collected next to the abandoned transformer located in the Tower Building. Groundwater analytical results indicated no exceedances of NYSDEC Groundwater standards for VOCs and PCBs; three PAHs were detected above NYSDEC Groundwater standards in a temporary well point installed near a parking area along 39th Street.

Five in-ground vaults located along the west side of the Tower Building were visually evaluated by AECOM personnel during the investigation. All vaults were observed to be empty with no indication of tanks, piping/apertures, or evidence of contamination.

A copy of this report is provided in Appendix I.

3.10.2.2.5 South Brooklyn Marine Terminal Phase II Environmental Site Assessment (ESA), Portions of Lots 1, 130, 136, 137, and 155, Block 662, 2nd Avenue, Brooklyn, New York 11232, Tetra Tech, Inc, February 2022

Tetra Tech conducted a Phase II ESA on the property to further evaluate the subsurface conditions of the Site based on historical Phase I ESAs and Phase II ESAs. The investigation also targeted previously identified RECs.

Section 1.1 of this Phase II summarized previous investigations. In the summary it is stated that a groundwater monitoring program related to two NYSDEC open spill cases dating to a large tank removal effort in the late 1990's was performed by URS between 2003 and 2005. The two open spill numbers (97-14188 and 97-14190) were closed by NYSDEC in May 2005 following two consecutive quarters of monitoring with results below New York State groundwater standards.

Section 1.1 also discussed a subsurface investigation completed by TRC in July 2019 throughout the site that included a geophysical survey, 20 soil borings, 8 temporary groundwater wells, and 8 soil vapor sample locations. The geophysical survey indicated the presence of a UST in the southwestern portion of the Site near 39th Street. No other information about this UST was included in this summary. Results of the subsurface investigation indicated locations with soil exceedances of VOCs above Unrestricted Use (UU) SCOs, SVOCs above Industrial SCOs, PCBs above UU SCOs, and pesticides above UU SCOs. Impacts adjacent and downgradient of the UST identified during the geophysical survey were not observed.

Tetra Tech's 2022 Phase II ESA included the following activities:

Geophysical survey of each boring location,

- Installation of 40 soil borings to a depth of approximately 10 feet bgs: one sample was collected from each boring at the depth interval with the greatest evidence of environmental impact or the interval above the groundwater table. Soil samples were analyzed for the following parameters:
  - Target Compound List (TCL) VOCs using United States Environmental Protection Agency (USEPA) Method 8260;
  - TCL SVOCs using USEPA Method 8270;
  - PCBs using USEPA Method 8082;
  - TCL pesticides and herbicides using USEPA Methods 8081 and 8151, respectively;
  - Target Analyte List (TAL) metals using USEPA Methods 6010 and 7471;

  - Total cyanide by USEPA Method 9014;
  - 1,4-dioxane by USEPA Method 8270 Selective Ion Monitoring (SIM), and;
  - Per- and polyfluoroalkyl substances (PFAS) by USEPA Method 537.1.
- Installation of 11 temporary monitoring wells were installed to depths between 6 and 10 feet bgs. Samples were collected via low-flow purge by peristaltic pump. Groundwater samples were analyzed for the following parameters:
  - VOCs by USEPA Method 8260;
  - PFAS compounds by Method 537.1 (21 Compound List);
  - SVOCs by USEPA Method 8270;
  - Pesticides by USEPA Method 8081A;
  - PCBs by USEPA Method 8082;
  - Herbicides by USEPA Method 8151;
  - Total Metals (total and dissolved metals);
  - 1,4-dioxane by USEPA Method 8270 SIM, and;
- Thirteen soil vapor samples were collected from locations below ground cover (concrete slabs, asphalt etc.) and one ambient air sample. The soil vapor samples and ambient air samples were analyzed via TO-15 method for VOCs. All samples were collected in outdoor locations or within buildings that are open to the outdoor air due to the poor condition of the roof or building walls and windows.

Results of the Phase II soil investigation were compared to Industrial and Commercial Use SCOs. Analytical results indicated exceedances of Industrial Use SCOs for two SVOC compounds benzo(a)pyrene and dibenzo(a,h)anthracene in eight samples and one sample, respectively. Barium exceeded Commercial Use SCOs in several samples. Other PAHs were also detected above Commercial Use SCOs. 1,4-dioxane and PFAS were detected in one and four samples respectively but were not compared to any regulatory criteria in the report. No VOCs, pesticides, or herbicides were detected above Commercial or Industrial SCOs. No PCBs were detected in soil samples collected during this Phase II.

The results of the groundwater investigation indicated exceedances of NYSDEC Ambient Water Quality Standards and Guidance Values several SVOCs and metals. The SVOC exceedances were primarily PAHs compounds including benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene. The metals exceedances included antimony, arsenic, beryllium, chromium, manganese, and nickel. No pesticides, herbicides, or PCBs were detected in groundwater. No VOCs were detected above NYSDEC Ambient Water Quality Standards and Guidance Values. 1,4 dioxane and PFAS compounds were detected in several locations and compared to ambient water quality guidance values. Exceedances of PFAS guidance values were noted in a few locations.

The results of the soil vapor intrusion investigation indicated the presence of VOCs in all thirteen sampling locations. Since all samples were collected outdoors or within buildings open to the air, all results were compared to the ambient air sample concentrations. There were 17 VOC compounds detected in the ambient air sample. Eight VOC compounds collected from the soil vapor intrusion samples had higher concentrations than the ambient air sample, they included benzene, cyclohexane, ethylbenzene, heptane, hexane, methyl ethyl ketone, toluene, and xylenes. These VOC compounds are typically associated with the use of petroleum products and/or solvents.

A copy of this report is provided in Appendix J.

3.10.2.2.6 Summary of Phase II ESAs and Other Investigations

Based on a review of the Phase II ESAs and other subsurface investigations, hazardous materials are present beneath the pavement at the SBMT. There are indications of contamination to soil/fill to depths of at least 15 feet bgs. The contamination is primarily related to urban or historic fill, but pockets of contamination related to historical storage and use of petroleum products may be encountered in the subsurface. Soil waste characterization sampling has been conducted in portions of the property (primarily around the 39th Street “Pier”) and results indicated that materials in the subsurface are contaminated, non-hazardous (from a waste disposal perspective) and potentially reusable. The

analytical data for groundwater also indicates contamination based on the presence of urban/historic fill materials in the subsurface. Soil vapor sampling indicates the presence of VOCs beneath the paved surfaces and building slabs that may have the potential to accumulate in future building interiors.

Methane is included in the *CEQR Technical Manual* as a potential hazardous substance that should be investigated where project activities will occur in or near filled swampland, wetlands and landfills. The Project Area is comprised of land that was filled decades ago to construct the current facility. Methane can be generated by plants and other organic material or wastes as they decompose and can accumulate beneath building foundations and eventually migrate into a building posing an explosion risk. However, AECOM has reviewed recent Phase II ESA boring logs and has concluded that based on the sandy nature of the fill and lack of organic material, it is unlikely methane will be an issue at SBMT and therefore, no further action is recommended at this time.

3.10.2.3 Existing Conditions Report

AECOM prepared an Existing Conditions Report in June 2018 of the existing SBMT buildings (J1 Shed, J2 Shed, N Shed, Graffiti Building, and Tower Building and Scale House). Overall, the structures were found to be in poor condition due to their age, vacancy, and low maintenance. The only references to hazardous materials in this report were regarding asbestos. Asbestos is discussed further in **Section 3.10.2.4** (Asbestos and Lead Contained Materials Report). A copy of this report is provided in Appendix K.

3.10.2.4 Asbestos and Lead Contained Materials Report

AECOM prepared an Asbestos and Lead Contained Materials Report in June 2018 of the SBMT buildings (J1 Shed, J2 Shed, N Shed, Graffiti Building, and Tower Building and Scale House). Each of the buildings was inspected by certified asbestos inspectors/investigators and certified lead inspectors.

J1 Building – Asbestos Containing Materials (ACM) was identified in multiple areas of the building including the exterior roof, exterior sides of the building (caulking material), window glazing material, duct insulation, and electrical backing board within electrical panels. Lead paint was identified on painted surfaces throughout the building. Additionally, there were a number of light fixtures that may contain ballasts that contained PCBs as well as mercury containing fluorescent bulbs. Lead batteries were observed stacked near the main entrance adjacent to an IT room.

J2 Building – ACM was identified in two areas of the building; the exterior roof and the 1st floor water meter/pump room (wire insulation). Lead based paint was also found on painted surfaces throughout the building. Additionally, there were a number of light fixtures that may contain ballasts that contained PCBs as well as mercury containing fluorescent bulbs.

N Shed Building – ACM was identified in multiple areas of the building including the entire exterior roof, exterior sides of the building, 1st floor restrooms, 1st floor warehouse area (wire insulation), and sprinkler room. Lead paint was identified on painted surfaces throughout the building. Additionally, there were a number of light fixtures that may contain ballasts that contained PCBs as well as mercury containing fluorescent bulbs.

Graffiti Building – ACM was identified in multiple areas of the building including the exterior roof, exterior foundation, and 1st floor warehouse area. Lead was identified on painted surfaces throughout the building. Additionally, there were a number of light fixtures that may contain ballasts that contained PCBs as well as mercury containing fluorescent bulbs.

Tower Building – ACM was identified in multiple areas of the building including the exterior roof, exterior foundation, and 1st floor warehouse area. Lead was identified on painted surfaces throughout the building. Additionally, there were a number of light fixtures that may contain ballasts that contained PCBs as well as mercury containing fluorescent bulbs.

The report recommended that ACM be removed prior to any building demolition work. ACM abatement and removal should be performed by a licensed New York State Department of Labor asbestos abatement contractor and removal procedures be conducted in accordance with Title 15 of New York City's Asbestos Control Program. It was also recommended that lead paint be removed in accordance with the Occupational Safety and Health Administration's Lead in Construction Rule under 29 CFR 1926.62.

A copy of this report is provided in Appendix L.

3.10.2.5 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Under the Future without Project condition, hazardous materials identified on-site would not be disturbed and there would be no exposure risk. Buildings would remain vacant and unrepaired, and existing asbestos and lead painted surfaces would not be disturbed. Existing pavement would remain in place preventing contact with contaminated subsurface media (soil/fill, groundwater, and soil vapor).

See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.10.2.6 Future with Project

Onshore within SBMT, the Proposed Project components would include demolition of existing structures and paving, excavation of fill in order to install utilities and support structures, and installation of new support structures, above-ground structures, utilities, paving, and the construction of an O&M base. These elements are described in detail in **Section 1.3.1** (Upland Section). The EW 1 Project's underground cables and onshore substation would be located in the north-eastern section of the SBMT site and adjacent to the northern boundary of the Project Area.

Based on the results of the Phase II ESA, there are exceedances of the applicable regulatory standards for VOCs, SVOCs, and metals in Project Area soils, groundwater, and soil vapor. Therefore, an application was submitted for this site's entry into the NYSDEC Brownfield Cleanup Program (BCP). On September 8, 2022, the NYSDEC accepted the site into the Brownfield Clean-up Program (Site No. C224360 – South Brooklyn Marine Terminal Site), and the Brownfield Clean-up Agreement was executed on September 29, 2022. A Remedial Investigation Work Plan was submitted to the NYSDEC on November 16, 2022, and a remedial investigation was completed in early Spring 2023.

The potential for significant adverse impacts from contaminated materials can occur when: a) contaminated materials exist on a site; b) a project would increase pathways to their exposure; or c) a project would introduce new activities or processes involving contaminated materials.

The Proposed Project would have the potential to disturb hazardous materials in the subsurface and existing structures during construction, currently estimated to occur from February 2024 through the end of December 2026 (approximately 35 months). Dredged contaminated sediments would also be managed in barges.

The remediation of the Project Site will be conducted pursuant to the New York State BCP. Limited initial remedial work at the Project Site is expected to be completed pursuant to an Interim Remedial Measure Work Plan (IRMWP), which would be implemented prior to the start of construction in February 2024. The IRMWP would include implementation of a Construction Health and Safety Plan and a Community Air Monitoring Plan, which would identify associated health and safety measures to be undertaken at the Project Site to prevent workers and neighbors from being exposed to contamination during remediation/construction activities. A Remedial Action Workplan (RAWP), which will also include implementation of a Construction Health and Safety Plan and a Community Air Monitoring Plan, will be prepared to identify the final remedy to be undertaken at the Project Site, including a site cover to prevent exposure to remaining soil contamination.

With the implementation of appropriate protection and mitigation measures including, but not limited to, asbestos abatement and removal, lead-based paint removal, dust and odor suppression measures during construction, community air monitoring during soil disturbances, appropriate and regimented waste handling procedures, and odor suppression measures, there would be no significant adverse impacts during construction.

In order to obtain a Certificate of Completion from NYSDEC, a Site Management Plan will be required, which will set forth the long-term engineering and institutional controls and maintenance and monitoring requirements[15]. An environmental easement would be recorded to require compliance with the SMP. **Accordingly, the Proposed Project would not have any significant adverse impacts.**

[15] Although the SMP will not be finalized prior to the issuance of the FEIS, these measures can be articulated in greater detail once the scope of the remedy is determined.

3.10.3 Aquatic (Dredged Sediments)

The Proposed Project would utilize the waterfront to serve as a staging and O&M base for the OSW industry. The base would also utilize the navigation channels along the waterfront for vessels to transport components to and from off-shore locations. The navigation channels are currently too shallow for the vessels needed for component transport and must be dredged to allow access. In addition, existing bulkheads are in a deteriorating condition and are planned to be upgraded. Dredging would also be required for the proposed bulkhead improvements.

3.10.3.1 Memorandum Dredged Material Sampling – Data Summary, AECOM, November 2021

A Sediment Sampling and Analysis Plan was developed to establish sampling methodologies, sample compositing, and quality assurance criteria for sampling in the proposed dredging areas.

Proposed dredging areas were divided into four sampling areas: Area 1 (north of the 35th Street "Pier") and Areas 2.1, 2.2, and 2.3 (corresponding to west, north, and south of the 39th Street "Pier"). Sediment data were compared to NYSDEC Technical & Operational Guidance Series (TOGS) 5.1.9, In-Water and Riparian Management of Sediment and Dredged Material. The TOGS guidance provides criteria to determine the likelihood of toxicity to aquatic organisms. Sediments classified under TOGS 5.1.9 fall into one of three categories: Class A (no appreciable contamination), Class B (moderate contamination), or Class C (high contamination).

Sediment data were also compared to NYSDEC Part 375 SCOs to evaluate the suitability of the dredged material for reuse or potential disposal options. Sediment samples were composited and collected from depths proposed to be dredged, from intervals exhibiting visual, olfactory, or elevated photoionization detector readings, from over depth material, and from post-dredging surface material to characterize material left in place. Additional samples were collected from targeted dredge and over-dredge depths and composited for analysis by TCLP protocol to evaluate the material for potential upland disposal in a landfill. Once analytical results were received, data validation evaluation was performed screen the laboratory QC reporting for nonconformities.

Primary sediment samples were analyzed for the following suite of analyses:

- TCL VOCs by USEPA Method 8260D;
- TCL SVOCs by USEPA Method 8270E;
- TAL metals by USEPA Method 6020B;
- Mercury by USEPA Method 8471B;
- Hexavalent chromium by USEPA Method 7196A;
- TCL pesticides by USEPA Method 8081B;
- PCBs by USEPA Method 8082A;
- Herbicides by USEPA Method 8151A;
- Dioxins and furans by USEPA Method 8290A;
- Grain size distribution by ASTM International Method D422; and
- Total organic carbon by the Lloyd-Kahn method.

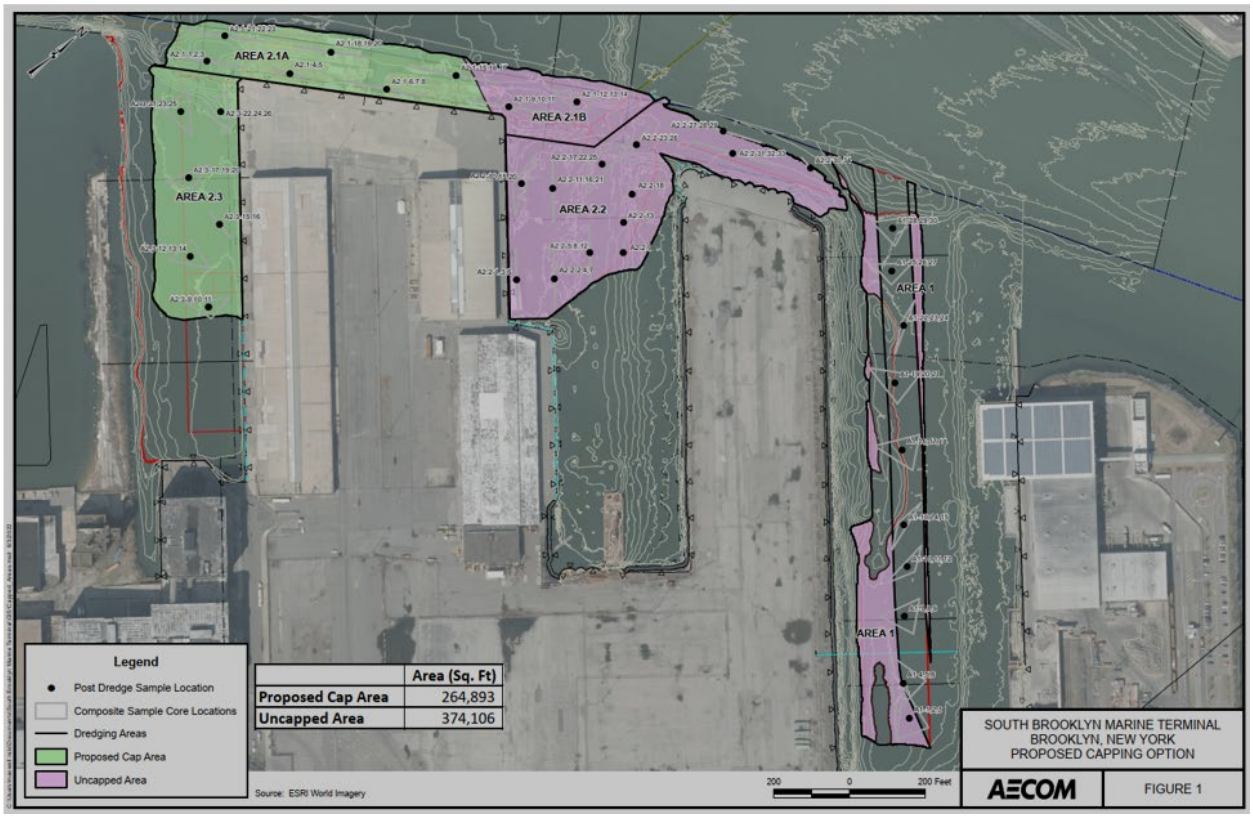
Analytical methods for samples collected for TCLP analyses included the following:

- TCLP extraction by USEPA Method 1311;
- TCLP VOCs by USEPA Method 8260D;
- TCLP SVOCs by USEPA Method 8270E;
- TCLP metals by USEPA Method 6010D;
- TCLP mercury by USEPA Method 7470A;
- TCLP pesticides by USEPA Method 8081B; and

- TCLP herbicides by USEPA Method 8151A.

Sediment sampling results are organized by area (Area 1, 2.1, 2.2, and 2.3) as well as depth (targeted dredge depth material and post-dredging surface characterization) and summarized below. Area 2.1 was separated into two areas (2.1A and 2.1B) based on differences in contaminant levels in the post-dredging surface, with higher levels observed in 2.1A than in 2.1B (**see Figure 3.10-1).** In general, the post-dredging surface is similar to the existing surface and the target material (e.g., physical characteristics and sediment chemistry) and is representative of broader regional sediment.

Figure 3.10-1 Dredging Areas



Area 1 – For the targeted dredge depth materials, approximately 82 percent of Area 1 is characterized as Class C based mainly on Class C exceedances for mercury, lead, and dioxin (expressed as 2,3,7,8-TCDD toxicity equivalents). For the post-dredging surface characterization, approximately 96 percent of Area 1 is characterized as Class C based mainly on Class C exceedances for mercury, lead, and dioxin.

Area 2.1 – For the targeted dredge depth materials, approximately 80 percent of Area 2.1 was characterized as Class C based mainly on Class C exceedances for mercury, lead, copper, PCBs, and dioxin. Three sample locations indicated a sand layer beneath overlying black silt within the targeted dredge depth. Three samples from the sand layer generally met Class A thresholds; one location met Class B thresholds. For the post-dredging surface characterization, approximately 89 percent of Area 2.1 was characterized as Class C based mainly on mercury, dioxin, lead, and copper, with higher concentrations of contaminants observed in Area 2.1A.

Area 2.2 – For the targeted dredge depth materials, approximately 58 percent of Area 2.2 was characterized as Class C based mainly on Class C exceedances for mercury, lead, copper, arsenic, and dioxin. For the post-dredging surface characterization, approximately 79 percent of Area 2.2 is characterized as Class C based mainly on mercury, lead, arsenic, and dioxin.

Area 2.3 – For the targeted dredge depth materials, approximately 93 percent of Area 2.3 was characterized as Class C based mainly on Class C exceedances for mercury, dioxin, lead, copper, and cadmium. For the post-dredging

surface characterization, all samples had one or more analytes in excess of Class C thresholds including mercury (all samples), lead, dioxin, copper, cadmium, PAHs, and pesticides (sum of DDT, DDD, DDE).

When viewed on an area-wide basis, average concentrations of the following contaminants are above Class C thresholds in the target material and the post-dredging surface:

- Area 1 and Area 2.1 – Mercury is above Class C in both the target material and the post-dredging surface, and dioxin is above Class C in the post-dredging surface (marginal exceedance of dioxin in Area 1). As noted above, the higher concentrations of mercury and dioxin in the post-dredging surface were observed in Area 2.1A.
- Area 2.2 – Only mercury is above Class C in both the target material and the post-dredging surface.
- Area 2.3 – Mercury is above Class C in both the target material and the post-dredging surface. Lead and dioxin are above Class C in the post-dredging surface.

All other constituent averages are below Class A or B thresholds.

The average mercury concentration exceeds Class C in all four areas in both target material and the post-dredging surface. The levels of mercury observed in SBMT sediments are consistent with levels observed in the greater Gowanus Bay (CH2Mhill and HDR, 2011; NYSDEC, 2003). Thus, for mercury the post-dredging surface is similar to the existing surface and the target material and is representative of broader regional sediment.

Further evaluation of dioxin in the post-dredging surface was performed, including calculation of surface weighted average concentrations (SWAC) in each area. Post-dredging SWACs are below the Class C threshold of 50 ng/kg (expressed as 2,3,7,8-TCDD-toxicity equivalents) in Areas 2.1B (35.1 ng/kg) and 2.2 (43.9 ng/kg), and slightly above in Area 1 (51.4 ng/kg). Post-dredging SWACs are above Class C in Areas 2.1A (89.8 ng/kg) and 2.3 (127.7 ng/kg). Based on these Class C exceedances, a one-foot sand cap will be placed post-dredging on the exposed surface of Areas 2.1A and 2.3 (see **Figure 3.10-1**). Placement of a clean sand cap in Areas 2.1A and 2.3 (approximately 5.6 acres of the approximately 14.2 acre dredging footprint) following dredging would achieve sediment quality across the Project Area that is equivalent to or better than current conditions when considered on an average, Project-wide basis. Continued deposition will bring surface concentrations to ambient levels in Upper New York Harbor. AECOM's full SWAC evaluation presented in the July 7, 2022 response to comments letter to NYSDEC is attached in Appendix N.

Additional analyses including grain size were conducted to provide information about the physical characteristics of the sediments that would be beneficial in determining potential reuse and/or disposal options but do not affect the classification of the materials from a chemical or toxicity standpoint. TCLP analyses were conducted to determine whether the targeted dredge material would be characterized as a hazardous waste as defined by the USEPA and therefore subject to more restrictive handling, staging and disposal. No TCLP samples exceeded the regulatory limits, and the targeted dredge material is not expected to be identified as hazardous waste.

A copy of the Data Usabilty Summary Report (DUSR) is appended to the USACE/NYSDEC JPA.

3.10.3.2 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses by the existing marine operator in the Project Area would continue, and the NYCDOT function would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate, and maintenance dredging would occur.

See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.10.3.3 Future with Project

Offshore within SBMT, the Proposed Project includes dredging and dredged material management, replacement and strengthening of existing bulkheads, installation of new pile-supported and floating platforms (wharves), and installation of new fenders. These elements are described in detail in **Section 1.3.2** (In-water Section).

The potential for adverse impacts from contaminated materials can occur when: a) contaminated materials exist on a site; b) a project would result in one or more pathways of exposure; or c) a project would introduce new activities or processes involving contaminated materials. The Proposed Project would require dredging of contaminated sediment

that has the potential to expose aquatic biota, site workers and the public in the absence of appropriate protection and mitigation measures. As described above, the placement of one-foot of clean sand in Areas 2.1A and 2.3 on the post-dredging surface will significantly reduce potential exposure of aquatic biota to residual contaminants.

During the dredging work, best management practices would be used to reduce or eliminate potential impacts; those best management practices would include but would not be limited to, the use of turbidity curtains, no barge overflow, no draining of the bucket over the water column and careful placement of the dredge material onto the scows and a closed environmental bucket, and for land-based sediment management activities, air monitoring, odor suppression measures, and regimented waste handling and disposal procedures. Dredged material would be characterized for appropriate off-site disposal and/or beneficial reuse if appropriate.

Additionally, dredging requires consultation with, and permitting by, relevant regulatory agencies, and all work would be conducted in accordance with any specific requirements or conditions imposed by these agencies during the permitting process. Based on observed sedimentation rates in the area, it is expected that the post-dredging sediment surface would be covered by newly-deposited sediments, and that the quality of surface sediments across the Project Area would return to ambient conditions. Additionally, as noted above, a one-foot sand cap will be placed in areas 2.1A and 2.3. As a result, **no significant adverse impacts from sediment dredging are anticipated under the Future with Project condition.**

3.10.4 Indirect Effects and Cumulative Impacts

Indirect effects related to the presence of hazardous materials as a result of the Proposed Project are not anticipated. As detailed above, contamination, including historic fill and petroleum compounds, are present in subsurface soils and groundwater, and lead based paint, asbestos and other hazardous materials may be present in above grade buildings. These materials would be managed via appropriate protection and mitigation measures during implementation of the Proposed Project, and in the future, and the overall pattern of land use would remain generally the same. As described in **Section 3.10.2.2** (Phase II ESAs), the entire SBMT site was assessed, which includes the Project Area and the site of the EW 1 Project onshore substation. Based on these assessments, an application was submitted for the entire site's participation in the BCP, including both the Project Area and the portion of the EW 1 Project that is located on SBMT. On September 8, 2022, the NYSDEC accepted the site into the Brownfield Clean-up Program (Site No. C224360 – South Brooklyn Marine Terminal Site), and the Brownfield Clean-up Agreement was executed on September 29, 2022. Therefore, there would be no adverse cumulative impacts from hazardous materials resulting from the Proposed Project and the Future without Project condition.

The Proposed Project would not have indirect effects on hazardous materials in the Study Area, including inducing developments that could result in the identification of additional hazardous materials in the Study Area. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on upland hazardous materials or from sediment dredging in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could impact upland hazardous materials or result in impacts from sediment dredging.

3.11 Water and Sewer

The *CEQR Technical Manual* requires that the environmental analyses include a discussion of how projects may affect the City's water and sewer infrastructure systems. In cases where the potential for adverse impacts is identified, detailed analyses are required to determine if the impact is significant, and, if so, what mitigation strategies may be appropriate.

3.11.1 Introduction

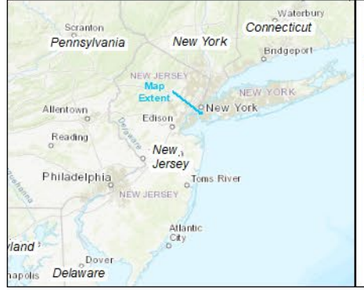
This section assesses the potential for the Proposed Project to adversely impact the infrastructure, treatment and demand for sewer and water service in the Study Area. This section provides an overview of the existing water and sewer infrastructure and the potential for the Proposed Project to have an impact on the physical components or the treatment/demands upon the water and sewer systems. The Proposed Project is located in an area of New York City with direct drainage. This means stormwater is directed through underground pipes to outfalls that discharge into a waterway without treatment. This is common for separately sewered and waterfront areas. For the Proposed Project, the outfalls directly discharge into the Gowanus Bay, which is part of the Upper New York Bay.

The *CEQR Technical Manual* indicates that significant effects on water and sewer infrastructure would be expected when a project results in physical changes to the infrastructure or in situations where a project will increase demands for these services or affect treatment capacities. The potential for effects on this infrastructure and its capacities has been evaluated using the *CEQR Technical Manual* guidelines for infrastructure assessment.

3.11.2 Affected Environment

The Proposed Project is located on the waterfront bounded by 39th Street to the south, 2nd Avenue to the east, 29th Street to the north and the Gowanus Bay to the west in the Sunset Park neighborhood of Brooklyn, New York. The existing site is entirely composed of impervious pavement and warehouse structures. The onsite stormwater flow drains into an existing stormwater drain collection system that discharges into Gowanus Bay or into the City sewer system on 2nd Avenue and 29th Street. A small portion of the existing stormwater originates from the existing warehouse roofs and also drains into Gowanus Bay. There are three existing stormwater outfalls in the solid fill "pier" structure bulkhead along the 35th Street "Pier" that discharge into the Gowanus Bay (see **Figure 3.11-1**). There are three additional stormwater outfalls located on the 39th Street "Pier" (see **Figure 3.11-1**). Three outfalls are located along the bulkhead running parallel to 2nd Avenue on the north and south sides of the 35th Street "Pier" (see **Figure 3.11-1**). A connection to the City street sewer infrastructure is located on 1st Avenue just west of the parking area (see **Figure 3.11-1**). The Proposed Project is served by the Owls Head Wastewater Treatment Plant located on Shore Road in southern Brooklyn.

Figure 3.11-1 Existing Water and Sewer Infrastructure



Legend

- Project Area
- Existing Outfall
- Connection to Existing Sewer

Existing Water and Sewer Infrastructure

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 250 500 1,000 Feet

AECOM
New York, New York

3.11.3 Environmental Impacts

The *CEQR Technical Manual* indicates that a project that results in physical changes to the infrastructure, increases demand for services, or affects capacities, has the potential for significant effects on sewer and water resources. A preliminary infrastructure analysis is needed if the project:

- Would result in an exceptionally large demand for water (e.g., those that are projected to use more than one million gallons per day such as power plants, very large cooling systems, or large developments); or
- Is located in an area that experiences low water pressure (e.g., areas at the end of the water supply distribution system such as the Rockaway Peninsula and Coney Island).
- If the project does not meet these thresholds, no further analysis is needed.

For wastewater and stormwater treatment, projects of a certain size, location, and type have the potential for significant adverse impacts to the City's infrastructure and water quality. The City's sewers are sized and designed based on a designated zoning for an area, the surrounding population density, and surface coverage characteristics. Projects that would increase density, are located in areas of concern, or would substantially increase impervious surface would require further analysis for potential effects to the City's wastewater and stormwater infrastructure. A preliminary infrastructure analysis would be needed if the project:

- Is located in a combined sewer area and would exceed the following incremental development of residential units or commercial, public facility, and institution and/or community facility space above the predicted Future without Project scenario:
  - 1,000 residential units or 250,000 sf of commercial, public facility, and institution and/or community facility space or more in Manhattan; or
  - 400 residential units or 150,000 sf of commercial, public facility and institution and/or community facility space or more in the Bronx, Brooklyn, Staten Island, or Queens.
- Is located in a separately sewered area and would exceed the incremental development (above the predicted Future without Project scenario) of residential units or commercial, public facility and institution and/or community facility per site indicated in **Table 3.11-1**.
- Is located in an area that is partially sewered or currently unsewered.
- Involves development on a site five acres or larger where the amount of impervious surface would increase.
- Would involve development on a site one acre or larger, where the amount of impervious surface would increase and one of the following would apply:
  - Located in the Jamaica Bay watershed, or
  - Located in certain drainage areas, including Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchinson River, Newtown Creek, and Westchester Creek.

Would involve construction of a new stormwater outfall that requires federal and/or state permits.

Table 3.11-1: Thresholds for Existing Zoning Districts for Water and Sewer Analysis

Existing Zoning Districts	Number of Residential Units or Commercial/Public and Institution/Community Facility Use
R1, R2, or R3	25 residential units or 50,000 sf of commercial/public and institution/community facility use
R4, R5	50 residential units or 100,000 sf or commercial/public and institution/community facility use
All remaining zoning designations, including C, M, and Mixed-use districts	100 residential units or 100,000 sf or commercial/public and institution/community facility use.

Source: *CEQR Technical Manual*, Chapter 13, Water and Sewer Infrastructure

3.11.3.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The water and sewer infrastructure within the Project Area would remain unchanged. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.11.3.2 Future with Project

The Proposed Project would involve improvements to the existing stormwater infrastructure. The Proposed Project would collect stormwater runoff through a series of proposed catch basins and manholes. Catch basins would be placed throughout the site and connect into the existing outfalls (see **Figure 3.11-2**). The Project Area has been divided into eight drainage areas (see **Figure 3.11-2**), Areas A through H. A portion of Area G and all of Area H fall outside of the Project Area, which outside area is depicted in orange in **Figure 3.11-2**. Five of the areas (Area A, C, D, F and G) and the 35th Street "Pier," are proposed to be discharged through existing outfalls in the solid fill "pier" structure bulkhead into Gowanus Bay. The majority of the outfalls were deemed inadequate structurally, and/or did not have the hydraulic capacity to meet design and regulatory requirements. All but one existing outfall would be upgraded, which would involve upgrading the pipe and structure at existing outfall locations. No expected excavation or fill within navigable waters would be expected. No new outfalls are proposed. All proposed outfalls into the Gowanus Bay, would have new hydraulic separators installed to treat all stormwater runoff in the Project Area before it enters the Gowanus Bay and would be approved by the NYCDEP. Drainage Area E is proposed to discharge through a new connection to the existing City sewer system at 2nd Avenue. Drainage area B would not be modified and would maintain the existing storm sewer connection via an existing 18-inch diameter stormwater sewer to the existing NYCDEP 48-inch stormwater sewer in 39th Street. The Contractor would inspect the pipe to confirm it is functional. Drainage area H would reuse existing sewer connections and connect to an existing 24-inch stormwater sewer in 29th Street. **Figure 3.11-2** shows the proposed sewer infrastructure in the eight drainage areas.

A preliminary analysis was conducted to calculate the stormwater runoff for a 10-year storm, as per NYCDEP. For the impervious site, a runoff coefficient of 0.85 and a rainfall intensity factor of 5.95 inch per hour was used to calculate the site runoff. The storm drainage pipes would then be sized according to the required capacity. For the Project Area, pipe size would vary from diameters of 18 inches to 42 inches.

For runoff water quality treatment, NYSDEC requires a treatment system that will hold at least 75 percent of the first 1.5 inches of stormwater runoff volume prior to filtration and discharge into the Upper New York Bay. A hydraulic separator at all outfalls into Gowanus Bay, except for one outfall on the north side of the 39th Street "Pier," is proposed to treat the water before discharge to the existing outfalls. No excavation or fill within open water will be required for these outfall improvements. There are no MS4 outfalls or CSOs with MS4 connection in the Study Area. As a result, a MS4 permit is not required for the current design.

As discussed in **Section 1.3.1.11** (Erosion Control and Dewatering), all upland work will be done in accordance with NYSDEC and NYCDEP guidelines. All work will be done in accordance with a SWPPP to be developed following NYSDEC SPDES and Long Island Well permit requirements. The Proposed Project does not meet the criteria listed in **Section 3.11.2** (Affected Environment) above for a detailed infrastructure analysis. The Proposed Project would not result in an exceptionally large demand for water and is not located in an area that experiences low water pressure. Regarding wastewater and stormwater treatment, the Proposed Project is not located in a combined sewered area. It is located in separately sewered area but does not exceed the development thresholds for manufacturing areas. It also would not increase impervious surface and is not located in the Jamaica Bay Watershed or drainage areas identified above. The Proposed Project also does not involve the construction of a new stormwater outfall. **Based on these criteria, a detailed water and sewer infrastructure analysis is not warranted. The Proposed Project would have no significant adverse impact on water and sewer infrastructure.**

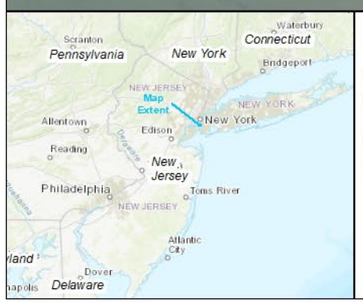
3.11.3.3 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impact on water and sewer infrastructure. The Proposed Project would utilize existing water and sewer infrastructure, would not increase impervious surface, and would not involve the construction of a new stormwater outfall. The Proposed Project would not result in an exceptionally large demand for water and is not located in an area that experiences low water pressure. After the NYCDOT function

relocates to the Red Hook Container Terminal, the water and sewer infrastructure necessary for the EW 1 Project onshore substation would be coordinated with the Proposed Project's water and sewer infrastructure improvements. In fact, the existing catch basin collection system to the north and the existing 18-inch outfall located to the west of the EW 1 Project described in **Section 3.11.3.2** (Future with Project) takes the EW 1 Project onshore substation area into account. The EW 1 Project onshore substation would likely not increase impervious surface, utilize existing water and sewer infrastructure, and not result in an exceptionally large demand for water. Therefore, there would be no adverse cumulative impacts to water and sewer resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on water and sewer infrastructure in the Study Area, including inducing developments that could require additional demand on water and sewer infrastructure in the Study Area. The Study Area beyond the Project Area is already well-developed with water and sewer and infrastructure and built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on water and sewer infrastructure. As such, it is not expected that the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could increase demand on water and sewer infrastructure.

Figure 3.11-2 Proposed Water and Sewer Infrastructure



Legend

- Project Area
- Drainage Area
- Drainage Area outside of Project Area
- Unmodified Existing Outfall
- Improved Existing Outfall
- Connection to Existing Sewer
- Proposed Sewer Connection

Proposed Water and Sewer Infrastructure

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

0 250 500 1,000 Feet

AECOM
New York, New York

3.12 Solid Waste and Sanitation

In New York City, the City of New York Department of Sanitation (DSNY) is responsible for managing municipal solid waste (MSW) and everyday residential and institutional garbage. DSNY does not collect commercial MSW, which includes commercial waste, construction demolition debris, fill material, hazardous materials and dredge spoils. This waste collection is managed by the private sector. Private sector collection consists of land-based transfer stations where locally based collection trucks transfer materials for long-haul export. The transfer stations are located in M3 manufacturing zoning districts.

3.12.1 Screening Assessment

The *CEQR Technical Manual* requires a detailed analysis if a proposed project would have the potential to cause a substantial increase in solid waste production that could overburden the existing waste management capacity. A detailed analysis would be conducted if the project would:

- Exceed 50 tons per week or more of solid waste generation;
- Involve the construction, operation, or closing of any type of regulated solid waste management facility, DSNY district garage, or borough repair shop; or
- Involve a change to public or private waste collection.

The Proposed Project entails the construction and operation of the WTG component staging, storage and assembly facility and O&M base for the OSW industry. The Proposed Project improvements would allow the storage, staging, pre-assembly and transfer of materials used in OSW projects and would provide access to marine vessels and ground transport. During terminal operations, there would be 85 employees at the site. To calculate the estimated waste generation for the Proposed Project during operations, the most conservative solid waste generation rate for industrial facilities was used, which is associated with Printing and Publishing facilities according to the *CEQR Technical Manual*. Using the Printing and Publishing rate of 240 pounds per week per employee, the Proposed Project would generate 10 tons of solid waste per week. Thus, the Proposed Project would not generate more than 50 tons of waste per week, the threshold for a detailed analysis. The Proposed Project also would not involve the construction, operation or closing of a regulated solid waste management facility and would not involve a change to public or private waste collection. In addition, the solid waste management practices in the SBMT facility would be consistent with the DSNY *Final Comprehensive Solid Waste Management Plan* (Department of September 2006) stipulations for managing commercial solid waste. **As a result, a detailed analysis for solid waste and sanitation is not warranted. The Proposed Project would have no significant adverse impact on solid waste and sanitation.**

3.13 Energy

This section examines the potential for energy impacts from the Proposed Project on existing utility infrastructure in the Study Area. According to the *CEQR Technical Manual*, the analysis of energy "focuses on a project's consumption of energy and, where relevant, potential effects on the transmission of energy that may result from the project. The assessment evaluates energy sources typically used in a project's operation (HVAC, lighting, etc.) and includes electricity, fossil fuels (oil, coal, gas, etc.), nuclear power, hydroelectric power, and occasionally, miscellaneous fuels like wood, solid waste, and other combustible materials." The purpose of the analysis is to determine if the Proposed Project would result in a significant impact on energy supply and to ensure that the City's power supply and transmission systems have the capacity to meet future demand.

Measuring incremental energy demand begins with assessing the net increase of energy required to operate a project. Typically, operational energy includes "heating, cooling, lighting, pumps, fans, domestic hot water, plug loads, and elevators." Operational energy consumption is measured in British Thermal Units (BTUs), the quantity of heat required to raise the temperature of one pound of water one-degree Fahrenheit.

This analysis evaluates the energy consumption required for operation of the staging area and O&M base.

3.13.1 Affected Environment

The energy supply in the Study Area is regulated by the NYSPSC, which regulates utilities in the State of New York and New York City under the New York Energy Law. Con Edison supplies electricity throughout the Study Area.

3.13.2 Environmental Effects

3.13.2.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Therefore, fuel energy consumptions within the Study Area as compared to the existing baseline condition would result from the operation of an emergency generator at the onshore substation. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.13.2.2 Future with Project

The Proposed Project is to upgrade the SBMT to enable it to serve as a staging facility and O&M base for the OSW industry. The Proposed Project is needed to support the development of OSW power generation capacity to fulfil the State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030, and the City's *Offshore Wind NYC* plan. In the near term, SBMT would be used to support EW 1 Project which will bring 816 MW of wind power capacity to the city and region resulting in a long-term benefit in replacing the grid power currently produced from fossil fuel combustion process with clean energy.

The future SBMT O&M base consists of approximately 22,000 sf of office and support space, approximately 3,000 sf of waiting area for employees deploying to off-shore work sites, and approximately 35,000 sf of warehouse facilities and associated utility space. In addition, although temporary facilities would be procured on a rental basis depending on the needs of each project during the operational phase, a conservative base assumption would be approximately 5,000 sf of office trailers and 11,000 sf of temporary warehouse structures at any time. The energy consumption associated with these new buildings is calculated to be approximately 42,127 million BTUs annually. This is based on the *CEQR Technical Manual*-provided energy index of 554.3 thousand BTUs annually per square foot for an industrial building (i.e., total annual energy consumed = 76,000 sf x 554.3 x 1000 BTU/sf = 42,127 million BTUs). However, the Proposed Project would also include demolition of approximately 400,000 sf of existing buildings with the annual operational energy consumption totalling 221,720 million BTUs (i.e., total annual energy of existing buildings to be demolished = 400,000 sf x 554.3 x 1000 BTU/sf = 221,720 million BTUs). Therefore, under the Future With the Project Condition, a total of 179,593 million BTUs energy savings (221,720 million BTUs from existing building consumption to be eliminated – 42,127 million BTUs from proposed O&M base) would be achieved on an annual basis.

As discussed in Appendix P: Supplemental Air Quality and Climate Change Analysis (Section 4.4 [Minimization of Potential Impacts]), in order to minimize air pollutant emissions in the operational phase, the Proposed Project would use electric power for building heating via the HVAC system and by using alternative lower-GWP refrigerants instead of using the existing natural gas lines to the existing SBMT facility. Additional electric power would be supplied to vessels with wayside power cables in lieu of hoteling using onboard fossil fuel-fired engines. Furthermore, the design of the O&M base includes LEED certification to be consistent with the City's Building Energy Conservation Code, such as meeting building thermal insulation requirements to conserve energy. The O&M base would incorporate solar panels and stringent electric efficiency standards for lighting, heating, and cooling in accordance with Local Law 97. In addition, the O&M base would be fully electric with high efficiency HVAC equipment, and warning signs on limiting idling time from operational trucks and vessels on site would be posted to minimize fuel consumption from mobile source operations. **Thus, there would be no significant adverse energy impacts.**

3.13.2.3 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts related to the proposed O&M base, after taking into consideration the elimination of existing building energy consumption after existing buildings in the Project Area are demolished. With the relocation of the NYCDOT function and the construction of the EW 1 Project underground cables and onshore substation, no existing buildings would be demolished, but the EW 1 Project would construct enclosed buildings and/or walled structures that would contain various equipment, such as switchgear, control equipment, batteries, reactive compensation equipment and harmonic filters. It is anticipated that energy consumption of the EW

1 Project onshore substation would have no significant adverse impacts. The combined energy demands of the two projects, offset by the energy demands of the buildings that are to be demolished as part of the Proposed Project, would not result in the level of energy use that would constitute a significant impact. Therefore, there would be no adverse cumulative impacts to energy resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on energy in the Study Area, including inducing developments that could create additional energy consumption. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on energy in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional energy consumption.

3.14 Transportation

The *CEQR Technical Manual* recommends a two-tier screening process for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed project. If the proposed project is expected to result in fewer than fifty peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted.

When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips for specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed project would result in fifty or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, fifty or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety.

The following transportation assessment evaluates the potential impacts of long-term operation of the Proposed Project (i.e., after construction). In its operational phase, activities would involve the water-borne transport of materials and parts to the site; assembly of parts by workers on site; and transporting the assembled components via water to the off-shore wind farm(s). Since both the inbound shipment of parts and materials and the outbound transport of assembled components will mainly take place by water, very few inbound and outbound trucks are expected during the operational phase. Accordingly, the predominant type of trip generation would be trips made by workers arriving and departing the site using various modes of transportation. The Project will not displace any active land uses on the site; therefore, all of the trips generated by the Proposed Project are considered to be "net, new trips" (i.e., no credit was taken for existing trips). Further, no credit was taken for Future No-Action trips; hence, this transportation assessment presents a conservative analysis.

3.14.1 Affected Environment

3.14.1.1 Transportation Access

The Project Area is located in the Sunset Park neighborhood in west Brooklyn, approximately between 29th Street and 39th Street along the waterfront (see **Figure 3.14-1**). TheProject Site is located to the west of 2nd Avenue and in close proximity to the Gowanus Expressway, a New York State owned facility. In general, the Project Area has ample roadway networks and is well connected to surrounding neighborhoods and employment centers. The majority of roads in the Project Area are identified as local streets or avenues, whose primarily function is to provide access to abutting residential, industrial, and commercial properties.

3.14.1.1.1 Interstate Roadways and Highways

The Gowanus Expressway (I-278), a New York State Department of Transportation (NYSDOT) facility, is a major limited access roadway in the Project Area. It is an extension of the Brooklyn-Queens Expressway, runs parallel to 3rd Avenue in Sunset Park and connects to the Hugh Carey Tunnel, Belt Parkway, Prospect Expressway (NY 27) and the Verrazzano-Narrows Bridge. In the vicinity of the Project Site, there is a northbound exit off the Gowanus Expressway at 38th Street, and a southbound exit at 39th Street.

3.14.1.1.2 Local Roadways

There are several local roadways in the vicinity of the Project Site, including 2nd Avenue, 3rd Avenue, and several minor local east-west streets. Most of local streets terminate at 2nd Avenue, but a few of them continue passing 2nd Avenue and provide access to facilities located along the waterfront.

2nd Avenue is a two-way, north-south roadway that runs from approximately 28th Street on the north to just south of 65th Street on the south. In the vicinity of the Project Site, on-street parking is generally allowed on both sides of the roadway. In addition, sidewalks exist on both the east and west sides of the roadway. Most of the intersections along 2nd Avenue in the vicinity of the Project Site are unsignalized, except for 39th Street. 39th Street and 2nd Avenue is a signalized intersection; the traffic lights also control traffic movements from the southbound exit ramp of the Gowanus Expressway which runs north of, and parallel to 39th Street between 3rd Avenue and 2nd Avenue and terminates at 2nd Avenue.

3rd Avenue is a two-way, north-south roadway that runs from Downtown Brooklyn on the north all the way to Shore Road in southern Brooklyn. In the vicinity of the Project Site, 3rd Avenue runs underneath the elevated Gowanus Expressway and consists of inner and outer roadways in both directions. On-street parking is generally allowed on both sides of the outer roadway, and on the median separating the northbound and southbound roadways. Sidewalks exist on both sides of the roadway. Most of the intersections along 3rd Avenue in the vicinity of the Project Site are signalized and have marked crosswalks for pedestrians.

29th Street is an east-west roadway between 5th Avenue and 2nd Avenue. It continues west of 2nd Avenue and provides access to the SIMS facility. West of 3rd Avenue, 29th Street is a two-way roadway, and the rest of the sections is one-way eastbound only. Parking is allowed on both sides of the roadway.

39th Street is a two-way east-west roadway extending from Dahill Road on the west to 1st Avenue on the east. It currently provides access to the SBMT and other industrial and commercial facilities along the waterfront. It will continue to be a key access roadway for the Proposed Project. Parking is generally allowed on both sides of the roadway.

3.14.1.1.2.1 Truck Routes

There are a limited number of truck routes in the vicinity of the Project Site. The Gowanus Expressway is classified as a "*through"* truck route on Expressway. 1st Avenue, 3rd Avenue, 4th Avenue and 39th Street are classified as "*local*" truck routes.

3.14.1.1.2.2 Parking

In the vicinity of the Project Site, on-street parking is generally allowed on one or both sides of the local streets, and on the medians along 3rd Avenue underneath the Gowanus Expressway. There are several private off-street surface parking lots serving industrial and commercial businesses along 2nd Avenue and the waterfront. There is a paid surface parking lot on 2nd Avenue at 35th Street.

3.14.1.1.2.3 Bicycle Network

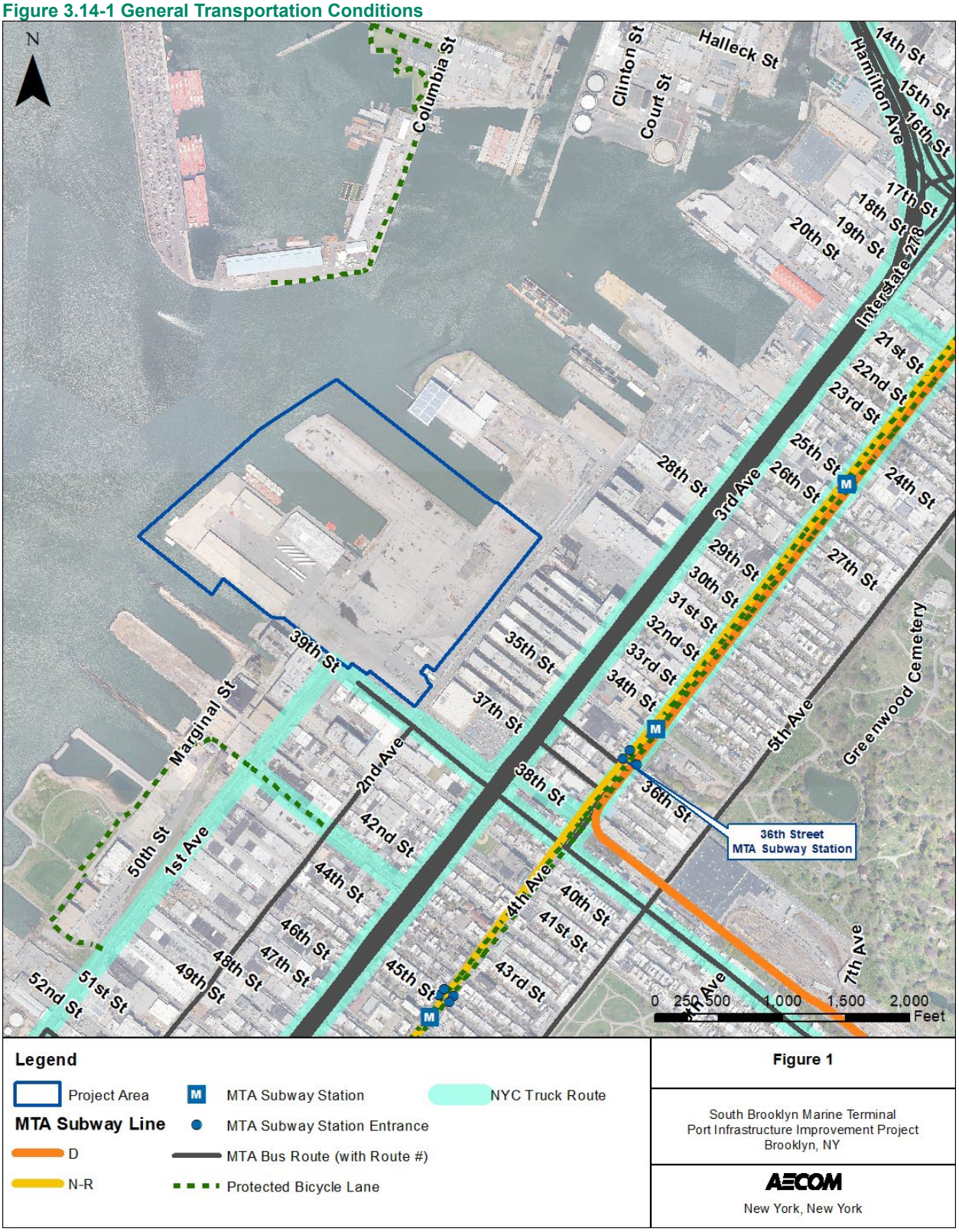
Limited bicycle facilities exist in the vicinity of the Project Site. The only on-street bicycle lanes in the vicinity of the Project Site are on 4th Avenue, which is a recently completed protected bike lane in each direction between 60th Street and Barclays Center in Downtown Brooklyn. A portion of the proposed Brooklyn Waterfront Greenway is planned to run along 2nd Avenue between 39th and 29th Streets in the vicinity of the Project Site. A Citi Bike rack is located on the west side of 2nd Avenue at 36th Street.

3.14.1.1.2.4 Public Transportation

The nearest bus routes in the vicinity of the Project Site operate on 3rd Avenue (B37, X27, X28, X37 and X38 routes) and on 39th Street (B35 and B70 routes). Both the B35 and B70 routes have bus stops along 1st Avenue, serving the SBMT and other facilities along the waterfront.

The nearest subway station to the Project Site is the 36th Street station located at 4th Avenue and 36th Street (D, N and R subway lines). This station is approximately one-half mile from the Project Site, which is an approximately 10-minute walk from the Project Site.

Figure 3.14-1 General Transportation Conditions



3.14.2 Transportation Screening

According to the *CEQR Technical Manual*, interrelationships between the key technical areas of the transportation system – Traffic, Parking, Transit, and Pedestrians – should be taken into account in any assessment. Furthermore, the individual technical areas should be separately assessed to determine whether a project has the potential to adversely and significantly affect a specific area of the transportation system. The *CEQR Technical Manual* states that a preliminary trip generation assessment should be prepared to determine whether a quantified analysis of any technical areas of the transportation system is necessary. Except in unusual circumstances, a further quantified analysis would typically not be needed for a technical area if the proposed development would result in fewer than the following increments:

- 50 peak hour vehicle trips;
- 200 peak hour subway/rail trips;
- 50 bus trips per route, per hour; or
- 200 peak hour pedestrian trips.

The *CEQR Technical Manual* also states that if the threshold for traffic is not surpassed, it is likely that further parking assessment is also not needed.

The Project has the potential to affect transportation operations both in its permanent, post-construction state (***During Operations***) and as well as during the construction of the bulkhead, and terminal and supporting facilities (***During Construction***).

The following screening assessment is for ***During Operations***. A separate Level 1 Transportation screening assessment ***During Construction*** was prepared and is included in **Section 3.20** (Construction)**.**

3.14.2.1 Level 1 Screening Assessment

3.14.2.1.1 Trip Generation

The Level 1 screening assessment was based on the projected trip generation of the Proposed Project, and whether it meets or exceeds the minimum thresholds described above. Both person trips and vehicle trips were considered in this assessment.

Trip generation for the Proposed Project was based on two planned land uses on site, and activities related to terminal operations expected on the site for a typical weekday and Saturday, as follows:

- 22,000 sf of Office space
- 35,000 sf of Operation and Maintenance (Warehouse) space, and
- 85 employees per weekday and 20 employees on Saturday for Terminal (Port) Operations.

The Office space would accommodate employees performing administrative duties on the site. The Warehouse space would be used for the handling and assembly of materials and parts for OSW facility construction, operations, and maintenance. Terminal operations would involve the loading and unloading of marine vessels and trucks, and handling of materials at the terminal. Parking for employees and visitors will be provided on site.

Only the Office space (22,000 sf) and Operation and Maintenance space (35,000 sf) of the O&M base (total of 60,000 sf) were considered as trip generating land uses in the Level 1 screening assessment. The remaining 3,000 sf of the O&M base would be used as a waiting area for employees deploying to off-shore work sites. As such, this waiting area would not generate any new trips, so it is not considered in the Level 1 screening assessment. In a similar way, the temporary facilities were not considered in the Level 1 screening assessment because only the 85 employees listed above would use the temporary facilities for support facilities and operations. Therefore, no additional employees and trip generation would be associated with the temporary facilities.

3.14.2.1.2 Transportation Planning Assumptions

Several transportation planning factors and assumptions were utilized to estimate the projected trip generation. These included daily and peak hour trip rates; temporal distribution of trips; modal split and auto occupancy rates; and truck trip generation rates. Trip generation for Office and Warehouse uses was based on the size (square footage) of the facilities; trip generation for Terminal Operations was based on projected employment.

Terminal Operations are expected to employ approximately 85 employees on a typical weekday, and 20 employees on a Saturday. On both weekdays and Saturday, a 12-hour work shift is assumed with workers arriving as early as 4:00-5:00 AM and leaving as late as 7:00-8:00 PM. The assumed arrival and departure schedule for Terminal Operations employees, and the resulting number of employees, by hour, is shown in **Figure 3.14-1**. This trip generation data is also provided in Appendix Q.

Table 3.14-1 Hourly Arrival and Departure Distribution for Terminal Operations Employees

Time	%Weekday In	%Weekday Out	Weekday In	Weekday Out	%Saturday In	%Saturday Out	Saturday In	Saturday Out	Trucks In	Trucks Out
12-1 AM	0%	0%	0	0	0	0%	0	0	0	0
1-2 AM	0%	0%	0	0	0	0%	0	0	0	0
2-3 AM	0%	0%	0	0	0	0%	0	0	0	0
3-4 AM	0%	0%	0	0	0	0%	0	0	0	0
4-5 AM	20%	0%	17	0	0%	0%	0	0	1	1
5-6 AM	30%	0%	26	0	40%	0%	8	0	1	1
6-7 AM	20%	0%	17	0	40%	0%	8	0	0	0
7-8 AM	10%	0%	9	0	20%	0%	4	0	0	0
8-9 AM	10%	0%	9	0	0%	0%	0	0	1	1
9-10 AM	10%	0%	9	0	0%	0%	0	0	2	2
10-11 AM	0%	0%	0	0	0%	0%	0	0	2	2
11-12 AM	0%	0%	0	0	0%	0%	0	0	2	2
12-1 PM	25%*	25%*	21*	21*	25%*	25%*	5*	5*	2	2
1-2 PM	25%*	25%*	21*	21*	25%*	25%*	5*	5*	2	2
2-3 PM	0%	0%	0	0	0%		0	0	2	2
3-4 PM	0%	20%	0	17	0%	0%	0	0	0	0
4-5 PM	0%	20%	0	17	0%	40%	0	8	0	0
5-6 PM	0%	30%	0	26	0%	40%	0	8	0	0
6-7 PM	0%	20%	0	17	0%	20%	0	4	0	0
7-8 PM	0%	10%	0	9	0%	0%	0	0	0	0
8-9 PM	0%	0%	0	0	0%	0%	0	0	0	0
9-10 PM	0%	0%	0	0	0%	0%	0	0	0	0
10-11 PM	0%	0%	0	0	0%	0%	0	0	0	0
11-12 PM	0%	0%	0	0	0%	0%	0	0	0	0
Total	100%	100%	87**	86**	100%	100%	20	20	15	15

Notes: Daily weekday employees number is 85 and weekend employees number is 20.*Total does not include employee Weekday and Saturday Midday trips (12-1 PM) and 1-2 PM) since these are a subset of the daily total trips. **Totals may not add up due to rounding.

The primary source of the transportation planning factors was the *CEQR Technical Manual* which was used to obtain trip rates and other factors for the Office land use. Trip generation rates and other planning factors for the Warehouse, which are not among the land uses included in the *CEQR Technical Manual*, were obtained from NYCDOT. Trip generation rates and other planning factors for Terminal Operations, which are also not included in the *CEQR Technical Manual*, were estimated combining staffing estimates and work shifts provided by the Client; hourly temporal distribution estimates developed by AECOM; the *CEQR Technical Manual;* and the *East New York Rezoning EIS*.

Modal splits and auto occupancy rates were obtained from the *ACS five-year census, CTPP Part 3 data 2012-2016 for Reverse Journey to Work (RJTW)* for the census tract in which the project is located, and adjacent tracts (tracts 2, 18.01, 18.02, 18.03, 18.04 and 20). These modal splits were applied to the Office, Warehouse and Terminal Operations.

Truck trip rates and temporal distribution for the Office space and Warehouse were obtained from the *CEQR Technical Manual, and* from NYCDOT, respectively. The number of daily and peak hour truck volumes for Terminal Operations was based on estimates developed by AECOM. Most of the truck trips associated with Terminal Operations are expected to occur during off-peak hours, approximately between 9:00 AM and 3:00 PM.

Table 3.14-2 shows the transportation planning factors used in the screening assessment, and their sources.

Table 3.14-2 Transportation Planning Factors

Trip Variable	Day/Time	Office	Warehouse	Terminal Operations	Source(s)
Size (sf)	All Times	22,000	35,000	N/A	Proposed development plan by Client
Trip Rate	Weekday Daily	18 per '000 sf	2.36 per '000 sf	85 Employees	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Trip Rate	Saturday Daily	3.9 per '000 sf	0.20 per '000 sf	20 Employees	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Temporal Distribution	Weekday AM	12.4%	10.0%	20.0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Temporal Distribution	Weekday MD	11.0%	9.0%	50.0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Temporal Distribution	Weekday PM	10.5%	11.0%	20.0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Temporal Distribution	Saturday MD	14.1%	33.0%	50.0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Modal Split Weekday AM, PM, SAT	Drive	50%	50%	50%	Office/Warehouse/Terminal Operations: CTPP Reverse Journey to Work Data 2012-2016
Modal Split Weekday AM, PM, SAT	Subway	31%	31%	31%	Office/Warehouse/Terminal Operations: CTPP Reverse Journey to Work Data 2012-2016
Modal Split Weekday AM, PM, SAT	Bus	5%	5%	5%	Office/Warehouse/Terminal Operations: CTPP Reverse Journey to Work Data 2012-2016
Modal Split Weekday AM, PM, SAT	Walk	13%	13%	13%	Office/Warehouse/Terminal Operations: CTPP Reverse Journey to Work Data 2012-2016
Modal Split Weekday AM, PM, SAT	Taxi	1%	1%	1%	Office/Warehouse/Terminal Operations: CTPP Reverse Journey to Work Data 2012-2016
Modal Split Weekday MD	Drive	50%	50%	2%	Office/Warehouse: CTPP Reverse Journey to Work Data 2012-2016; Terminal Operation: East New York Rezoning EIS
Modal Split Weekday MD	Subway	31%	31%	3%	Office/Warehouse: CTPP Reverse Journey to Work Data 2012-2016; Terminal Operation: East New York Rezoning EIS
Modal Split Weekday MD	Bus	5%	5%	6%	Office/Warehouse: CTPP Reverse Journey to Work Data 2012-2016; Terminal Operation: East New York Rezoning EIS

Trip Variable	Day/Time	Office	Warehouse	Terminal Operations	Source(s)
Modal Split Weekday MD	Walk	13%	13%	6%	Office/Warehouse: CTPP Reverse Journey to Work Data 2012-2016; Terminal Operation: East New York Rezoning EIS
Modal Split Weekday MD	Taxi	1%	1%	83%	Office/Warehouse: CTPP Reverse Journey to Work Data 2012-2016; Terminal Operation: East New York Rezoning EIS

Vehicle Occupancy

Trip Variable	Day/Time	Office	Warehouse	Terminal Operations	Source(s)
Auto	All Times	1.15	1.15	1.15	Office/Warehouse/Terminal: CTPP Reverse Journey to Work Data 2012-2016
Taxi	All Times	1.20	1.30	1.30	Office/Warehouse/Terminal: East New York Rezoning EIS
In/Out (%)	Weekday AM	89/11	77/23	100/0	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
In/Out (%)	Weekday MD	48/52	53/47	50/50	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
In/Out (%)	Weekday PM	17/83	27/73	0/100	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
In/Out (%)	Saturday MD	50/50	64/36	50/50	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations-AECOM
Truck Trip Rate (per '000 SF)	Weekday Daily	0.32	0.91	30 trips/day	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal – AECOM
Truck Trip Rate (per '000 SF)	Saturday Daily	0.01	0.08	30 trips/day	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal – AECOM

Truck

Trip Variable	Day/Time	Office	Warehouse	Terminal Operations	Source(s)
Temporal Distribution	Weekday AM	10%	9.9%	0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations: AECOM
Temporal Distribution	Weekday MD	11%	8%	13%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations: AECOM
Temporal Distribution	Weekday PM	2%	7%	0%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations: AECOM
Temporal Distribution	Saturday MD	11%	28%	13%	Office: 2021 *CEQR Technical Manual*; Warehouse: NYCDOT; Terminal Operations: AECOM
Truck In/Out (%)	Weekday AM	50/50	67/33	50/50	Office/Terminal: East New York Rezoning EIS; Warehouse: NYCDOT
Truck In/Out (%)	Weekday MD	50/50	57/43	50/50	Office/Terminal: East New York Rezoning EIS; Warehouse: NYCDOT
Truck In/Out (%)	Weekday PM	50/50	60/40	50/50	Office/Terminal: East New York Rezoning EIS; Warehouse: NYCDOT
Truck In/Out (%)	Saturday MD	50/50	42/58	50/50	Office/Terminal: East New York Rezoning EIS; Warehouse: NYCDOT

Trip Variable	Day/Time	Office	Warehouse	Terminal Operations	Source(s)
Truck PCE Factor	All Times	2.0	2.0	2.0	Office/Warehouse/Terminal: 2021 *CEQR Technical Manual*, Table 16.3. Assumes 3-axled trucks

3.14.2.1.3 Level 1 Screening Assessment Findings

The transportation planning factors were used to develop Level 1 (Trip Generation) estimates of person trips and vehicle trips during the peak hours on a typical weekday and Saturday. They were then compared to the screening thresholds described earlier to determine if a Level 2 screening assessment (Trip Distribution and Assignment) is required.

Based on the trip generation estimates of the Proposed Project, the following findings and conclusions are reached regarding Traffic and Parking, Transit and Pedestrians.

3.14.2.1.4 Traffic and Parking

As shown in **Table 3.14-3**, the Proposed Project is projected to generate fewer than 50 vehicle trips (the threshold for further detailed analyses) during any peak hour on a weekday or Saturday. The highest number of vehicle trips for the three trip generation components (Office, Warehouse and Terminal Operations) combined will be generated during the weekday AM peak hour (48 trips), followed by the weekday Midday peak hour (43 trips), the weekday PM peak hour (42 trips) and the Saturday peak hour (20 trips). These vehicle trips include truck trips which have been converted to passenger car equivalents (pces) using a truck conversion factor of 2.0. They also include three (3) shuttle bus trips during the weekday AM, Midday and PM, and Saturday peak hours. Shuttle buses have been converted to passenger car equivalents using a conversion factor of 1.5 as per the *CEQR Technical Manual* for 2-axled buses.

Table 3.14-3 Projected Generated Vehicle Trips

Land Use	Weekday AM Total	Weekday AM In	Weekday AM Out	Weekday MD Total	Weekday MD In	Weekday MD Out	Weekday PM Total	Weekday PM In	Weekday PM Out	Saturday MD Total	Saturday MD In	Saturday MD Out
Office	24	20	3	21	10	11	19	3	16	6	3	3
Warehouse	10	7	3	8	5	4	9	4	5	3	1	1
Terminal Operations	11	11	0	11	5	5	11	0	11	9	4	4
Shuttle Buses	3	2	2	3	2	2	3	2	2	3	2	2
Total	**48**	**41**	**8**	**43**	**22**	**22**	**42**	**9**	**33**	**20**	**10**	**10**

Note: Totals may not add up due to rounding.

Therefore, in accordance with the *CEQR Technical Manual*, no further detailed analyses are required, and the Proposed Project is not likely to have any significant impacts on traffic operations. In addition, since parking will be provided on the site during the project's operational phase (130 spaces), the proposed project is not expected to affect parking conditions in the area; and no further detailed parking assessment is required.

3.14.2.1.5 Transit

As shown in **Table 3.14-4** and **Table 3.14-5**, the Proposed Project is projected to generate fewer than 200 subway trips and 50 bus trips per route/ per hour (the threshold for further detailed analyses) during any peak hour on a weekday or Saturday.

The highest number of *subway* trips for the Office, Warehouse and Terminal Operations combined will be generated during the weekday AM peak hour (26 trips), followed by the weekday PM peak hour (24 trips), the weekday Midday peak hour (18 trips) and the Saturday peak hour (5 trips).

The highest number of *bus* trips for the Office, Warehouse and Terminal Operations combined will be generated during the weekday Midday peak hour (5 trips), followed by the weekday AM and PM peak hours (4 trips each), and the Saturday peak hour (2 trips).

Therefore, in accordance with the *CEQR Technical Manual*, no further detailed analysis is required, and the project is not likely to have any significant impacts on transit services.

Table 3.14-4 Projected Generated Subway Trips

Land Use	Weekday AM Total	Weekday AM In	Weekday AM Out	Weekday MD Total	Weekday MD In	Weekday MD Out	Weekday PM Total	Weekday PM In	Weekday PM Out	Saturday MD Total	Saturday MD In	Saturday MD Out
Office	15	14	2	14	6	7	13	2	11	4	2	2
Warehouse	3	2	1	2	1	1	3	1	2	1	0	0
Terminal Operations	8	8	0	3	1	1	8	0	8	1	0	0
Total	**26**	**23**	**2**	**18**	**9**	**9**	**24**	**3**	**21**	**5**	**3**	**2**

Note: Totals may not add up due to rounding.

Table 3.14-5 Projected Generated Bus Trips

Land Use	Weekday AM Total	Weekday AM In	Weekday AM Out	Weekday MD Total	Weekday MD In	Weekday MD Out	Weekday PM Total	Weekday PM In	Weekday PM Out	Saturday MD Total	Saturday MD In	Saturday MD Out
Office	2	2	0	2	1	1	2	0	2	1	0	0
Warehouse	0	0	0	0	0	0	0	0	0	0	0	0
Terminal Operations	1	1	0	3	1	1	1	0	1	1	0	0
Total	**4**	**4**	**0**	**5**	**3**	**3**	**4**	**0**	**3**	**1**	**1**	**1**

Note: Totals may not add up due to rounding.

3.14.2.1.6 Pedestrians

As shown in **Table 3.14-6,** the proposed project is projected to generate fewer than 200 pedestrian trips (subway, bus and walk-only trips combined) during any peak hour on a weekday or Saturday.

The highest number of *pedestrian* trips for the Office, Warehouse and Terminal Operations combined will be generated during the weekday Midday peak hour (65 trips), followed by the weekday AM peak hour (41 trips), the weekday PM peak hour (37 trips) and the Saturday peak hour (17 trips).

Therefore, in accordance with the *CEQR Technical Manual*, no further detailed analysis is required, and the project is not likely to have any significant impacts on pedestrian facilities.

Table 3.14-6 Projected Generated Pedestrian Trips

Land Use	Weekday AM Total	Weekday AM In	Weekday AM Out	Weekday MD Total	Weekday MD In	Weekday MD Out	Weekday PM Total	Weekday PM In	Weekday PM Out	Saturday MD Total	Saturday MD In	Saturday MD Out
Office	24	21	3	21	10	11	20	3	17	6	3	3
Warehouse	4	3	1	4	2	2	4	1	3	1	1	0
Terminal Operations	12	12	0	40	20	20	12	0	12	10	5	5
Total	**41**	**37**	**4**	**65**	**32**	**33**	**37**	**5**	**33**	**17**	**8**	**8**

Note: Totals may not add up due to rounding

3.14.2.2 Level 2 Screening Assessment

Since the above analyses show the projected trips are below the thresholds identified in the Level 1 screening assessment, a Level 2 screening assessment is not required. **Therefore, in accordance with the *CEQR Technical Manual*, the proposed project is not likely to have any significant impacts on Transportation services in the area during its Operational phase.**

3.14.2.3 Indirect Effects and Cumulative Impacts

The Proposed Project would generate additional vehicular traffic during its operation. The existing NYCDOT function, which occupies a small portion of the Project Site as well as an area north of the Project Site, will be relocated to the Red Hook Container Terminal prior to Proposed Project construction. As such, vehicular traffic, including truck traffic, generated by the NYCDOT function would no longer be present at SBMT. During operations of the Proposed Project, the volume of vehicular traffic, transit generated trips and pedestrian trips were all estimated to be below the thresholds requiring further detailed analyses. The EW 1 Project will have no employees on site during routine operations. Therefore, the number of workers transiting by vehicle is anticipated to be low and associated only with the Proposed Project. Taking into consideration the potential vehicular traffic in the vicinity of SBMT, the Proposed Project when added to the Future without Project condition would have no adverse cumulative impacts to transportation.

The Proposed Project would not have indirect effects on transportation in the Study Area, including inducing developments that could create additional vehicular traffic, transit generated trips and pedestrian trips. The Study Area beyond the Project Site is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on transportation in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood that may introduce additional vehicular traffic, transit generated trips and pedestrian trips.

3.15 Air Quality

This section examines the potential for air quality impacts from the operation of the Proposed Project. The air quality assessment determines if the Proposed Project would impact ambient air quality. Construction related impacts on air quality are discussed in **Section 3.20** (Construction).

Pollutant sources that could affect air quality include mobile and stationary sources and construction activities. Mobile sources are related to vehicular traffic or other moving sources, such as vehicles, airplanes, trains, or boats. As recited in the *CEQR Technical Manual*, mobile sources are generally linked to projects that add vehicles to an area or "change traffic patterns by diverting vehicles." Stationary sources are pollutants that are fixed in a location and can include "exhaust stack(s) used for the heating, hot water, ventilation, and air conditioning (HVAC) systems of a building" amongst other manufacturing or industrial processes.

The National Ambient Air Quality Standards (NAAQS) as summarized in **Table 3.15-1** are the basis to measure the effects of mobile and stationary pollutant sources in ambient air to protect public health and welfare from the adverse impacts associated with ambient air pollutants, as required under the Clean Air Act (CAA) (42 USC § 7401 *et seq.*). The USEPA has established NAAQS for six contaminants, referred to as criteria pollutants (40 CFR part 50). The criteria pollutants are carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (including with diameters up to 10 µm [PM_{10}] and up to 2.5 µm [$PM_{2.5}$]), lead (Pb), and sulfur dioxide (SO_2). The criteria pollutants of primary concern related to the Proposed Project are vehicle and/or construction equipment-related CO, PM_{10} and $PM_{2.5}$, and O_3 precursors (nitrogen oxides (NO_x) and VOCs).

The CAA requires geographic areas to be designated according to their ability to attain the NAAQS, and these areas are categorized for each criteria pollutant as:

- *Attainment Area* – Areas where no exceedance of NAAQS for a specific criteria pollutant occurred.
- *Nonattainment Area* – Areas where exceedance of NAAQS for a specific criteria pollutant occurred.
- *Maintenance Area* – Areas that have previously been designated as a nonattainment area but are still in need of efforts to maintain the improved conditions in the future. Most of the CAA rules for nonattainment areas are still applicable to a maintenance area.

If an area is designated as nonattainment for a criteria pollutant under the NAAQS, state governments must develop a specific State Implementation Plan and implement control plans to reduce the emission level of that pollutant.

Table 3.15-1 National and New York State Air Quality Standards for Criteria Pollutants

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	1-hour	35 ppm	Not to be exceeded more than once per year
Carbon Monoxide (CO)	Primary	8-hour	9 ppm	Not to be exceeded more than once per year
Lead (Pb)	Primary and Secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
Nitrogen Dioxide (NO_2)	Primary and Secondary	Annual	53 ppb	Annual mean
Ozone (O_3) (2008)	Primary and Secondary	8-hour	0.075 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Ozone (O_3) (2015)	Primary and Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter (PM) $PM_{2.5}$	Primary and Secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
Particulate Matter $PM_{2.5}$	Primary	Annual	12 µg/m^3	Annual mean, averaged over 3 years
Particulate Matter $PM_{2.5}$	Secondary	Annual	15 µg/m^3	Annual mean, averaged over 3 years
Particulate Matter PM_{10}	Primary and Secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Sulfur Dioxide (SO_2)	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Notes:
ppm = parts per million; ppb = parts per billion; µg/m^3=micrograms per cubic meter.
Ozone 2015 standard began effective on December 28, 2015. However, the previous 2008 ozone standard is not revoked and remains in effect for nonattainment designation areas.

Sources: EPA 2021(https://www.epa.gov/criteria-air-pollutants/naaqs-table); NYSDEC 2021 (https://www.dec.ny.gov/docs/air_pdf/2020airqualreport.pdf).

3.15.1 Affected Environment

As of April 30, 2023 (https://www.epa.gov/green-book), Kings County, which encompasses the Proposed Project, is an attainment area for SO_2, NO_2, PM_{10}, and Pb. It is in the New York Metropolitan Area (NYMA), which includes various counties in downstate New York, northern New Jersey, and Connecticut; the NYMA is a nonattainment area for O_3, including its NO_x and VOCs precursors. The NYMA is also a maintenance area for CO and $PM_{2.5}$. The most recent monitored ambient criteria pollutant concentrations as compared to the NAAQS at the closest monitoring stations are summarized in **Table 3.15-2.** The monitored pollutant concentration levels are all well below the respective NAAQS with the exception of ozone for which the monitored level over the past three years is slightly below the respective NAAQS.

The site is currently used for construction laydown and aggregate storage with material handling and transporting operations. There are railroad tracks at the site that are operated by NYNJR and currently used by the Sims Facility, located on the 29th Street "Pier." These tracks are used approximately once weekly, usually late at night.

The localized air quality condition around the Project Area is affected by current on-site operations and also by neighborhood mobile sources including on-road traffic along local roads such as 2nd Avenue, highways such as Gowanus Expressway, and stationary sources including HVACs in commercial and industrial buildings on and off site.

Table 3.15-2 NYSDEC Monitored Background Concentrations

Pollutant (units)	Averaging Period	Monitoring Location	Background Concentration	NAAQS Primary Criteria
CO (ppm)	1-hr	CCNY (Manhattan)	1.7(2)	35
CO (ppm)	8-hr	CCNY (Manhattan)	1.2(2)	9
NO_2 (ppb)	1-hr	IS 52 (Manhattan)	53.7(1)	100
NO_2 (ppb)	Annual	IS 52 (Manhattan)	15.8(3)	53
$PM_{2.5}$ (µg/m^3)	24-hr	PS 314	15.1(1)	35
$PM_{2.5}$ (µg/m^3)	Annual	PS 314	5.9(3)	12
PM_{10} (µg/m^3)	24-hr	Division Street (Manhattan)	29.3(4)	150
Ozone (ppm)	8-hour	IS 52 (Manhattan)	0.068(5)	0.070

Notes:
1. *Value is three-year (2019-2021) average of 98th percentile. [$PM_{2.5}$ based on latest NYSDEC report, using years 2018-2020]*
2. *Value is the average 2nd highest 1-hr and 8-hr concentrations over the last three years (2019-2021).*
3. *Value is the annual mean over the last three years (2019-2021). [$PM_{2.5}$ based on latest NYSDEC report, using years 2018-2020]*
4. *Value is the average 2nd highest 24-hour concentrations, based on latest NYSDEC report, using years 2018-2020].*
5. *Value is three-year (2019-2021) average of 4th highest daily maximum.*

Source: NYSDEC (2020) and https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors

3.15.2 Environmental Effects

3.15.2.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Therefore, air quality conditions within the Study Area as compared to the existing baseline condition would be impacted by the operation of an emergency generator at the onshore substation and from GHG emission leakages of sulfur hexafluoride from gas-insulated switchgear installed at the onshore substation. The estimated air emissions from operation and maintenance activities will be very small and are not expected to have a significant adverse impact on regional air quality during the life of the EW 1 Project (Empire Offshore Wind LLC, Article VII Application, Exhibit 4, June 2021 and Empire Wind Project (EW 1 and EW 2) Construction and Operations Plan, May 2022). See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.15.2.2 Future with Project

The Proposed Project would involve improvements to the SBMT port infrastructure and operation. The Proposed Project would install material handling equipment and provide better capability and capacity for vessel berthing and material transport at the port. The proposed material handling and transport activities would result in new emissions and affect air quality around the port as compared to the Future without Project Condition. However, the Proposed Project is needed to support the development of OSW power generation capacity to fulfil the State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030, and the *Offshore Wind NYC* plan. In the near term, SBMT would be used to support the EW 1 Project which will bring 816 MW of wind power capacity to the city and region resulting in a long-term benefit by reducing air emissions through replacing the same amount of grid power currently produced from fossil fuel combustion with power derived from renewable energy.

3.15.2.2.1 Off-site Sources

According to the traffic forecasts presented in **Section 3.14** (Transportation), a total of 39 commuter vehicle and four truck trips would occur during the peak hour periods. These peak hour vehicle trips are below the screening thresholds

established with sufficient safety margins to protect public health for CO and PM warranting no further microscale mobile source impact analyses per the *CEQR Technical Manual*, **Therefore, potential adverse off-site mobile source air quality impacts would not be significant.**

3.15.2.2.2 On-site Sources

The Proposed Project would upgrade SBMT to enable it to serve as a staging facility and an O&M base for the OSW industry. The new O&M base and temporary facilities are considered stationary sources of emissions from HVAC system operations during combustion process. Impacts from HVAC emissions are a function of fuel type, stack height, minimum distance from the source to the nearest building, and square footage of the new building. The proposed O&M base would be approximately 60,000 sf and 32.8 feet in height. For the proposed building, the HVAC system would have potenital impacts to the nearest buidings if those buildings were located within the minimum distance screening threshold of 85 feet per the HVAC screening graphs provided as Figure 17-3 in the *CEQR Technical Manual*. The temporary facilities in the Project Area during the operational phase would consist of a combined maximum of 16,000 sf of office, and warehouse facilities, and workshops. The minimum distance screening threshold for these temporary facilities would be 45 feet. Since the distance from the proposed O&M base and temporary facilities to the nearest off-site building of similar or greater height is 200 feet or more, which is well beyond either distance screening threhsold, HVAC systems would have minimal air quality impacts. Therefore, no further impact analysis is warranted. It should be noted that the HVAC systems in the O&M base and temporary facilities would likely be powered via electricity, resulting in no criteria pollutant emissions. In this case, the above HVAC distance screening assessment would not be warranted.

In addition to the HVAC system, 'Heavy Lift Crane Pads' would be constructed on the 35th Street and 39th Street "Piers." A crane (such as a LIEBHERR Crawler Crane LR 13000 model consisting of a pair of engines with a total combined rated horsepower capacity of 1,360) would be installed at each crane pad. These three cranes and several other material handling equipment and Self-Propelled Modular Transporter (SPMT) trucks are expected to be other sources of air emissions on site.

However, these limited on-site mobile equipment operations and the HVAC system inside the O&M base building would be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenue approximately 600 feet away from the SBMT property boundary. The *CEQR Technical Manual* establishes various source- (stationary or mobile source) specific screening thresholds in terms of source-receptor distances within which an impact analysis via a quantitative analysis is warranted. Since the proposed on-site operation of these sources, such as cranes, vessels, trucks, etc., would not operate within the applicable distance of 400 feet between the stationary/mobile sources and sensitive receptors, further quantitative analysis is not required and potential localized air quality impacts from the operation of these sources are considered insignificant. Furthermore, according to the pollutant concentration levels predicted for construction period equipment operations as discussed in **Section 3.20.4.2** (Construction – Air Quality) and shown in **Table 3.20-6**. The pollutant conentration levels from operation of these sources would be well below the NAAQS or applicable CEQR *de minimis* levels given the greater amount of equipment and closer distances to sensitive receptors during the construction phase as compared to the operational phase. **Therefore, the Future with Project condition during operations would not result in significant adverse air quality impacts.**

In addition to the assessment of air quality impacts above, a supplemental air quality analysis was performed according to New York State's Supplemental Scoping Comments for South Brooklyn Marine Terminal for the Environmental Impact Statement for Empire Offshore Wind, LLC's Proposed Wind Energy Facilities Offshore New York (February 16, 2022) and includes:

- Estimation of foreseeable air pollutant emissions including criteria pollutants, hazardous air pollutants (HAPs), and greenhouse gases (GHG) during all phases of the Proposed Project, direct and indirect, including project-related upstream emissions, that can be reasonably estimated.
- Analysis of Clean Air Act General Conformity Rule for the Federal funding and approval action from USACE, including both operational and construction activities.
- Assessment of the Proposed Project's consistency with the State CLCPA.
- Evaluation of how future physical climate risks were considered for the Proposed Project.

This supplemental air quality analysis is provided in Appendix P.

3.15.2.3 Indirect Effects and Cumulative Impacts

As described above, the Proposed Project would have no significant adverse air quality impacts from off-site mobile sources and on-site sources, such as the mobile equipment operations and the HVAC system inside the O&M base. With the relocation of the NYCDOT function and the construction of the EW 1 Project onshore substation, the existing baseline condition in this section of the SBMT would be impacted by the operation of an emergency generator at the onshore substation and from GHG emission leakages of sulfur hexafluoride from gas-insulated switchgear installed at the onshore substation. **Table 3.15-3** depicts the cumulative direct and indirect emissons with potential to occur within the region resulting from the Proposed Project and the EW 1 Project, including the onshore substation, and additional onshore substation switchgear-related GHG emissions (see detail in Appendix P).The estimated air emissions from the EW 1 Project's O&M activities would be very small and are not expected to have a significant adverse impact on regional air quality during the life of the EW 1 Project. Therefore, there would be no adverse cumulative impacts to air quality resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on air quality in the Study Area, including inducing developments that could create additional vehicular traffic. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on air quality in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood that may introduce additional vehicular traffic.

Table 3.15-3 Regional Direct and Indirect Cumulative Emissions

Year/Activity	VOC	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2	HAPs	CO_2e
2024/Construction	***9.51***	***227.35***	***51.02***	***5.75***	***5.44***	***4.90***	***0.96***	***18,062.16***
-On-Site Emissions	0.26	3.74	1.32	0.23	0.22	0.02	0.02	2,494.70
-Off-Site Emissions from Vehicles	0.18	1.62	2.21	0.23	0.09	0.01	0.03	1,631.86
-Empire Wind Project in Kings County(1)	9.07	221.99	47.49	5.29	5.13	4.87	0.91	13,935.6
2025/Construction	***13.92***	***325.94***	***72.83***	***8.18***	***7.69***	***7.08***	***1.43***	***28,337.59***
-On-Site Emissions	0.67	9.58	2.9	0.52	0.5	0.02	0.07	5,801.73
-Off-Site Emissions from Vehicles	0.30	2.67	4.15	0.39	0.14	0.02	0.05	2,745.56
-Empire Wind Project in Kings County(1)	12.95	313.69	65.78	7.27	7.05	7.04	1.31	19,790.3
2026/Construction & Operational Phase 1	***3.57***	***48.01***	***22.63***	***1.99***	***1.72***	***0.49***	***0.49***	***11,510.1***
Construction								
-On-Site Emissions	0.03	0.42	0.01	0.02	0.02	0.00	0.00	155.96
-Off-Site Emissions from Vehicles	0.17	1.42	2.50	0.22	0.08	0.01	0.03	1,500.50
Phase 1 Operation								
-On-Site Emissions	0.8	6.4	1.9	0.3	0.3	0.0	0.2	2,990.9
-On-Site Emissions from Vessels	0.4	6.9	1.8	0.2	0.2	0.0	0.0	715.2
-Off-Site Emissions from Vehicles	0.1	1.4	2.6	0.2	0.1	0.0	0.0	1,994.5
-Empire Wind Project in Kings County(1)	2.07	31.47	13.82	1.05	1.02	0.48	0.26	4,153.0

Year/Activity	VOC	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2	HAPs	CO_2e
-Onshore Substation Switchgear[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	552.9
2027/ Operational Phase 1	***3.42***	***50.34***	***21.29***	***1.79***	***1.66***	***0.56***	***0.45***	***10,510.7***
-On-Site Emissions	0.8	6.4	1.9	0.3	0.3	0.0	0.2	2,990.9
-On-Site Emissions from Vessels	0.4	6.9	1.8	0.2	0.2	0.0	0.0	715.2
-Off-Site Emissions from Vehicles	0.1	1.4	2.6	0.2	0.1	0.0	0.0	1,994.5
- Empire Wind Project in Kings County[1]	2.12	35.64	14.99	1.09	1.06	0.56	0.25	4,257.2
-Onshore Substation Switchgear[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	552.9
2028 and on/Operational Phase 2	***1.94***	***22.01***	***12.5***	***0.99***	***0.79***	***0.014***	***0.24***	***8,612.0***
-On-Site Emissions	0.9	6.8	2.0	0.3	0.3	0.0	0.2	3,174.7
-On-Site Emissions from Vessels	0.4	6.9	1.8	0.2	0.2	0.0	0.0	715.2
-Off-Site Emissions from Vehicles	0.1	1.8	3.1	0.3	0.1	0.0	0.0	2,490.8
-Empire Wind Project in Kings County[1]	0.54	6.51	5.6	0.19	0.19	0.014	0.04	1,678.4
-Onshore Substation Switchgear[2]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	552.9

Sources:
1) Equinor, Empire Wind Project (EW1 and EW2) Construction and Operations Plan Appendix K, May 2022.
2) Equinor, March 13, 2023.

3.16 Greenhouse Gas Emissions

This section evaluates the GHG emissions that would be generated by the Proposed Project and its consistency with the citywide and state-wide GHG reduction goals under PlaNYC, New York City's long-term sustainability program, and the CLCPA, signed in July 2019.

GHG emissions are gas emissions that trap heat in the atmosphere. Under Section 202(a) of the CAA, the USEPA has recognized potential risks to public health or welfare and signed endangerment findings regarding GHG emissions. These findings reveal that the current and projected concentrations of six key, well-mixed GHG emissions in the atmosphere, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), threaten the public health and welfare of current and future generations. The dominant GHG gas emitted by manmade sources is CO_2, mostly from fossil fuel combustion.

According to CEQR, climate change is projected to have wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be felt at the local level.

According to the *CEQR Technical Manual*, although the contribution of a proposed project's GHG emissions to global GHG emissions is likely to be considered insignificant when measured against the scale and magnitude of global climate, it should still be analyzed to determine a project's consistency with the City's citywide GHG reduction goal "*… of reducing citywide GHG emissions by 30 percent below 2005 levels by 2030.*" This is currently the most appropriate standard by which to analyze a project under CEQR. Currently, the GHG consistency assessment per CEQR focuses

on projects that would result in development of 350,000 sf or greater, which is the measure considered in this Environmental Analysis.

3.16.1 Affected Environment

Through *PlaNYC*, New York City's long-term sustainability program, the City advances sustainability initiatives and goals to both greatly reduce GHG emissions and increase the City's resilience to climate change. The goal to reduce citywide GHG emissions to 30 percent below 2005 levels by 2030 was codified by Local Law 22 of 2008. Subsequently, on November 13, 2014, the City Council passed a bill to reduce Citywide GHG emissions by 80 percent by 2050 and it was adopted on December 14, 2014.

- GHG emissions in the Citywide Inventory consist of all direct and indirect GHG emissions from:
- Energy used by buildings and other stationary sources, and fugitive emissions from natural gas distribution within City limits.
- On-road transportation, railways, marine navigation, and aviation within City limits.
- Wastewater treatment within city limits and solid waste generated within the City but disposed of outside of City limits.

In 2020, the citywide GHG inventory was 48.4 million metric tons, down 25 percent from 2005 despite significant increases in population and economic activity. (https://nyc-ghg-inventory.cusp.nyu.edu)

Under the CLCPA, the state would achieve 100 percent zero-emission electricity by 2040 and reduce emissions at least 85 percent below 1990 levels by 2050. Achieving these goals under this law will mean transforming how electricity is generated and used, how homes are heated, and how people commute. With record temperatures and extreme storms, the CLCPA requires the state to undertake a sweeping set of measures to reduce the carbon footprint, make communities more resilient, and adapt to a changing climate.

3.16.2 Environmental Effects

3.16.2.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Therefore, GHG emissions within the Study Area as compared to the existing baseline condition would be generated by the operation of an emergency generator at the onshore substation and from GHG emission leakages of sulfur hexafluoride from gas-insulated switchgear installed at the onshore substation. The estimated GHG emissions from operation and maintenance activities will be very small during the life of the EW 1 Project (Empire Offshore Wind LLC, Article VII Application, Exhibit 4, June 2021). See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.16.2.2 Future with Project

The Proposed Project is to upgrade the SBMT to enable it to serve as a staging facility and O&M base for the OSW industry. The Proposed Project is needed to support the development of OSW power generation capacity to fulfill the State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030, and the City's *Offshore Wind NYC* plan. In the near term, SBMT would be used to support the EW 1 Project which will bring 816 MW of wind power capacity to the city and region resulting in a long-term benefit in reducing GHG emissions through replacing the same amount of grid power currently produced from fossil fuel combustion process with power from renewable energy.

The *CEQR Technical Manual* recommends a GHG analysis for projects where the project size is greater than 350,000 sf gross, or projects that have unique energy demands (e.g., power plants, major modifications in transportation). The Proposed Project has no unique energy demands; the O&M base consisting of office and support space and warehouse facilities and associated utility space totals approximately 60,000 sf, and the temporary facilities would have a maximum of approximately 16,000 sf, substantially below the 350,000 square foot threshold. Thus, no further analysis of GHG is

required and no significant adverse impacts related to GHG or subsequent impacts to global climate change would occur during operation of the Proposed Project. In fact, the net zero emission targets of the proposed O&M base, referring to the balance between the amount of GHG produced and the amount removed from the atmosphere as a result of the Proposed Project, would result in an overall net reduction of GHG emissions compared to the current GHG emissions from the operation of existing buildings that would be demolished. Therefore, the Proposed Project would be in compliance with the City's sustainability goals and initiatives and the CLCPA. **The Proposed Project would cause no significant adverse GHG impacts.**

3.17 Noise and Vibration

This section examines the potential for noise and vibration from the operation of the Proposed Project to impact nearby sensitive receptors in the vicinity of the Study Area. In accordance with the *CEQR Technical Manual*, a noise assessment was conducted to assess the potential for impacts during operation of the terminal. The assessment of noise impacts during temporary construction activities is presented in **Section 3.20** (Construction).

The noise assessment included a monitoring program to document baseline noise levels at the closest noise sensitive receptors and a screening analysis to evaluate the potential for noise effects during operations. While **Section 3.20** (Construction) includes a detailed construction noise analysis for the Proposed Project, this section will introduce the affected environment, and address the operational noise effects from the Proposed Project.

3.17.1 Affected Environment

The Study Area is characterized by industrial, urban residential, and mixed-use retail-commercial land uses whose noise exposure is currently dominated by traffic along local roads and the Gowanus Expressway. To determine the existing background noise levels at sensitive receptors near the Study Area, a noise monitoring program was conducted at three representative locations shown in **Figure 3.17-1**. Short-term noise measurements were conducted at various times of the day including the morning, midday, afternoon and nighttime periods. Measurements were conducted during both peak (morning and afternoon) and off-peak (midday and nighttime) periods to document a range of baseline ambient levels. Based on the results of the noise monitoring program, the dominant sources of noise are traffic along local roads and the Gowanus Expressway to the southeast of the Project area. All measured levels are reported as the average hourly noise level expressed as $L_{eq(1)}$.

As shown in **Table 3.17-1**, noise levels measured at receptors near the SBMT range from 64 to 71 A-weighted decibels (dBA) during the daytime hours (7 AM to 10 PM) and 64 to 69 dBA during the nighttime hours (11 PM to 7 AM). All of these 20-minute measured noise levels are representative of the dense mixed-use urban land uses around the SBMT.

The sound level meters that were used to measure current noise conditions (including the Quest Sound Pro and Larson Davis LxT) meet or exceed the American National Standards Institute (ANSI) standards for Type I accuracy and quality. The sound level meters were calibrated before and after each measurement period. All measurements were conducted according to *ANSI Standard S1.13-2005, Measurement of Sound Pressure Levels in Air*. All noise levels are reported in dBA, which best approximates the sensitivity of human hearing.

Figure 3.17-1 Noise Monitoring Sites in the SBMT Study Area

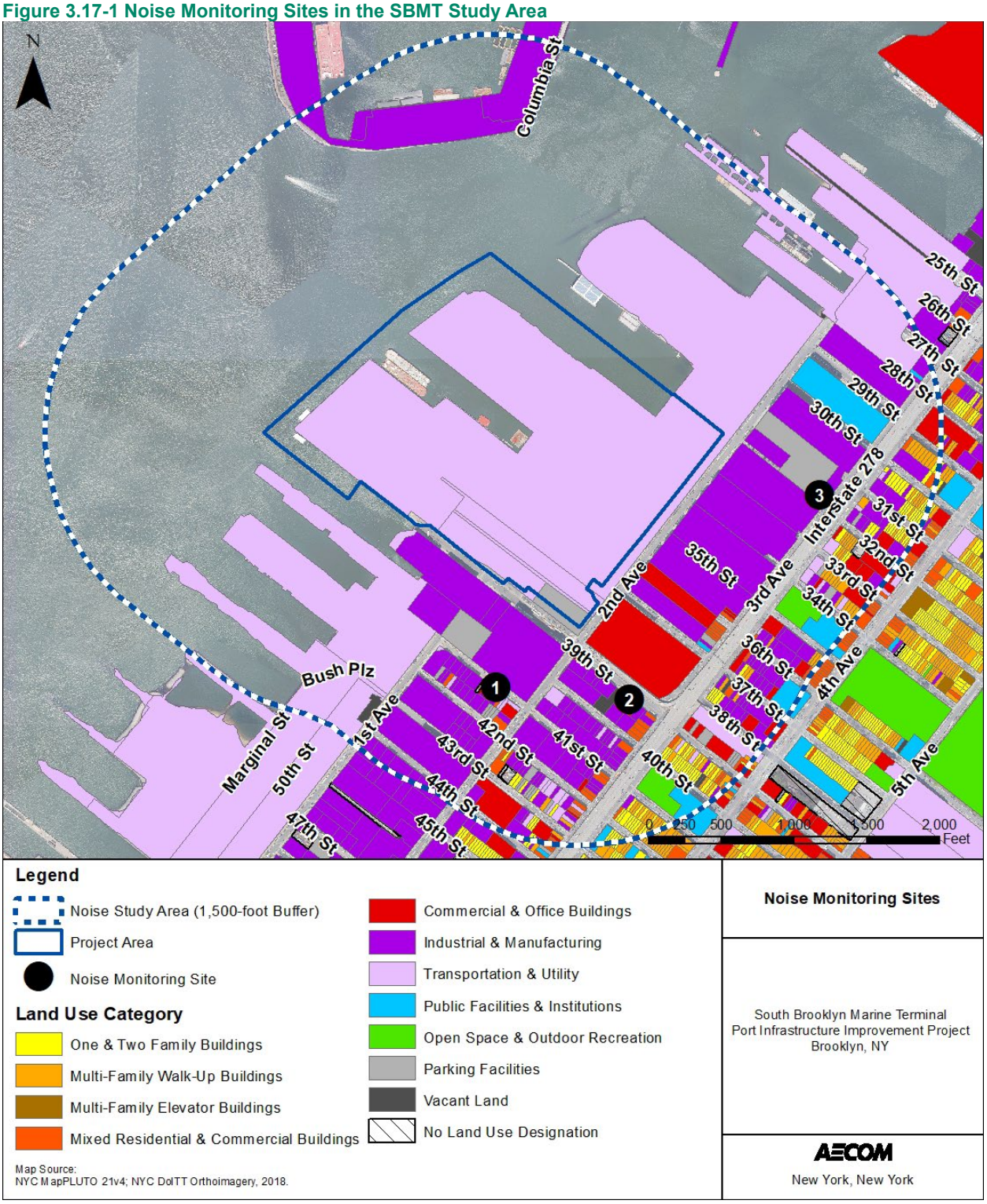


Table 3.17-1 Existing Noise Levels Measured at Representative Receptors (in dBA)

ID	Location	Land Use	Period	Date	Time	Duration	L_{eq}[1]	L_{min}[2]	L_{max}[3]	L_{10}[4]	L_{90}[5]
1	126 41st Street	residential	AM	2/8/22	7:59 AM	20 min	63.6	58.2	78.2	64.9	59.4
1	126 41st Street	residential	MD	2/8/22	12:09 PM	20 min	66.1	63.3	76.9	66.8	64.8
1	126 41st Street	residential	PM	3/3/22	3:16 PM	20 min	67.2	55.8	83.3	69.2	58.8
1	126 41st Street	residential	NT	3/3/22	11:29 PM	20 min	65.0	52.2	79.8	68.4	56.3
2	260 39th Street	residential	AM	2/8/22	8:29 AM	20 min	66.7	59.3	79.5	69.5	61.5
2	260 39th Street	residential	MD	2/8/22	1:06 PM	20 min	66.5	60.5	79.9	68.5	62.1
2	260 39th Street	residential	PM	3/3/22	3:47 PM	20 min	65.4	53.1	87.9	67.2	57.4
2	260 39th Street	residential	NT	3/3/22	11:03 PM	20 min	64.4	56.3	76.5	67.5	58.7
3	850 3rd Avenue	residential	AM	2/8/22	9:00 AM	20 min	71.2	65.5	77.6	73.1	68.4
3	850 3rd Avenue	residential	MD	2/8/22	1:39 PM	20 min	70.2	64.8	80.5	72.1	67.7
3	850 3rd Avenue	residential	PM	3/3/22	4:19 PM	20 min	67.3	61.8	81.9	68.4	64.3
3	850 3rd Avenue	residential	NT	3/3/22	10:29 PM	20 min	68.8	63.0	75.3	70.8	66.1

Note: Noise measurements were conducted during various periods of the daytime that correspond with the proposed construction periods including morning (AM), midday (MD), afternoon (PM), and nighttime (NT).
[1] L_{eq} – is the continuous equivalent sound level, which if constant over a stated measurement period, would contain the same sound energy as the actual monitored sound that is fluctuating in level over the measurement period.
[2] L_{min} – the minimum sound level measured over a period of time.
[3] L_{max} – the maximum sound level measured over a period of time.
[4] L_{10} – the noise level exceeded 10 percent of the time and is usually regarded as an indication of traffic noise exposure with a steady flow of evenly-spaced vehicles.
[5] L_{90} – the noise level exceeded 0 percent of the time and is usually regarded as the residual level, or the background noise level without the source in question or discrete events.

3.17.2 Environmental Effects

3.17.2.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The future noise levels for the Future without Project condition would be similar to existing conditions. The areas in the vicinity of the Study Area are affected by motor vehicle traffic that contribute to the ambient noise levels. Other ambient activities include commercial and industrial activities in the region. The long-term elevated noise levels associated with onshore substation operations immediately adjacent to the Project Area would not be significant (Article VII Application, Exhibit 4, June 2021). The onshore substation has been designed to be consistent with the New York City octave band limits and will incorporate measures to reduce noise levels to the extent practicable. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.17.2.2 Future with Project

The Proposed Project would involve improvements to the SBMT port infrastructure and operations. The Proposed Project would install several material handling equipment and provide better capability and capacity for vessel berthing and material transport at SBMT. The proposed material handling and transport activities would change the noise environment around the port as compared to the Future without Project condition.

3.17.2.2.1 Off-site Sources

According to the traffic forecasts presented in **Section 3.14** (Transportation), a total of 39 commuter vehicle and four truck trips would occur during the peak hour periods. According to the *CEQR Technical Manual*, "If the No-Action levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not at night-time, an increase of 5 dBA $L_{eq(1)}$ or more in the future

with the project would be considered a significant impact. In order for the 5 dBA threshold to be valid, the resultant With-Action condition noise level would have to be equal to or less than 65 dBA. If the No-Action noise level is equal to or greater than 62 dBA $L_{eq(1)}$, or if the analysis period is a night-time analysis period, the incremental significant impact threshold would be 3 dBA $L_{eq(1)}$". A 3-dBA increase could result from doubling traffic volume. These peak hour vehicle trips would not double the baseline traffic volume along the truck routes resulting in less than a barely perceptible noise increase which is a 3-dBA increase. **Therefore, potential adverse off-site mobile source noise impacts would not be significant.**

3.17.2.2.2 On-site Sources

The proposed project is to upgrade the SBMT to enable it to serve immediately as a staging facility and an O&M base for the OSW industry. Heavy Lift Crane Pads would be constructed on the 35th Street and 39th Street "Piers." A crane (such as a LIEBHERR Crawler Crane LR 13000 model consisting of a pair of engines with a total combined rated horsepower capacity of 1,360) would be installed at each of the three crane pads. According to the *CEQR Technical Manual*, "unless existing ambient noise levels are very low and/or stationary source levels are very high, and there are no structures that provide shielding, it is unusual for stationary sources to have significant impacts at distances beyond 1,500 feet in New York City". At the Project Area, ambient levels are not very low and on-site source levels are not very high. Because the three cranes would be located at a distance greater than 1,500 feet from the closest sensitive receptors (residences located in the midblock of 39th Street between 2nd and 3rd Avenue) as well as the closest commercial buildings across 2nd Avenue, there would be no significant adverse noise impacts from these crane operations. Several material handling mobile equipment and SPMT trucks are expected to be other sources of noise emissions on site. These limited on-site mobile equipment operations would also be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenue, which is approximately 600 feet away from the SBMT property boundary. Therefore, with cumulative noise from Empire 1 Project's operation that was predicted to be low under the Future Without Project, **the Future with Project Condition during operations would not result in significant adverse noise impacts.**

3.17.2.3 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse noise impacts from off-site mobile sources and on-site sources, such as the operation of the cranes on the 35th Street and 39th Street "Piers." Future noise levels for the Future without Project condition would be similar to existing conditions. The areas in the vicinity of the Study Area are affected by motor vehicle traffic that contribute to the ambient noise levels. Other ambient activities include commercial and industrial activities in the region. However, the long-term elevated noise levels associated with the EW 1 Project's onshore substation immediately adjacent to the Project Area would not be significant. The onshore substation will be designed to be consistent with the New York City octave band limits and will incorporate measures to reduce noise levels to the extent practicable. Therefore, there would be no adverse cumulative impacts to noise resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on noise and vibration in the Study Area, including inducing developments that could create additional vehicular traffic or land uses with elevated noise level activities. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on noise and vibration in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood that may introduce additional vehicular traffic or land uses with elevated noise level activities.

3.18 Public Health

3.18.1 Introduction

According to the *CEQR Technical Manual,* public health is the organized effort of society to protect and improve the health and well-being of the population through monitoring; assessment and surveillance; health promotion; prevention of disease, injury, disorder, disability and premature death; and reducing inequalities in health status. The goal of CEQR with respect to public health is to determine whether significant adverse impacts on public health may occur as a result of a proposed project, and if so, to identify measures to mitigate such effects.

The *CEQR Technical Manual* states that for most projects, a public health analysis is not necessary. However, if significant unmitigated adverse impacts are identified in other CEQR analysis areas, including hazardous materials, water quality, air quality, or noise, an assessment would be appropriate.

As discussed in **Sections 3.9** (Natural Resources), **3.11** (Water and Sewer), **3.15** (Air Quality), and **3.17** (Noise and Vibration) accordingly, and as summarized below, the Proposed Project would not generate any unmitigated adverse impacts to any environmental analysis areas related to public health. Therefore, a public health assessment is not warranted. This section provides that assessment and concludes that the Proposed Project would not result in significant adverse public health impacts on a citywide or neighborhood scale.

3.18.2 Affected Environment

The Proposed Project will span most of the waterfront between 32nd and 39th Streets in Sunset Park, Brooklyn adjacent to Industry City. The Project Area is approximately 80.3 acres that includes approximately 66.1 acres upland and approximately 14.2 acres underwater. The upland Project Area is identified on tax maps as Block 662, part of Lot 1, Lot 130, Lot 136, Lot 137, and Lot 155. The purpose of the Proposed Project is to upgrade the marine terminal to enable it to serve as a staging and O&M base for the OSW industry.

3.18.3 Environmental Effects

3.18.3.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Water and sewer infrastructure would remain unchanged, and there would be no changes to air quality conditions as compared to the existing baseline condition. Future noise levels would be similar to existing conditions.

Maintenance dredging for the neighboring Sims Facility in the "interpier" basin adjacent to the north side of the 35th Street "Pier" would be expected under the Future without Project condition, as well as dredging for the installation of the EW 1 Project cable. The Future without Project condition would be similar to existing conditions within the Project Area. **Therefore, the Future without Project condition would not result in significant adverse impacts.**

See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.18.3.2 Future with Project

3.18.3.2.1 Hazardous Materials

3.18.3.2.1.1 Terrestrial

The upland portion of the Proposed Project would include demolition of existing site buildings, utility improvements, and bulkhead improvements. This would include removal and replacement of existing pavement (concrete and asphalt) and excavations of soil/fill to install structural piles and utilities. Preliminary quantities of terrestrial materials include approximately 25,000 tons of soil/fill and 725,000 tons of asphalt/concrete. A number of environmental and hazardous materials assessments have been conducted to date.

Based on the results of the Phase II ESA, there are exceedances of the applicable regulatory standards for VOCs, SVOCs, and metals in Project Area soils, groundwater, and soil vapor. Therefore, an application was submitted for this site's entry into the NYSDEC BCP. On September 8, 2022, the NYSDEC accepted the site into the Brownfield Clean-up Program (Site No. C224360 – South Brooklyn Marine Terminal Site), and the Brownfield Clean-up Agreement was executed on September 29, 2022.

The Proposed Project would have the potential to disturb hazardous materials in the subsurface and existing structures throughout the construction schedule, currently estimated to be February 2024 to the end of December 2026 (approximately 35 months) and increase the potential for human exposure to hazardous materials. This includes present and future users of the site, and construction workers.

However, with the implementation of appropriate protection and mitigation measures including, but not limited to, asbestos abatement and removal, lead paint removal, soil vapor mitigation, dust suppression measures during construction, community air monitoring during soil disturbances, appropriate and regimented waste handling procedures, and odor suppression measures, **the potential for moderate or large impacts from hazardous materials would be avoided**. The Proposed Project's final site cover of upland areas would be paved impervious surfaces, which would provide protection from potential exposure pathways to contaminants present below the Project Area. The potential for future exposure would also be addressed via institutional controls, such as an € Designation, memorandum of understanding (MOU) for City-owned property, declaration of covenants and restrictions and/or mapping agreement.

3.18.3.2.1.2 Aquatic

The Proposed Project would utilize the waterfront to serve as a staging and O&M base for the OSW industry. The base will also utilize the navigation channels along the waterfront for vessels to transport components to and from offshore locations. The navigation channels are currently too shallow for the vessels needed for component transport and must be dredged to allow access. In addition, existing bulkheads are in a deteriorating condition and are planned to be upgraded.

The existing and post-dredging surfaces contain Class B and Class C sediments. During the dredging work, protective measures to reduce or eliminate impacts may include, but are not limited to, the use of turbidity curtains, a closed environmental bucket, air monitoring, odor suppression measures, and regimented waste handling and disposal procedures. Dredged material would be characterized for appropriate off-site disposal and/or beneficial reuse if appropriate.

Further evaluation of dioxin in the post-dredging surface was performed, including calculation of surface weighted average concentrations (SWAC) in each area. Post-dredging SWACs are below the Class C threshold of 50 ng/kg (expressed as 2,3,7,8-TCDD-toxicity equivalents) in Areas 2.1B (35.1 ng/kg) and 2.2 (43.9 ng/kg), and slightly above in Area 1 (51.4 ng/kg). Post-dredging SWACs are above Class C in Areas 2.1A (89.8 ng/kg) and 2.3 (127.7 ng/kg). Based on these Class C exceedances, a one-foot sand cap would be placed post-dredging on the exposed surface of Areas 2.1A and 2.3 (see **Figure 3.10-1**). Placement of a clean sand cap in Areas 2.1A and 2.3 (approximately 5.6 acres of the approximately 14.2 acre dredging footprint) following dredging would achieve sediment quality across the Project Area that is equivalent to or better than current conditions when considered on an average, Project-wide basis. Continued deposition would bring surface concentrations to ambient levels in Upper New York Harbor. The placement of one-foot of clean sand in Areas 2.1A and 2.3 on the post-dredging surface would significantly reduce potential exposure of aquatic biota to residual contaminants.

Additionally, dredging programs require consultation with, and permitting by, relevant regulatory agencies, and all work would be conducted in accordance with any specific requirements or conditions imposed by these agencies during the permitting process. Based on observed sedimentation rates in the area, the newly-exposed post-dredge sediment surface would be covered by newly-deposited sediments at rates of 6-12 inches per year, and that the quality of these newly deposited surface sediments across the Project Area would therefore be similar to the existing condition. Additionally, a one-foot sand cap would be placed in areas 2.1A and 2.3. **As a result, no significant adverse impact to aquatic resources is anticipated.**

3.18.3.2.2 Water and Sewer

The Proposed Project does not meet the criteria listed in **Section 3.11.3** (Environmental Impacts) for a detailed infrastructure analysis. The Proposed Project would not result in an exceptionally large demand for water and is not located in an area that experiences low water pressure. Regarding wastewater and stormwater treatment, the Proposed Project is not located in a combined sewered area. It is located in a separately sewered area but does not exceed the development thresholds for manufacturing areas. It also would not increase impervious surface and is not located in the Jamaica Bay Watershed. The Proposed Project also does not involve the construction of a new stormwater outfall. Based on these criteria, a detailed water and sewer infrastructure analysis is not warranted. **The Proposed Project would have no significant adverse impact on water and sewer infrastructure.**

3.18.3.2.3 Air Quality

3.18.3.2.3.1 Off-site Sources

According to the traffic forecasts presented in **Section 3.14** (Transportation), a total of 39 commuter vehicle and four truck round trips would occur during the peak hour periods. These peak hour vehicle trips are below the screening thresholds for CO and PM warranting no further microscale mobile source impact analyses per the *CEQR Technical Manual*. **Therefore, potential adverse off-site mobile source air quality impacts would not be significant.**

3.18.3.2.3.2 On-site Sources

The Proposed Project would upgrade SBMT to enable it to serve as a staging facility and an O&M base for the OSW industry. The new O&M base and temporary facilities are considered stationary sources of emissions from HVAC system operations during the combustion process. Impacts from HVAC emissions are a function of fuel type, stack height, minimum distance from the source to the nearest building, and square footage of the new building. The proposed O&M base would be approximately 60,000 sf and 32.8 feet in height. For the proposed building, the HVAC system would have potential impacts to the nearest buildings if they were located within the minimum distance screening threshold of 85 feet per the HVAC screening graphs provided as Figure 17-3 in the *CEQR Technical Manual*. The temporary facilities in the Project Area during the operational phase would consist of a maximum of 16,000 sf of office, warehouse facilities, and workshops. The minimum distnace screening threshold for temporary facilities would be 45 feet. Since the distance from new O&M base and temporary facilities to the nearest off-site building of similar or greater height is 200 feet or more well beyond either distance screening threhsold, HVAC systems would have minimal air quality impacts. It should be noted, the HVAC systems in the O&M base and temporary facilities would likely be powered via electricity resulting in no criteria pollutant emissions. In this case, the above HVAC distance screening assessment would not be warranted.

In addition to the HVAC system, three ‘Heavy Lift Crane Pads’ would be constructed on the 35th Street and 39th Street “Piers”. A crane (such as a LIEBHERR Crawler Crane LR 13000 model consisting of a pair of engines with a total combined rated horsepower capacity of 1,360) would be installed on each crane pad. These three cranes and several other material handling equipment and SPMT trucks would be other sources of air emissions on site.

These limited on-site mobile equipment operations and the HVAC system inside the O&M base would be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenues approximately 600 feet away from the SBMT property boundary. **Therefore, the Future with Project condition during operations would not result in significant adverse air quality impacts.**

3.18.3.2.4 Noise and Vibration

According to the traffic forecasts presented in **Section 3.14** (Transportation), a total of 39 commuter vehicle and four truck trips would occur during the peak hour periods. These peak hour vehicle trips would not double the baseline traffic volume along the truck routes resulting in less than a barely perceptible noise increase. **Therefore, potential adverse off-site mobile source noise impacts would not be significant.**

The Proposed Project would enable the SBMT to serve as a staging facility and an O&M base for the OSW industry. Three ‘Heavy Lift Crane Pads’ would be constructed on the 35th Street and 39th Street “Piers”. A crane (such as a LIEBHERR Crawler Crane LR 13000 model consisting of a pair of engines with a total combined rated horsepower capacity of 1,360) would be installed on each crane pad. According to the *CEQR Technical Manual*, “unless existing ambient noise levels are very low and/or stationary source levels are very high, and there are no structures that provide shielding, it is unusual for stationary sources to have significant impacts at distances beyond 1,500 feet in New York City”. Here, ambient levels are not very low, and on-site source levels are not very high. Because these three cranes would be located at a distance greater than 1,500 feet from the closest sensitive receptors (residences located in the midblock of 39th Street between 2nd and 3rd Avenues), as well as the closest commercial buildings across 2nd Avenue, there would be no significant adverse noise impacts from these crane operations. Several material handling mobile equipment and SPMT trucks are expected to be other sources of noise emissions on site. These limited on-site mobile equipment operations would also be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenues, which is approximately 600 feet away from the SBMT property boundary. **Therefore, the Proposed Project during operations would not result in significant adverse noise impacts.**

3.18.3.3 Conclusion

Under the Future with Project condition, the proposed project will not result in significant unmitigated adverse impacts in any of the CEQR Public Health analysis areas, including hazardous materials, water quality, air quality and noise. Therefore, a public health assessment is not warranted.

3.18.3.4 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant unmitigated adverse impacts to public health, including hazardous materials, water and sewer, air quality, and noise and vibration. In the Future without Project condition, there would be maintenance dredging for the neighboring Sims Facility in the "interpier" basin adjacent to the north side of the 35th Street "Pier," as well as dredging for the installation of the EW 1 Project's underground cables. The Future without Project condition, including the relocation of the NYCDOT Facility and the EW 1 Project underground cables and onshore substation would be similar to existing conditions when assessing hazardous materials, water and sewer, air quality, and noise and vibration. Therefore, there would be no adverse cumulative impacts to public health resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on public health in the Study Area, including inducing developments that could identify new hazardous materials sites, increase demand on water and sewer infrastructure, create additional vehicular traffic, and/or establish land uses with elevated noise level activities. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant unmitigated adverse impacts on public health in the Study Area. As such, it is not expected that the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood.

3.19 Neighborhood Character

As defined by the *CEQR Technical Manual*, neighborhood character is considered to be an amalgam of the various elements, or resources, that give a neighborhood its distinct personality. The resources considered typically include land use, zoning and public policy;

- Socioeconomic conditions;
- Open space;
- Historic and cultural resources;
- Urban design and visual resources;
- Shadows;
- Transportation; and
- Noise.

If a proposed project has the potential to result in significant adverse impacts on any of the above technical areas, a preliminary assessment of neighborhood character may be appropriate.

In addition, depending on the project, a combination of moderate effects in several of these technical areas may have a significant effect on neighborhood character. A "moderate" effect is generally defined as an effect considered reasonably close to the significant adverse impact threshold for a particular technical analysis area. When considered together, there are elements that may have the potential to significantly affect neighborhood character. Moderate effects on several elements may affect defining features of a neighborhood and, in turn, a pedestrian's overall experience of the neighborhood. If it is determined that two or more categories may have potential 'moderate effects on the environment,' the *CEQR Technical Manual* states that the following question should be answered:

"Would the proposed project result in a combination of moderate effects to several elements that cumulatively may affect neighborhood character?"

3.19.1 Affected Environment

The Project Area is bound by 39th Street to the south, 2nd Avenue to the east, the Sims Facility to the north at approximately 29th Street, and Gowanus Bay to the west. Each resource assessed for neighborhood character may have a Study Area and affected environment that differs from other resources and the Project Area. For a detailed description of each Study Area, refer to the individual technical analysis areas discussing land use, zoning and public policy; socioeconomic conditions; open space; historic and cultural resources; urban design and visual resources; shadows; transportation; and noise.

3.19.2 Environmental Effects

To determine the Proposed Project's potential effects on neighborhood character, the individual resources that contribute to a neighborhood's context and feeling are considered both separately and cumulatively. The following summarizes the individual determinations of the above resources which determine the neighborhood character. Full details of their individual assessment can be found in their respective sections of the document.

3.19.2.1 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses in the Project Area by the existing marine operator would continue, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. The resources identified above and reviewed in the Neighborhood Character Assessment would remain unchanged and be consistent with existing conditions. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

3.19.2.2 Future with Project

3.19.2.2.1 Land Use, Zoning and Public Policy

The Proposed Project would redevelop an underutilized waterfront space with existing transportation and marine terminal uses in an area zoned as M3-1 for heavy manufacturing. There are no existing public recreational access or views of the waterfront in the vicinity of the Project Area. The Proposed Project would maintain the existing marine terminal land use and be allowed as-of-right in the existing M3 zoning district. **The Proposed Project would have no significant adverse impacts to existing or planned land uses in the Study Area. The Proposed Project would be consistent with applicable zoning and public policies, including the City's WRP.** For more detail regarding compliance with the City's WRP, please refer to the Consistency Assessment Form submitted with the JPA as Appendix B of the PIP. Refer to **Section 3.2** (Land Use, Zoning and Public Policy) for more information.

3.19.2.2.2 Socioeconomic Conditions

The Proposed Project would directly displace one business in the Project Area: a marine operator using the solid fill "pier" structures for docking with a maximum of three employees located in the Project Area. This business is not uniquely dependent on this specific location in the Project Area and would be able to locate to a new location nearby. In addition, the Proposed Project would not generate a net increase of more than 200,000 sf of commercial space or more than 200 residential units. **Thus, the Proposed Project would have no significant adverse impacts related to indirect residential or business displacement.**

The Proposed Project would also not affect conditions in any specific industries within the Project Area. The Proposed Project does not involve a citywide regulatory change that would adversely affect the economic or operational conditions of any types of businesses or processes. **The Proposed Project would have no significant adverse impacts on specific industries.**

Based on the above conclusions, the Proposed Project would have no significant adverse impacts on socioeconomic conditions. Refer to **Section 3.3** (Socioeconomic Conditions) for more information.

3.19.2.2.3 Open Space

The Project Area is not located on or near open spaces and **would have no significant adverse direct impacts on open space.**

In assessing potential indirect impacts, there would be 85 employees (non-residents) at the site for O&M activities. The increase is below the preliminary screening threshold of 500 non-residents, so a preliminary assessment of open space is not required. **The Proposed Project would have no significant adverse indirect impact on open space.** Refer to **Section 3.5** (Open Space) for more information.

3.19.2.2.4 Historic and Cultural Resources

The Proposed Project would occur entirely within SBMT. SBMT features basins that extend to the Bay Ridge Channel between areas of bulkheaded solid fill that resemble and are referred to as "piers" (despite being solid fill instead of pile-supported structures over water). The Proposed Project includes dredging, bulkhead replacement, new fender installation, new wharf installation, building removal, paving and grading, and construction of an O&M base. The buildings slated for removal include three existing commonplace structures on the 39th Street "Pier," one non-historic building on the east (land-based side) of the 39th Street "Pier," and the Tower Building and Scale House on the east (or land-based side) of the 35th Street "Pier." The structures slated for removal have been determined ineligible for National Register listing according to CRIS (Mackey, March 24, 2019).

On March 21, 2022, SHPO opined that the Proposed Project would have No Effect on archaeological or the five historic architectural resources with the APE. Furthermore, on March 21, 2022, SHPO concurred that the Proposed Project will have No Adverse Effect upon historic properties. **The Proposed Project therefore would have no significant adverse impact on historic and cultural resources.** Refer to **Section 3.6.1** (Historic and Cultural Resources) for more information.

3.19.2.2.5 Urban Design and Visual Resources

KOPs in the Study Area, particularly the Gowanus Bay waterfront and buildings in the Bush Terminal Historic District, are obstructed by existing structures in or adjacent to the Project Area and long viewing distances from publicly accessible sidewalks to aesthetic and visual resources. The Proposed Project would demolish existing buildings in the Project Area, implement staging areas for wind turbine elements, and add a new O&M base. The Proposed Project would continue obstructing views of aesthetic and visual resources in the Study Area in a similar manner as in the existing conditions. The Proposed Project would introduce strong visual contrast along 2nd Avenue and 39th Street due to the construction of wind turbine blade, nacelle, and tower staging compared to the existing conditions because these staging areas would be located on a portion of the Project Area that is open and paved and would rise above the existing visual obstructions. Although the Proposed Project would introduce strong visual contrast, it would not create additional obstructions to views of aesthetic and visual resources because existing views are currently completely or partially obstructed.

The Proposed Project would not alter the urban environment around the Project Area as the existing Industry City parking areas, Citi Bike docking stations, and sidewalks would remain in place. Access to the Project Area would be located north of the Project Area on 29th Street and 800 feet away from Industry City. **The Proposed Project would have no significant adverse impact on urban design and aesthetic and visual resources.** Refer to **Section 3.8** (Urban Design and Visual Resources) for more information.

3.19.2.2.6 Shadows

The screening assessment and subsequent shadow assessment was performed for the new O&M base to be built adjacent to the Gowanus Bay and "interpier" basins north of the 35th Street "Pier" as well as three cranes to be built in the Project Area on the 39S, 39W, and the 35W. The proposed O&M base would have a height of 33 feet and be set back 60 feet from the "pier" bulkhead. Proposed Project-generated shadows would be cast on the "interpier" basin throughout the year. The duration of the shadows cast would be limited to the early morning hours with shadows exiting by 10:00 AM at the latest during the growing season and 11:00 AM during the winter months. The "interpier" basin would be out of Proposed Project-generated shadows for the remainder of the day and receive sufficient sunlight. Although temporary facilities would be located in the Project Area, they were not considered in the shadow assessment. The temporary facilities would have a limited duration of eight to 12 months, and their quantities and locations would change across the Project Area from project to project during the operational phase. Temporary buildings would also e shorter in height compared to other equipment staged at the site. Therefore, temporary facilities would not cast a consistent or permanent shadow pattern on a sunlight-sensitive resource.

The cranes would occupy a smaller space on the pad, have mobility across the pad, and rotate on their bases throughout the day changing the size and shape of their shadows. Each crane would never cast a shadow from a permanent fixed position during operations. Barges accessing the dock from the Gowanus Bay would be within each crane's Shadow Screening Study Area at various times during the day. Cranes often would cast shadows on barges instead of the Gowanus Bay during typical operations. Because of the cranes' mobility, design, and location adjacent to barges, the three cranes would not cast substantial shadows on the Gowanus Bay. **The Proposed Project would have no significant adverse shadow impacts on the Gowanus Bay and "interpier" basins.** Refer to **Section 3.6** (Shadows) for more information.

3.19.2.2.7 Transportation

A preliminary Level 1, trip generation assessment was prepared to determine whether a quantified analysis of any technical areas of the transportation system is necessary. The screening was based on the projected trip generation of the Proposed Project, and whether it meets or exceeds the minimum thresholds as described in the *CEQR Technical Manual*. Both person trips and vehicle trips were considered in this assessment. The following findings are reached regarding Traffic and Parking, Transit and Pedestrians.

3.19.2.2.7.1 Traffic and Parking

The Proposed Project is projected to generate fewer than 50 vehicle trips (the threshold for further detailed analyses) during any peak hour on a weekday or Saturday. The highest number of vehicle trips for the three trip generation components (Office, Warehouse and Terminal Operations) combined would be generated during the weekday AM peak hour (49 trips), followed by the weekday PM peak hour (39 trips), the weekday Midday peak hour (28 trips) and the Saturday peak hour (12 trips). These trips include truck trips which have been converted to pces as well as two shuttle bus trips (one in; one out) during the AM and PM peak hours. **The Proposed Project would have no significant adverse impacts on Traffic operations. In addition, since parking would be provided on the site, there would be no significant impacts on parking operations.** Refer to **Section 3.14** (Transportation) for more information.

3.19.2.2.7.2 Transit

The Proposed Project is projected to generate fewer than 200 subway trips and 50 bus trips per route/ per hour (the threshold for further detailed analyses) during any peak hour on a weekday or Saturday.

The highest number of *subway* trips for the Office, Warehouse and Terminal Operations combined would be generated during the weekday AM peak hour (27 trips), followed by the weekday PM peak hour (25 trips), the weekday Midday peak hour (11 trips) and the Saturday peak hour (6 trips).

The highest number of *bus* trips for the Office, Warehouse and Terminal Operations combined would be generated during the weekday Midday peak hour (6 trips), followed by the weekday AM and PM peak hours (4 trips each), and the Saturday peak hour (2 trips). **The Proposed Project would have no significant adverse impacts on transit services.** Refer to **Section 3.14** (Transportation) for more information.

3.19.2.2.7.3 Pedestrians

The Proposed Project is projected to generate fewer than 200 pedestrian trips (subway, bus and walk-only trips combined) during any peak hour on a weekday or Saturday.

The highest number of *pedestrian* trips for the Office, Warehouse and Terminal Operations combined would be generated during the weekday Midday peak hour (91 trips), followed by the weekday AM peak hour (42 trips), the weekday PM peak hour (39 trips) and the Saturday peak hour (18 trips). **The Proposed Project would have no significant adverse impacts on pedestrian facilities.**

Since the Level 1 screening analyses show projected trips below the thresholds identified *CEQR Technical Manual*, a Level 2 screening assessment is not required. **The Proposed Project would have no significant adverse impacts on transportation services in the area during its operational phase.** Refer to **Section 3.14** (Transportation) for more information.

3.19.2.2.8 Noise

3.19.2.2.8.1 Off-site Sources

A total of 39 commuter vehicle and four truck trips would occur during the peak hour periods. These peak hour vehicle trips would not double the baseline traffic volume along the truck routes resulting in less than a barely perceptible noise increase. **Therefore, potential adverse off-site mobile source noise impacts would not be significant.** Refer to **Section 3.17** (Noise) for more information.

3.19.2.2.8.2 On-site Sources

The Proposed Project is to upgrade the SBMT to enable it to serve as a staging facility and an O&M base for the OSW industry. Three 'Heavy Lift Crane Pads' would be constructed on the 35th Street and 39th Street "Piers". A crane (such as a LIEBHERR Crawler Crane LR 13000 model consisting of a pair of engines with a total combined rated horsepower capacity of 1,360) would be installed on each crane pad.

According to the *CEQR Technical Manual,* "unless existing ambient noise levels are very low and/or stationary source levels are very high, and there are no structures that provide shielding, it is unusual for stationary sources to have significant impacts at distances beyond 1,500 feet in New York City". Here, ambient levels are not very low and on-site source levels are not very high. Because these three cranes would be located at a distance greater than 1,500 feet from the closest sensitive receptors (residences located in the midblock of 39th Street between 2nd and 3rd Avenue), as well as the closest commercial buildings across 2nd Avenue, there would be no significant noise impacts from these crane operations. Several material handling mobile equipment and SBMT trucks are expected to be other sources of noise emissions on site. These limited on-site mobile equipment operations would also be far from the closest residences located in the midblock of 39th Street between 2nd and 3rd Avenue, which is approximately 600 feet away from the SBMT property boundary. **Therefore, the Proposed Project during operations would not result in significant adverse noise impacts in the community.** Refer to **Section 3.17** (Noise) for more information.

3.19.2.2.9 Conclusion

A summary of the individual assessments on the above referenced resources is found in **Table 3.19-1**.

Table 3.19-1 Summary of Results of Relevant Technical Areas

Resource	Adverse Effects Expected? Yes	Adverse Effects Expected? No	Adverse Effects Expected? Moderate Effects
Land use, zoning, and public policy	-	X	-
Socioeconomic Conditions	-	X	-
Open Space	-	X	-
Historic and Cultural Resources	-	X	-
Urban Design and Visual Resources	-	X	-
Shadows	-	X	-
Transportation	-	X	-
Noise	-	X	-

The presence of the wind turbine component staging, and O&M base would not adversely impact the neighborhood's character, nor would it result in any significant moderate effects on the technical areas and defining elements that comprise neighborhood character. The Proposed Project would not exceed any of the thresholds in the technical areas listed above which would typically warrant a detailed assessment of the potential for neighborhood character impacts.

In addition, the Proposed Project is not expected to result in any notable moderate changes in the noted resources and does not have the potential to result in a significant adverse neighborhood character impact due to a combination of moderate effects. **Therefore, the Proposed Project would have no significant adverse impact on neighborhood character, and further assessment is not warranted.**

3.19.2.3 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant impacts on neighborhood character related to land use, zoning and public policy, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, transportation, and noise. The EW 1 Project's underground cables and onshore substation would have similar impacts to neighborhood character to those of the Proposed Project. When assessing cumulative impacts, there would be minor long-term adverse operational impacts to urban design and visual resources. However, there would be long-term beneficial impacts to land use, zoning and public policy and socioeconomic conditions. Therefore, there would be moderate beneficial cumulative impacts to neighborhood character resulting from the Proposed Project and Future without Project condition.

The Proposed Project would have beneficial indirect effects on neighborhood character pertaining to socioeconomic conditions in the Study Area. As discussed in Section 3.3.6 (Socioeconomic Conditions – Indirect Effects and Cumulative Impacts), the Proposed Project and the EW 1 Project would provide economic benefits to Sunset Park, the City, and the State through growth-inducing direct, indirect, and induced job creation, infrastructure investment, supply chain development, benefits to utility ratepayers, and cost savings through emissions reductions. However, the Proposed Project would not have indirect effects on neighborhood character pertaining to land use, zoning and public policy, open space, historic and cultural resources, urban design and visual resources, shadows, transportation, and noise in the Study Area, including induced developments that could impact land uses in the area, create additional vehicular traffic/transit generated trips/pedestrian trips, or land uses with elevated noise level activities. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. As discussed above, the Proposed Project would have no significant adverse impacts on neighborhood character in the Study Area.

3.20 Construction

3.20.1 Introduction

This section establishes the framework used to assess potential impacts from construction of the Proposed Project. The preliminary assessment criteria described in the *CEQR Technical Manual* were evaluated to determine whether further assessment of the impacts of construction upon individual resources and technical areas are required and, where required, the preliminary assessment is presented.

The *CEQR Technical Manual* indicates a preliminary assessment is required when construction activities are anticipated to occur for 24 months or longer, or when construction activities would directly impact one or more technical resources. In order to determine if significant adverse impacts may occur, the assessment must include consideration of the duration of construction activities, construction related pedestrian and vehicular activities, the distance between emissions sources and sensitive receptors, construction intensity, and the thresholds that trigger further analysis for each resource that could be impacted by construction activities.

The Proposed Project is anticipated to have a 35-month construction schedule, so preliminary assessments were carried out for potential adverse impacts from construction on the following technical resources: transportation, air quality, noise and vibration, land use, public policy and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, natural resources, hazardous materials, and water and sewer infrastructure. This section will also examine whether construction activities from the Proposed Project as well as other proposed projects in the Study Area, particularly the EW 1 Project, would have cumulative adverse impacts to land use, zoning and public policy, socioeconomic conditions, community facilities and services, historic and cultural resources, natural resources, hazardous materials, water and sewer, transportation, air quality, noise, and neighborhood character.The assessment methodology and conclusions are summarized in the following sections.

3.20.2 Overview of Construction Activities

3.20.2.1 Construction Elements

The Proposed Project would upgrade the existing SBMT site to serve as a staging facility and an O&M base for the OSW industry. The Proposed Project would support the development of OSW power generation capacity to fulfill the State's mandate of 9,000 MW of OSW energy capacity by 2035, the United States' goal of 30 GW of OSW capacity by 2030 and the City's *Offshore Wind NYC* plan.

The Proposed Project would contain two primary areas, the upland project limit and marine dredging project limit. Proposed Project activities in the upland project limit would include the demolition of existing structures, the construction of a new O&M base, and port improvements, such as wharf construction and bulkhead improvements. The marine dredging project limit is the area in which dredging would occur to facilitate vessel access and the SBMT's use as an OSW staging and O&M base. The rail lines that are currently in use within the Project Area would continue to be operational during the construction and operation of the Proposed Project. The primary vehicle access point to the Project Area would be located at 39th Street to the south of the Project Area.

Although temporary facilities would be located in the Project Area, they would not be installed during the construction period of the Proposed Project. Temporary facilities would be procured on a rental basis to suit the specific needs for the OSW Operator for the given project and duration during the operational phase of the Proposed Project. Therefore, temporary facilities are not including in any of the following assessments for the construction phase of the Proposed Project.

The following describes the six major components of construction activities.

3.20.2.1.1 Mobilization

Mobilization would take three months. During this time, temporary facilities would be established and protection systems for existing infrastructure would be designed and installed.

3.20.2.1.2 Building and Pavement Demolition

Existing buildings, the Tower Building and Scale House, the three sheds (J1 Shed, J2 Shed, and N2 Shed), the Graffiti Building, and areas of paving would be demolished and removed via excavator and bulldozer (see **Figure 1.3-4**). Within the Project Area, approximately 40 percent of the paving and structures (approximately 26.1 acres) would be removed, with extent of removal depending on both footprint of required work and the results of upcoming site investigations. Existing subsurface structures would remain in place, except where removal is required for new subsurface construction.

The existing pavement would be assessed for remaining life and structural capacity and replaced or improved as necessary. Required materials would be imported to the Project Area and would include aggregates for road base construction, binder and asphalt wearing course. All upland waste material would be loaded onto trucks and disposed of off-site if material cannot be reused on-site.

Project Area grading would be maintained, with the exception of minor grading changes to improve stormwater surface runoff and to accommodate the proposed O&M base. Stormwater surface runoff within the areas for equipment storage would be directed inland to catch basins so that the runoff would be treated by the drainage system prior to discharge. Within the yard, maximum grades of one percent and minimum grades of 0.5 percent would be maintained. The incoming road to the Project Area would have a maximum of four percent grade in order to meet terminal grades in an efficient manner.

3.20.2.1.3 Bulkhead Replacement and Improvement

The bulkheads along the edges of the solid fill "pier" structures retain the fill behind the bulkheads and provide support for the loads that are placed upland of the bulkheads. Bulkhead improvement is only planned for areas where existing bulkheads do not have the structural capacity required to support the proposed upland load. Project-wide replacement of all of the bulkheads would be unnecessary to achieve the Proposed Project's purpose and need. The areas that require improvements are the 39S and 39W bulkhead, the 32-33 bulkhead between 32nd and 33rd Streets, the 35W bulkhead in the existing cofferdam, and the area at the 35N bulkhead associated with the proposed SOV Wharf (see **Figure 1.3-2**).

3.20.2.1.3.1 39S Bulkhead Replacement and 39W Toe Wall

SBMT was designed to handle shipping containers, which can weigh up to 30-40 tons per container. However, the OSW components that would be staged at SBMT would be significantly heavier; a nacelle unit can weigh up to 800-1000 tons, and a tower section can weigh 300 tons. These significantly heavier loads would require correspondingly higher-capacity bulkheads. The bulkheads on the edges of the solid fill "pier" structures retain the fill behind the bulkheads and support the dead and live loads placed on the land surface. Heavier loads require stronger bulkheads, and associated upland support structures, to maintain the structural integrity of the solid fill "pier" structures. The bulkhead at 39S and 39W would be strengthened to meet the Proposed Project's purpose and need and support the significantly heavier loads associated with unloading, loading, and moving OSW components on the 39th Street "Pier." Reinforcing the existing sheet pile bulkheads at the 39th Street "Pier" would be technically challenging because of existing underground tie-rods that connect the bulkhead to subterranean dikes to provide lateral capacity and stability to the bulkhead structure. Vertical capacity is achieved by the fill material and underground low-level platform, which is supported by timber piles.

Along the southern bulkhead of the 39th Street "Pier," approximately 1,072 feet of bulkhead would be replaced, with new sheet piles to be installed to create a new bulkhead surface approximately 32 inches[16] in front of the existing concrete cap and supporting beam, making it approximately 72 inches in front of the existing bulkhead (sheeting) surface. The new bulkhead would be backfilled with clean fill (flowable fill or crushed stone) to approximately MLW before capping with concrete on the top of the new deck. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column. The 39S bulkhead replacement, which would be a singular structure, is considered as two sections: southwest (39SW) and southeast (39SE). 39SW would be adjacent to the proposed 39S heavy lift crane pad and would have attached cone fenders; 39SE would not have cone fenders. For installation, sheet piles would be installed from a crane-equipped construction barge utilizing a vibro-hammer and driven to design depth. Fill (clean fill and concrete, as described above) material would then be installed in the void between the existing and new steel sheet pile.

Along the western bulkhead of the 39th Street "Pier," a new sheet pile toe wall would be installed immediately seaward of the existing bulkhead. The toe wall would be comprised of AZ-46-700N sheet piles and extend 689 feet in length. This wall would be installed such that the bottom of the new sheeting would extend to approximately -70 feet (NAVD 88). The installed sheet piles would then sit from approximately 40 feet below the existing mudline. After installation, the sheet piles would be cut and trimmed so the top of the piles would extend five feet above the existing mudline. The area above the mudline between the new toe wall and the existing bulkhead would then be filled with marine concrete via a tremie to prevent exposure of the concrete to saltwater prior to curing. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column. The combination of the sheet pile and concrete would stabilize the existing bulkhead so it would not be undermined from dredging operations. For installation, sheet piles would be installed from a crane barge utilizing a vibro-hammer before being driven to final depth. After installation of sheet piles, a tremie would then be used to install concrete between the existing and new sheet pile walls.

3.20.2.1.3.2 32-33 Bulkhead Replacement and Reinforcement

The existing structure north of the 35th Street "Pier" consists of a combination of gravity wall and low-level platform connected to a CSO infrastructure. The low-level relieving platform is soil-filled and supported by timber piles. This structure is in degraded condition, and existing support from timber piles has been determined to be unsalvageable.

This existing structure would be removed from land via removal of the pavement, excavation of remaining soil fill, and removal of the lower concrete deck. The existing timber piles supporting the demolished relieving platform would be cut to the mudline and removed. A stone armor layor would be installed as part of the sea bed slope up to the timber bulkhead to act as scour protection. To provide lateral support of the upland fill, a new steel sheet pile wall would be driven on the landside of the existing timber pile bulkhead, connected towards the gravity wall to the south and the CSO structure to the north.The existing platform structure would then be replaced with a new high-level relieving platform supported by unfilled 24-inch diameter steel pipe piles. The deck would consist of a precast pile cap, with

[16] 32 inches is the minimum reliable to accommodate any variation in verticality in the existing bulkhead piles, and any wandering of the existing wall alignment, while ensuring good access for pumping the fill material into the annular space between the sheets. Removing the existing concrete cap and supporting beam to reduce the in-water intrusion would risk the collapse of the existing bulkhead.

precast prestressed planks, and a deck topping installed *in situ*. The water-facing surface would be protected by a precast concrete fascia beam. The new structure would be elevated above the tidal zone. This new structure is required to facilitate O&M activities, including access to the new dock for CTVs. Fenders would not be installed on the beam, as vessels will berth at the separate CTV dock, and will not directly contact the platform.

The replacement high-level platform would be positioned above MHWS, as opposed to the existing relieving platform which occupies the water column above approximately MLW. The 24-inch in diameter steel pipe piles would be installed to an approximate tip elevation of -130 feet below MHW to support the new composite platform. New precast concrete pile caps of 42-inch width and 21-inch thickness would be installed on top of the pipe piles. A composite platform deck comprised of precast planks and *in-situ* top slab would be installed on top of the pile cap. The new platform would meet the existing upland surfaces and would provide the structural capacity for the increased loads of the proposed function of the SBMT facility. No work would take place seaward of the existing gravity wall bulkhead. BMPs would be utilized to prevent wet concrete or concrete leachate from entering the water column.

3.20.2.1.3.3 35N Localized Bulkhead Replacement

A 140-foot section of previously existing, circa 1960s, recessed bulkhead upland of the slope on the northern edge of the 35th Street "Pier" would be replaced with a new sheet pile wall to provide structural connection from the landside portion of the 35th Street "Pier" to the proposed SOV Wharf. The sheet pile wall would consist of AZ-24-700N sheet piles over a horizontal length of 140 feet, driven to an elevation of -48.0 feet (NAVD 88). This sheet pile wall would reinforce the existing solid fill "pier" structure to support design loads that would approach and transfer over the planned SOV Wharf.

The bulkhead replacement would take place entirely in the upland area of the 35th Street "Pier." Pipe piles would be installed using a vibro-hammer for the majority of the length, and then an impact hammer would be used over the last 10 to 15 feet to ensure the piles are fully seated in the load bearing soil/stratum.

3.20.2.1.3.4 35W Removal of Existing Cofferdam

As the existing cofferdam has been assessed to have insufficient live loading capacity, the structure has limited future use in the upgraded port infrastructure. Removal of the cofferdam would be used to mitigate the placement of fill for other elements of the Proposed Project. Prior to removal of the cofferdam, a new sheet pile wall would be installed landward of the area to be excavated to act as a bulkhead to provide support to the remaining solid fill "pier" structure. Per boring samples taken in 2018, all cofferdam cells currently contain sandy fill. The fill in the cofferdam cells would be internally excavated down to the existing adjacent mudline before being cut back. During the excavation no live loads would act on the cofferdams. The hydrostatic pressure towards the cell structure would be balanced by using bracings or a water column. After excavation, traditional underwater cutting methods would be applied to cut back the obsolete cell structure. The exposed surface would be graded to a 2:1 (horizontal:vertical) slope, and a one-foot thick layer of bedding stone would be installed, followed by a layer of geotextile fabric, 2.06-foot layer of underlayer rock, and a 4.42-foot layer of armor stone to stabilize the new shoreline.

Removal of the cofferdam and associated fill would reduce the volume of existing fill occupying the water column and the area of mudline disturbance. Although the Proposed Project would result in the filling of approximately 0.16 acres of unvegetated tidal wetlands, removal of the cofferdam and grading the fill would create approximately 0.18 acres of unvegetated tidal wetlands resulting in a net gain of approximately 0.02 acres of unvegetated tidal wetlands.[17]

3.20.2.1.4 Dredging and Sediment Capping

Existing water depths are inadequate to allow passage of the drafts of vessels intended to utilize the SBMT facility. To accommodate these vessels required to transport and install offshore WTG, dredging of the "interpier" channels and basins adjacent to the seaward bulkheads would be required. Sediments would be dredged to depths of up to 20 feet below the existing mudline to a final water depth of -38.1 feet MLLW (-43.0 feet MHW; -43.9 feet MHWS) to accommodate vessel drafts, including the increased depth needed to accommodate vessels after they are laden with WTG materials received from the Project Area. Approximately 189,000 CY of sediments would be removed from an approximately 14.2-acre dredging area.

[17] Quantities have been rounded to the nearest hundredth decimal.

Dredging would take place via a crane on a barge. To minimize the generation of turbidity, dredging would be conducted using a clamshell dredger with a closed environmental bucket, withdrawn slowly through the water column to minimize turbidity. Dredged sediments would be deposited into scows, allowed to settle for 24 hours prior to onsite dewatering (decanting), adhering to regulations and permit requirements, and then transported to an appropriately permitted upland disposal site. The material may be beneficially reused, depending on its suitability for such uses.

The dredging timeframe and associated activities would be consistent with permit conditions. It is anticipated that dredging operations would run 24 hours a day for a total of approximately 140 days. BMPs to control turbidity would be employed, consistent with permit requirements. BMPs would include no barge overflow, no draining of the bucket over the water column, careful placement of the dredge material onto the scows, and potential use of turbidity curtains.

Additional dredging depth would be required to install the sand cap over the new dredged surface in two areas. As approved by NYSDEC, a one-foot clean sand cap would be placed post-dredging in Areas 2.1A and 2.3 where 2,3,7,8-TCDD TEQ concentrations in the post-dredging surface significantly exceed their NYSDEC TOGS 5.1.9, In-Water and Riparian Management of Sediment and Dredged Material, Class C threshold. An approximately 5.6-acre area would receive one foot of clean sand, for a total of 9,033 CY. The sand capping timeframe and associated activities would be consistent with permit requirements for in-water construction activities. It is anticipated that capping operations would be conducted 12 hours-a-day for 14 days per area to be capped." Best management practices to control turbidity would be employed, consistent with permit requirements.

3.20.2.1.5 Marine and Land Improvements

Three new fixed and floating wharves are proposed to meet the Proposed Project's purpose and need. The proposed barge wharf at 35W would accommodate heavy-lift barge operations associated with the loading and unloading of OSW components, crew, and other materials.

Three cranes would be constructed in three locations on the 35th Street and 39th Street "Piers": the 39S, 39W, and 35W (see **Figure 1.3-1**). Each crane would be mobile on tracks to provide movement on its constructed pad. Each pad is associated with a barge berthing area where barges for transporting WTG components would dock. Each crane would have the ability to move approximately 10 feet in any direction on its pad, enabling the crane to reach offshore barges.

O&M-related material handling activities would be accomplished at the proposed pile-supported SOV Wharf on 35N. O&M-related crew transport would be accomplished at the proposed floating CTV Wharf along the 32-33 bulkhead.

Improvements to the existing stormwater infrastructure are proposed. Stormwater runoff would be collected through a series of proposed catch basins and manholes. Catch basins would be placed throughout the site and connect into the existing outfalls. The majority of the outfalls were deemed inadequate structurally, and/or did not have the hydraulic capacity to meet design and regulatory requirements. All but one existing outfall would be upgraded, which would involve upgrading the pipe and structure at existing outfall locations. The outfall upgrades would not require excavation or fill within navigable waters. No new outfalls are proposed. The drainage system would also connect into the existing sewer system, one to an existing connection along 29th Street and a new connection is proposed along 2nd Avenue.

During construction, lamp poles would be installed at the outer space of the working area. In addition, working areas would be illuminated separately by punctual light sources. A mobile light system would be used to ensure adequate illumination is provided to the Project Area during operations. Lighting controls would be provided for high mast fixtures that allow customization of lighting based on operational needs.

3.20.2.1.6 O&M Base

Construction of the O&M base, including a warehouse and an office/support building in the upland area east of the solid fill "pier" structures would be done via typical methods for new vertical structures, and would utilize backhoes, front-end loaders, manlifts, and specialized small equipment. Reinforced, cast-in-place slabs would be supported by new piles. Both buildings would be framed with structural steel sections fabricated off-site. Final erection and assembly and installation of interior details and cladding would occur on-site. Material for new construction would be brought on-site via truck.

Existing utilities, including infrastructure which previously served the buildings slated for demolition, would be abandoned in place or removed as necessary to develop the Project Area. Existing utilities include domestic water, fire water, sanitary sewer, electrical and telephone service, and gas lines. The utilities would be capped at suitable locations, determined in coordination with the utility companies. All existing piping to be abandoned that are 12 inches or larger in nominal diameter would be completely filled hydraulically with an excavatable flowable fill. Existing utilities that interfere with the proposed infrastructure would be removed, as needed.

New sanitary sewer, potable water, electrical, and telecommunication line connections would be provided for the O&M base with additional take-off points prepared for temporary facilities to serve the OSW staging area needs. Fire protection systems would be extended as required. Existing fire hydrants that do not interfere with the Project Area site layout would remain in place and operational. If existing fire hydrants would need to be relocated, the relocation would occur in coordination with the FDNY and other relevant City agencies.

The existing underground utilities would be reused to the extent practicable. Where this would be impractical, new trenches would be excavated and services installed; excavated materials would be reused to backfill the new trenches or elsewhere in the Project Area. Existing buried services would be capped and abandoned in place provided they would not interfere with SBMT operations. Underground utilities would include ducting for electrical and information technology (IT) cabling draw pits, and fire, potable and stormwater pipes, valves, chambers, and manholes.

3.20.2.2 Construction Phasing and Schedule

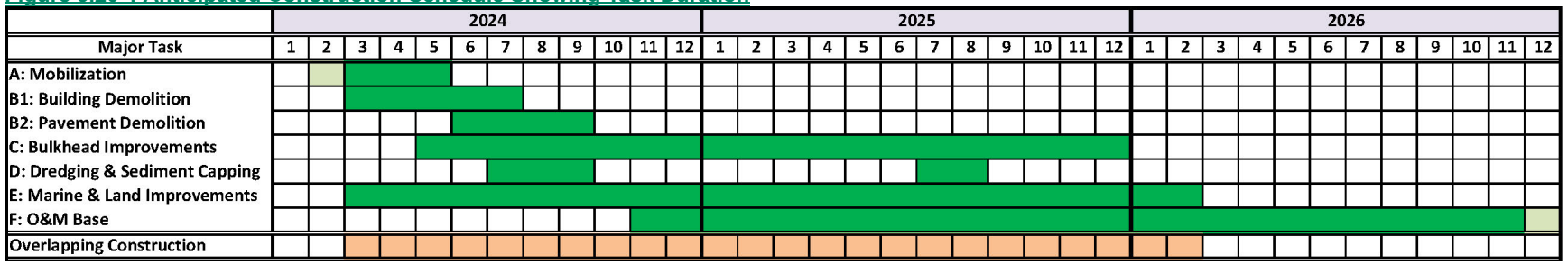
3.20.2.2.1 Construction Schedule

The Proposed Project would be constructed in 35 months, involving six major construction tasks, with the demolition task broken down into two sub-tasks. The estimated starting date for construction would be February 2024, or when all the requisite permits and approvals have been obtained. All construction is scheduled to be completed by the end of December 2026. As shown in **Figure 3.20-1**, some preliminary mobilization activities would occur in February 2024, and some wrap-up activities after construction would occur in December 2026. The construction schedule and duration of the six major construction tasks are shown in **Table 3.20-1**. **Figure 3.20-1** presents a graphical illustration of the construction schedule, showing the duration of each major task as well as overlapping tasks.

Table 3.20-1 Anticipated Construction Schedule

Major Task	Duration (Months)	Start	Finish
A: Mobilization	3	3/1/24	5/23/24
B1: Building Demolition	5	3/1/24	7/24/24
B2: Pavement Demolition	3	6/12/24	9/12/24
C: Bulkhead Improvements	20	5/6/24	12/23/25
D: Dredging and Sediment Capping	5	7/1/24	8/29/25
E: Marine and Land Improvements	22	3/29/24	2/2/26
F: O&M Base	25	11/1/24	11/26/26

Figure 3.20-1 Anticipated Construction Schedule Showing Task Duration



Note: Some major tasks listed in **Table 3.20-1** start or finish in the middle or at the end of a month. In **Figure 3.20-1**, the entire month is marked in green for major tasks that start or finish in the middle or at the end of a month and may not correspond directly to the major task construction durations listed in **Table 3.20-1**.

As shown in **Figure 3.20-1,** five of the six major work tasks would be conducted concurrently in July 2024 and four tasks would overlap in August to the end of September 2024, and July to the end of August 2025. The dredging task, while shown as starting in July 2024 and ending in August 2025 would occur over five months: July to the end of September 2024, and July to the end of August 2025. The month with the highest number of construction workers and trucks combined (when the trucks are converted to pces) is projected to occur in July 2025, as described below.

Construction would start with the installation of stormwater and turbidity control measures, as required. Demolition of upland structures (existing buildings and pavement) and capping of utilities is anticipated to begin upon the receipt of the requisite approvals (currently anticipated in February 2024) in order to clear the work area and begin installation of support pilings.

In-water bulkhead replacement/reinforcement and wharf installation would begin in Summer 2024 or as appropriate. Construction on the solid fill "pier" structures adjacent to these bulkheads would progress after bulkhead structures are replaced and capacity is improved. This would include installation of new crane pads and repaving.

All in-water construction activities would be conducted from June 1 to December 15 in 2024 and 2025. Upland work, including the repaving and construction of the O&M base landward of the solid fill "pier" structures would continue throughout the Proposed Project's anticipated 35-month timeframe. Proposed Project completion would be at the end of December 2026.

3.20.2.2.2 Hours of Work

Upland and marine structure work would be performed during single-shift standard business hours. Construction of the Proposed Project would be conducted in accordance with New York City laws and regulations, which allow construction between 7:00 AM and 6:00 PM. It is assumed that workers would work two staggered work shifts on weekdays: from 6:00 AM to 2:00 PM (Schedule A) and from 7:00 AM to 3:00 PM (Schedule B). Normally work would end at around 2:30 PM or 3:30 PM, but it can be expected that, in order to complete certain critical tasks (e.g., finishing a concrete pour), the workday may occasionally be extended beyond normal work hours. Any extended weekday workdays would generally last until approximately 6:00 PM and would not include all construction workers on-site but rather only those involved in the specific task requiring additional work time.

Weekend or night work may also be required for certain construction activities. Appropriate work permits would be obtained for any necessary work outside of normal construction, and no work outside of normal construction hours would be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for weekend work would typically be limited to those needed to complete the particular task. Therefore, the level of activity for any weekend or night work would be less than that of a normal workday. The weekend workday, if necessary, would typically occur from 7:00 AM to 3:00 PM.

For the in-water work, dredging would be conducted for 24 hours a day. However, for purpose of the following conservative analysis, all workers were assumed to arrive and leave within a three-hour period: 5:00 AM to 8:00 AM and 2:00 PM to 5:00 PM.

3.20.2.2.3 Staging Areas and Deliveries

Construction material would be brought to SBMT via water and roads. Bulkhead steel and piles would be shipped to SBMT on barges and would be staged near their construction location. Otherwise, demolition and new construction material would be trucked into and out of SBMT at two vehicular entrances: the 39th Street entrance, west of 1st Avenue, and the 29th Street entrance, north of the Project Site. A preliminary construction laydown area of approximately eight acres is planned at the foot of the 35th Street "Pier." In-water work would be staged both from upland areas on-site and from vessels that would moor within the Project Area. No vessels would moor or anchor beyond the Project Area.

3.20.3 Future without Project

In the Future without Project condition, the Proposed Project would not occur. Current uses of the Project Area include a marine operator and a NYCDOT function. The existing marine operator would continue to operate at SBMT, and the NYCDOT function at the site would be relocated to Red Hook Container Terminal in Red Hook, Brooklyn. The NYCDOT function is scheduled to move to the Red Hook Container Terminal prior to Proposed Project construction.

The existing Tower Building and Scale House, the three sheds (J1 Shed, J2 Shed, N2 Shed), and the Graffiti Building would not be demolished. The bulkheads would not be improved, there would be no dredging associated with the marine improvements, and a new O&M base would not be built. See **Section 1.3** (Project Description) for more information about the EW 1 Project.

Adjacent to the Project Area at SBMT, the EW 1 Project's underground cables and onshore substation would be constructed and then would operate. Construction of the EW 1 Project and the underground cables and onshore substation would begin in 2023.

3.20.4 Future with Project

Based on potential project related impacts, and guidance provided in the *CEQR Technical Manual* the following section describes the technical areas identified for preliminary assessment: transportation, air quality, noise and vibration, land use, public policy and neighborhood character, socioeconomic conditions, community facilities, open space, historic and cultural resources, natural resources, hazardous materials and water and sewer infrastructure.

3.20.4.1 Transportation

Since construction of the Proposed Project would exceed two years, a screening assessment of construction traffic was performed to determine if detailed traffic analyses "*during construction*" would be required. The assessment includes an estimation of additional construction-related vehicle trips that would be generated on the roadway system as a result of construction activities during the peak construction phase. Based on estimates of preliminary manpower distribution over the construction duration, the peak month of construction activity was determined. The *during construction* traffic screening assessment was performed for a typical weekday during the peak construction month.

3.20.4.1.1 Level 1 Screening Assessment

3.20.4.1.1.1 Construction Trip Generation

The number of vehicle trips that can be expected during construction was estimated based on review and consideration of the following components:

- The proposed construction schedule (and the peak construction phase);
- Expected number of construction workers per weekday during the peak construction month;
- Expected number of support vehicles (passenger-type vehicles used by supervisors) per weekday during the peak construction month; and
- Expected number of trucks per weekday during the peak construction month.

The number of construction workers, management staff and trucks were estimated during the peak hours on a typical weekday for the peak month of construction.

Table 3.20-2 shows the number of daily construction workers and vehicles (support vehicles and trucks) by month, during the 35-month construction period. **Table 3.20-2** assumes that the daily workforce would arrive on two schedules during the day—most workers on an early arrival/departure schedule (labeled "A") and the rest on a later arrival/departure schedule (labeled "B"). The trucks are labeled with A and B as well as placed into columns with which will arrive in the start of the day and during the day (four columns total). The month with the highest number of construction workers, trucks, and support vehicles across both schedules combined (when the trucks are converted to pces) would occur in July 2025.

Table 3.20-2 Estimated Daily Workers, Support Vehicles, and Trucks by Month

	Workers and Supervisors: A	Workers and Supervisors: B	Support Vehicles: A	Support Vehicles: B	Trucks (Start of Day): A	Trucks (Start of Day): B	Trucks (During Day): A	Trucks (During Day): B	Total Workers and Vehicles
January 2024	0	0	0	0	0	0	0	0	0
February 2024	0	0	6	12	1	10	1	15	45
March 2024	14	6	12	19	5	18	17	25	115
April 2024	33	17	14	19	6	18	18	25	150
May 2024	49	32	14	19	6	18	18	25	181
June 2024	51	49	21	20	9	19	21	29	218
July 2024	55	67	18	20	6	19	6	29	220
August 2024	92	86	18	20	6	19	6	29	276
September 2024	120	104	18	20	6	19	6	29	322
October 2024	124	120	17	20	6	19	6	29	341
November 2024	125	134	23	20	14	19	15	29	379
December 2024	110	144	25	23	19	25	19	34	399
January 2025	75	150	17	23	15	25	15	34	354
February 2025	94	152	21	23	17	25	19	34	385
March 2025	117	148	21	25	17	26	19	39	412
April 2025	141	138	25	28	21	32	26	44	455
May 2025	153	124	23	24	17	27	23	39	430
June 2025	157	111	24	24	16	27	22	39	420
July 2025	206	93	25	24	17	27	23	39	454
August 2025	239	67	26	19	21	22	22	28	444
September 2025	236	46	26	19	22	22	23	28	422
October 2025	261	33	26	8	22	13	23	15	401
November 2025	264	35	37	8	32	13	33	15	436
December 2025	229	35	34	8	24	13	36	15	394
January 2026	256	33	39	8	24	13	40	15	428
February 2026	260	29	39	8	24	13	39	15	427

	Workers and Supervisors: A	Workers and Supervisors: B	Support Vehicles: A	Support Vehicles: B	Trucks (Start of Day): A	Trucks (Start of Day): B	Trucks (During Day): A	Trucks (During Day): B	Total Workers and Vehicles
March 2026	258	23	41	8	26	13	42	15	425
April 2026	233	14	38	6	24	12	40	10	377
May 2026	222	6	33	6	19	12	32	10	340
June 2026	207	0	28	0	15	0	27	0	277
July 2026	183	0	26	0	14	0	26	0	249
August 2026	148	0	24	0	13	0	22	0	207
September 2026	99	0	23	0	12	0	21	0	155
October 2026	57	0	13	0	7	0	11	0	88
November 2026	33	0	8	0	3	0	3	0	47
December 2026	13	0	6	0	1	0	1	0	21

Peak Month

Note: Totals may not add up due to rounding.

3.20.4.1.1.2 Site Access and Parking during Construction

During construction, the Project Site would provide parking for approximately 71 vehicles. The only vehicles that would be allowed to park on-site during construction would be the "support vehicles" or supervisors' vehicles. Trucks would enter and leave the Project Site throughout the day but would not park on-site. Construction workers would not be allowed to park on-site due to limited parking availability. Construction workers would park in on-street and off-street parking spaces in the surrounding neighborhood. A comprehensive parking study conducted over a one-mile radius from the Project Site found that there would be sufficient parking spaces available during the peak arrival times of construction workers, who would then walk to the Project Site. The parking study is discussed in **Section 3.20.4.1.1.10** (Parking).

There would be two vehicular gates that would provide vehicle/truck entry to and exit from the Project Site during construction. The gates would be located at 1st Avenue/39th Street and 2nd Avenue/29th Street. Both support vehicles and trucks would use these gates with an approximately 60 percent/40 percent split between the 1st Avenue and 2nd Avenue gates, respectively.

3.20.4.1.1.3 Trip Generation During Construction

The number of vehicle trips to be generated during the peak construction phase was estimated based on the combined number of construction workers, support vehicles, and trucks expected during the peak month of construction.

3.20.4.1.1.4 Construction Workers

The number of daily construction workers was estimated based on the number of man-hours expected to be expended during each task, and the duration of that task. Accordingly, the number of construction workers would vary depending on the specific work task. As shown in **Table 3.20-2,** the number of daily construction workers during the peak month of construction (July 2025) is projected to be 299 workers (comprising workers on both the earlier and later schedules, labeled A and B, respectively, in **Table 3.20-2**). Due to potential safety concerns associated with boarding and disembarking the dredging vessel during construction at the SBMT, dredging workers would mobilize from another port.

The screening assessment assumed that workers would work two staggered work shifts on weekdays: 93 workers would work from 6:00 AM to 2:00 PM (Schedule A); and 206 workers would work from 7:00 AM to 3:00 PM (Schedule B). Normally, work would end at around 2:30 or 3:30 PM, but it could be expected that, in order to complete certain critical tasks (e.g., finishing a concrete pour), the workday may be extended beyond normal work hours. Any extended weekday workdays would generally last until approximately 6:00 PM and would not include all construction workers on-site but only those involved in the specific task requiring additional work time.

Weekend or night work may also be occasionally required for certain construction activities. Appropriate work permits from the NYCDOB would be obtained for any necessary work outside of normal construction and no work outside of normal construction hours would be performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for weekend work would typically be limited to those needed to complete the particular task. Therefore, the level of activity for any weekend or night work would be less than that of a normal workday. The weekend workday, if necessary, would typically occur from 7:00 AM to 3:00 PM.

Any combination of the staggered shift and/or weekend/night work management methodologies would be implemented at various timed during the Proposed Project execution to ensure traffic patterns are maintained in accordance with the conclusions of the following traffic assessment.

It was estimated that 20 percent of construction workers would arrive and leave in private vehicles; and 80 percent would arrive and leave via transit, walking, and/or bicycling. The previous screening assessment during the construction phase in the Draft EA assumed a 56 percent auto mode split for construction workers based on *Reverse Journey to Work Data* from the 2000 U.S. Decennial Census, for Census Tracts 2, 18, and 20 in Brooklyn. Based on the same data source, an auto occupancy of 1.22 persons per vehicle was used in the previous screening assessment.

The revised auto modal split was based on several factors and revised assumptions, including limited availability of parking on-site, which would be reserved for "support vehicles" and the availability of Proposed Project-specific parking lots which would be secured to create offsite parking opportunities and ensure mass-transit solutions are employed. During peak activity period, the Proposed Project would make the use of these off-site parking solutions a contractual

requirement of workers. To encourage transit use by construction workers, the Proposed Project would offer parking subsidies for workers to park off-site and use transit service, mainly subway, to get to and from the Project Site. In addition, the Proposed Project would offer financial incentives for workers to take transit, such as fare reimbursements, etc. Further, the Proposed Project would develop and coordinate detailed arrival and departure schedules for workers, support vehicles and trucks to minimize vehicular travel during the peak AM and PM periods, and "spread" trips, especially truck trips, throughout the day, to the extent practical.

3.20.4.1.1.5 Support Vehicles

Support vehicles are passenger-type vehicles used by supervisors, and these vehicles would park on-site. Support vehicles would arrive and depart the Project Site during the same hours as construction workers. On a typical weekday during the peak month of construction, there would be 49 support vehicles with 25 assigned to the 7:00 AM to 3:00 PM work shift and 24 assigned to the 6:00 AM to 2:00 PM work shift. These vehicles would remain on-site for the entire duration of their respective shifts.

3.20.4.1.1.6 Trucks

While there may be limited use of barges (due to the area's proximity to the water) to transport excavated material and component parts to and from the construction site, as a worst-case condition, it was assumed that construction debris and materials for all tasks, except for dredging, would be transported by trucks. Trucks would typically remain on-site for relatively short durations (typically one hour or less). Trucks would use local truck routes in the area to arrive and depart the construction site.

The number of trucks per day for each month of construction was determined by the Contractor, who has been retained to manage and coordinate all construction activities in the Project Site. As shown in **Table 3.20-2**, "Trucks (Start of Day)" represent a portion of the daily estimated trucks that would arrive at the Project Site early in the morning (as early as 4:00-5:00 AM) and leave later in the morning (as late as 9:00-10:00 AM). During the peak month of construction, there would be an estimated 44 trucks arriving and departing the Project Site at the start of the workday (see **Table 3.20-2**).

As shown in **Table 3.20-2**, "Trucks (During the Day)" would arrive and leave the Project Site throughout the day approximately between 6:00 AM and 5:00 PM. The daily volume of trucks making deliveries to the Project Site and hauling away debris and excavating materials from the Project Site would vary according to the specific construction activity being undertaken. During the peak month of construction, there would be an estimated 62 trucks arriving and departing the Project Site during the day (see **Table 3.20-2**).

3.20.4.1.1.7 Daily Vehicle Estimates

Based on the above assumptions, the number of vehicles associated with construction workers and trucks that can be expected during a typical weekday during the peak construction month (July 2025) was estimated, as shown in **Table 3.20-3**. On a typical weekday during the peak construction month, 49 construction worker vehicles, 49 support vehicles, and 265 trucks (in pces) would occur for a total of 363 vehicles (pces).

Table 3.20-3 Estimated Daily Vehicles, by Type

Vehicle Type	Daily Volume
Construction Workers	49
Support Vehicles	49
Trucks at Start of Day	110
Trucks During the Day	155
Total Vehicles	363

Note: for purposes of this assessment, trucks were converted to pces using a conversion factor of 2.5 for 3-axled vehicles per the *CEQR Technical Manual*.

3.20.4.1.1.8 Hourly Vehicle Trip Estimates

The estimated daily vehicle volumes were converted to hourly vehicle trips by applying appropriate temporal (hourly) and directional (in and out) distributions for construction workers and trucks. **Table 3.20-5** shows the arrival and

departure patterns for construction workers, support vehicles, and trucks during a typical weekday during the peak month of construction. It shows the two staggered work shifts for construction workers and support vehicles (A and B), as well as the expected hourly distribution of trucks at the start of the day and during the day.

Table 3.20-4 shows the estimated number of vehicle trips for construction workers, support vehicles, and trucks (separately and combined) that are projected to occur during a typical weekday. Specifically, it shows the estimated number of trips expected during the weekday morning peak arrival hour (6:00-7:00 AM) and afternoon peak departure hour (2:00-3:00 PM). During both peak hours, the 50 vehicle trips per hour threshold would be exceeded with 92 vehicle trips projected to occur in the AM peak hour and 69 vehicle trips expected to occur during the PM peak hour.

Since these Level 1 trip generation estimates exceed 50 vehicle trips during both the AM and PM peak hours, a Level 2 screening assessment (trip distribution and trip assignment) was performed for traffic during construction.

Table 3.20-4 Estimated Peak Hour Vehicle Trips

	AM Peak Hour			PM Peak Hour		
Vehicle Type	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Construction Workers	29	0	29	0	16	16
Support Vehicles	23	0	23	0	23	23
Trucks at Start of Day*	20	20	40	0	0	0
Trucks During the Day*	1	0	1	9	22	31
Total Vehicles	72	20	92	9	60	69

*Trucks are shown as PCEs (2.5 pces/truck)

Table 3.20-5 Hourly Arrival and Departure Patterns for Construction Workers, Support Vehicles, and Trucks

	Temporal Distributions															
Hour of Day	Workers IN: A	Workers OUT: B	Workers IN: A	Workers OUT: B	Support Vehicles IN: A	Support Vehicles OUT: A	Support Vehicles IN: A	Support Vehicles OUT: B	Trucks Start of Day IN: A	Trucks Start of Day OUT: A	Trucks Start of Day IN: B	Trucks Start of Day OUT: B	Trucks During Day IN: A	Trucks During Day OUT: A	Trucks During Day IN: B	Trucks During Day OUT: B
12-1AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1-2 AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2-3AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3-4AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4-5AM	0%	0%	**10%**	0%	0%	0%	**10%**	0%	**14%**	**7%**	**14%**	**7%**	0%	0%	0%	0%
5-6AM	**10%**	0%	**80%**	0%	**10%**	0%	**80%**	0%	**18%**	**16%**	**18%**	**16%**	0%	0%	0%	0%
6-7AM	**80%**	0%	**10%**	0%	**80%**	0%	**10%**	0%	**18%**	**18%**	**18%**	**18%**	0%	0%	**1%**	0%
7-8AM	**10%**	0%	0%	0%	**10%**	0%	0%	0%	**34%**	**26%**	**34%**	**26%**	**1%**	0%	**14%**	**1%**
8-9AM	0%	0%	0%	0%	0%	0%	0%	0%	**16%**	**25%**	**16%**	**25%**	**14%**	**1%**	**14%**	**14%**
9-10AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	**8%**	0%	**8%**	**14%**	**14%**	**14%**	**14%**
10-11AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**14%**	**14%**	**14%**	**14%**
11AM-12PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**14%**	**14%**	**14%**	**14%**
12-1PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**14%**	**14%**	**14%**	**14%**
1-2PM	0%	0%	0%	**10%**	0%	0%	0%	**10%**	0%	0%	0%	0%	**14%**	**14%**	**14%**	**14%**
2-3PM	0%	**10%**	0%	**80%**	0%	**10%**	0%	**80%**	0%	0%	0%	0%	**14%**	**14%**	**1%**	**14%**
3-4PM	0%	**80%**	0%	**10%**	0%	**80%**	0%	**10%**	0%	0%	0%	0%	**1%**	**14%**	0%	**1%**
4-5PM	0%	**10%**	0%	0%	0%	**10%**	0%	0%	0%	0%	0%	0%	0%	**1%**	0%	0%
5-6PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6-7PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7-8PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8-9PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

	Temporal Distributions															
Hour of Day	Workers IN: A	Workers OUT: B	Workers IN: A	Workers OUT: B	Support Vehicles IN: A	Support Vehicles OUT: A	Support Vehicles IN: A	Support Vehicles OUT: B	Trucks Start of Day IN: A	Trucks Start of Day OUT: A	Trucks Start of Day IN: B	Trucks Start of Day OUT: B	Trucks During Day IN: A	Trucks During Day OUT: A	Trucks During Day IN: B	Trucks During Day OUT: B
9-10PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10-11PM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11PM-12AM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3.20.4.1.1.9 Transit and Pedestrians

With 299 construction workers during the peak construction month and a transit modal split of 80 percent, approximately 239 of the 299 construction workers would arrive and leave daily by transit (bus and subway) modes. During the 6:00-7:00 AM peak hour, approximately 139 workers would arrive and leave by transit modes, generating 139 pedestrian trips. During the 2:00-3:00 PM peak hour, approximately 76 workers would arrive and leave by transit modes, generating 76 pedestrian trips (see **Table 3.20-6**). The projected increase in AM and PM peak hour transit trips (139 and 76 trips, respectively) does not exceed the *CEQR Technical Manual* thresholds of 200 transit trips per hour for detailed analyses; therefore, no further transit analysis during construction is required.

In addition to the person trips generated by the transit modes, there would be additional pedestrian trips generated by construction workers who drive and park in the surrounding neighborhood and then walk to/from the Project Area during the AM and PM peak hours. An estimated 35 pedestrian rips would be generated by construction workers during the 6:00-7:00 AM peak hour, and an estimated 19 pedestrian trips would be generated by construction workers during the 2:00-3:00 PM peak hour (see **Table 3.20-6**).

Transit and construction worker person trips combined would result in 174 pedestrian trips generated during the 6:00-7:00 AM peak hour and 95 pedestrian trips during the 2:00-3:00 PM peak hour (see **Table 3.20-6**). Therefore, the *CEQR Technical Manual* threshold of 200 pedestrian trips per hour would not be exceeded. As such, no further pedestrian analysis during construction is required.

Table 3.20-6 Estimated Pedestrian Trips

Mode	AM	PM
Transit Trips	139	76
Drive-Park-Walk Trips	35	19
Total Pedestrian Trips	174	95

3.20.4.1.1.10 Parking

On-site parking construction would be limited to 71 spaces and would be reserved for support vehicles only. Therefore, it is expected that all of the 49 daily construction worker vehicles during the peak construction month would utilize available on-street and off-street parking in the surrounding neighborhood and walk to and from the Project Site. Construction workers who drive and park would arrive between 5:00 AM and 8:00 AM and leave between 2:00 PM and 5:00 PM, depending on their shift start and end times.

To identify the availability of on-street and off-street parking in the area for construction workers, a parking survey encompassing the approximate one-mile radius area from the Project Site was conducted. The survey was conducted on one weekday in June 2023, before the summer embargo took effect, from 5:00 AM to 7:00 PM. The summer embargo includes the summer months when schools are closed, and data collection is not allowed due to atypical traffic and travel conditions.

The on-street survey involved documenting parking regulations along all blockfaces in the study area (from which the legal parking capacity, by hour, was estimated) and conducting observations of curbside parking utilization/occupancy for all blockfaces in the study area twice during each hour from 5:00 AM to 7:00 PM. The hourly utilization (both legal and illegal parking) was obtained from the on-street survey and observations. This allowed for the estimation of the on-street parking capacity and the parking utilization in the study area and the number of “available” spaces during each hour.

The off-street parking survey was also conducted between 5:00 AM and 7:00 PM on one weekday. This survey involved documenting the posted capacities of the parking facilities and counting the number of vehicles parked at the facility twice during each hour. Five public off-street parking facilities were identified in the one-mile study area; however, surveyors were denied access to four of them. As such, data was collected only for one off-street parking facility, the *IC Parking* facility located at 2nd Avenue/36th Street, which is adjacent to the Project Site.

Table 3.20-7 and **Table 3.20-8** show the hourly capacities and occupancy/utilization for the on-street and off-street parking surveys, respectively. As shown, there is sufficient on-street as well as off-street parking available during the AM peak arrival hours (5:00 AM to 8:00 AM) for the estimated 49 construction workers to park. Therefore, a parking shortfall during construction would not expected to occur, so no further parking analysis during construction is required.

Table 3.20-7 Existing (2023) Hourly On-Street Parking Capacity and Utilization

Time	Capacity	Utilization	% Utilization	Available Spaces
5:00-6:00 AM	10,252	9,210	90%	1,042
6:00-7:00 AM	10,230	9,166	90%	1,064
7:00-8:00 AM	9,667	9,341	97%	326
8:00-9:00 AM	9,368	9,477	101%	-109
9:00-10:00 AM	9,049	9,549	106%	-500
10:00-11:00 AM	9,227	9,755	106%	-528
11:00-12:00 NOON	9,556	10,249	107%	-693
12:00-1:00 PM	9,429	10,298	109%	-869
1:00-2:00 PM	9,665	10,414	108%	-749
2:00-3:00 PM	9,665	10,436	108%	-771
3:00-4:00 PM	9,666	10,354	107%	-688
4:00-5:00 PM	9,904	10,386	105%	-482
5:00-6:00 PM	9,933	10,225	103%	-292
6:00-7:00 PM	10,152	9,993	98%	159

Table 3.20-8 Existing (2023) Hourly Off-Street Parking Capacity and Utilization

Time	Capacity	Utilization	% Utilization	Available Spaces
5:00-6:00 AM	420	21	5%	399
6:00-7:00 AM	420	23	5%	397
7:00-8:00 AM	420	40	10%	380
8:00-9:00 AM	420	59	14%	361
9:00-10:00 AM	420	138	33%	282
10:00-11:00 AM	420	238	57%	182
11:00-12:00 NOON	420	302	72%	118
12:00-1:00 PM	420	347	83%	73
1:00-2:00 PM	420	340	81%	80
2:00-3:00 PM	420	331	79%	89
3:00-4:00 PM	420	322	77%	98
4:00-5:00 PM	420	288	69%	132
5:00-6:00 PM	420	183	44%	237
6:00-7:00 PM	420	141	34%	279

3.20.4.1.1.11 Monitoring and Management

The Proposed Project would identify a person responsible for managing and monitoring construction traffic and transportation control measures to ensure that traffic movements align with the assumptions and conclusions in this traffic assessment.

3.20.4.1.1.12 Level 1 Screening Assessment Summary and Conclusion

Based on the Level 1 screening assessment described above, it was determined that the traffic volume threshold of 50 vehicles per hour would *be exceeded* during the AM peak arrival and PM peak departure hours during construction. As shown in **Table 3.20-4** the highest number of vehicle trips (in pces) would be 92 trips during the AM peak hour and 69 trips during the PM peak hour, both of which exceed the 50 vph threshold.

Therefore, in accordance with the *CEQR Technical Manual*, this screening assessment concludes that during construction of the Proposed Project:

- A Level 2 screening is needed;
- The thresholds for transit analyses (200 trips per hour) and pedestrian analyses (200 trips per hour) are not expected to be met; therefore, no transit or pedestrian analysis is required; and
- A parking shortfall is not expected to occur for on-street and off-street parking facilities; therefore, no impacts to the City's on-street parking spaces would occur and a detailed parking assessment is not required.

3.20.4.1.2 Level 2 Screening Assessment

Since the Level 1 screening assessment thresholds for projected vehicular trips would be exceeded, a Level 2 screening assessment was performed for traffic only. The Level 2 screening assessment included conducting trip distribution and trip assignment analyses. The result of the trip distribution and traffic assignment analyses provides the estimated number of vehicular trips that are projected to traverse intersections in the vicinity of the Project Site, which allows for the determination if there are any intersections where 50 or more vehicular trips are expected to occur during any peak hour. If fewer than 50 vehicle trips are projected to occur at all intersections during both the AM and PM peak hours, then no further detailed traffic analyses generally are required.

3.20.4.1.2.1 Trip Distribution

Trip distribution refers to the estimated origins and destinations in terms of region-wide geographic areas of construction-generated peak hour vehicle trips. These vehicular trips include all types of vehicles (construction workers, support vehicles, and trucks), and both arriving and departing trips during the AM and PM peak hours. The estimated origins and destinations of construction-generated traffic was obtained from the *US Census Bureau, American Community Survey 2012-2016 Five Year Estimates*, as shown in **Table 3.20-9**.

Table 3.20-9 Estimated Trip Distribution

Origin/Destination	% of Trips
To/From New Jersey and Pennsylvania	5%
To/From Connecticut/Upstate New York	1%
To/From Staten Island	6%
To/From Queens/East Brooklyn/Long Island	18%
To/From Manhattan/Bronx	6%
To/From Brooklyn	64%
Total	100%

3.20.4.1.2.2 Trip Assignment

Trip assignment refers to "assigning" the AM and PM peak hour vehicle trips to the roadways and intersections that are expected to be utilized by construction-generated vehicles to arrive at and depart from the Project Site from their respective origins to their respective destinations. Roadways included both interstate/expressways like the Gowanus Expressway for trips to/from New Jersey/Pennsylvania and arterial roadways and local streets such as 3rd Avenue, 4th Avenue, and 39th Street for local trips.

Vehicle trips for support vehicles, trucks and construction workers were assigned separately, and then combined. **Figure 3.20-2**, **Figure 3.20-3**, and **Figure 3.20-4** show the estimated traffic assignment routes to and from the Project Area for support vehicles, trucks, and construction workers, respectively.

3.20.4.1.2.2.1 Support Vehicles

Support vehicles were assigned directly to and from the Project Area as these vehicles would be parking on-site. These are the only vehicles that would be allowed to park on-site given the low availability of parking spaces during construction. They were assigned 60 percent to the 1st Avenue/39th Street gate and 40 percent to the 2nd Avenue/29th Street gate.

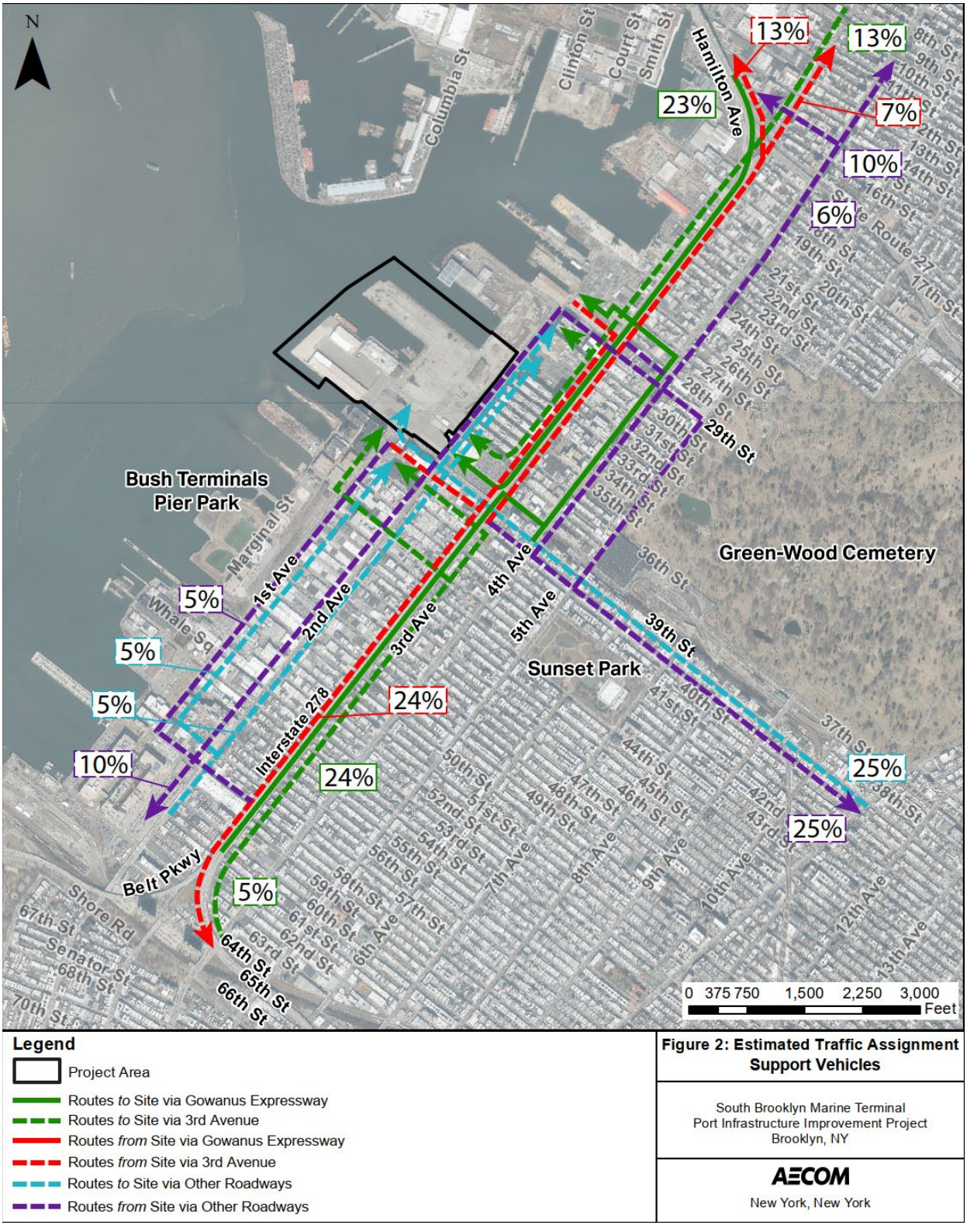
3.20.4.1.2.2.2 Trucks

Trucks were also assigned to and from the Project Area but only along designated "through" and "local" truck routes. The Gowanus Expressway is classified as a "through" truck route. 1st Avenue, 3rd Avenue, 4th Avenue, and 39th Street are "local" truck routes. Trucks were also assigned 60 percent to the 1st/39th Street gate and 40 percent to the 2nd Avenue/29th Street gate.

3.20.4.1.2.2.3 Construction Workers

Construction worker vehicles were not assigned to the Project Area as they would not be allowed to park there. Instead, they were assigned to the periphery of an approximately one-mile radius Study Area from the Project Area where they would seek on-street or off-street parking in the surrounding neighborhood and walk to/from the Project Area. As such, construction worker trips would begin and end around the periphery of the one-mile radius Study Area used in the parking study. As was shown in **Table 3.20-7** and **Table 3.20-8**, there would be sufficient available parking (both on-street and off-street) during the hours when construction workers would be expected to arrive and park in the surrounding neighborhood, generally from 5:00 AM to 8:00 AM.

Figure 3.20-2 Estimated Traffic Assignment for Support Vehicles



Legend

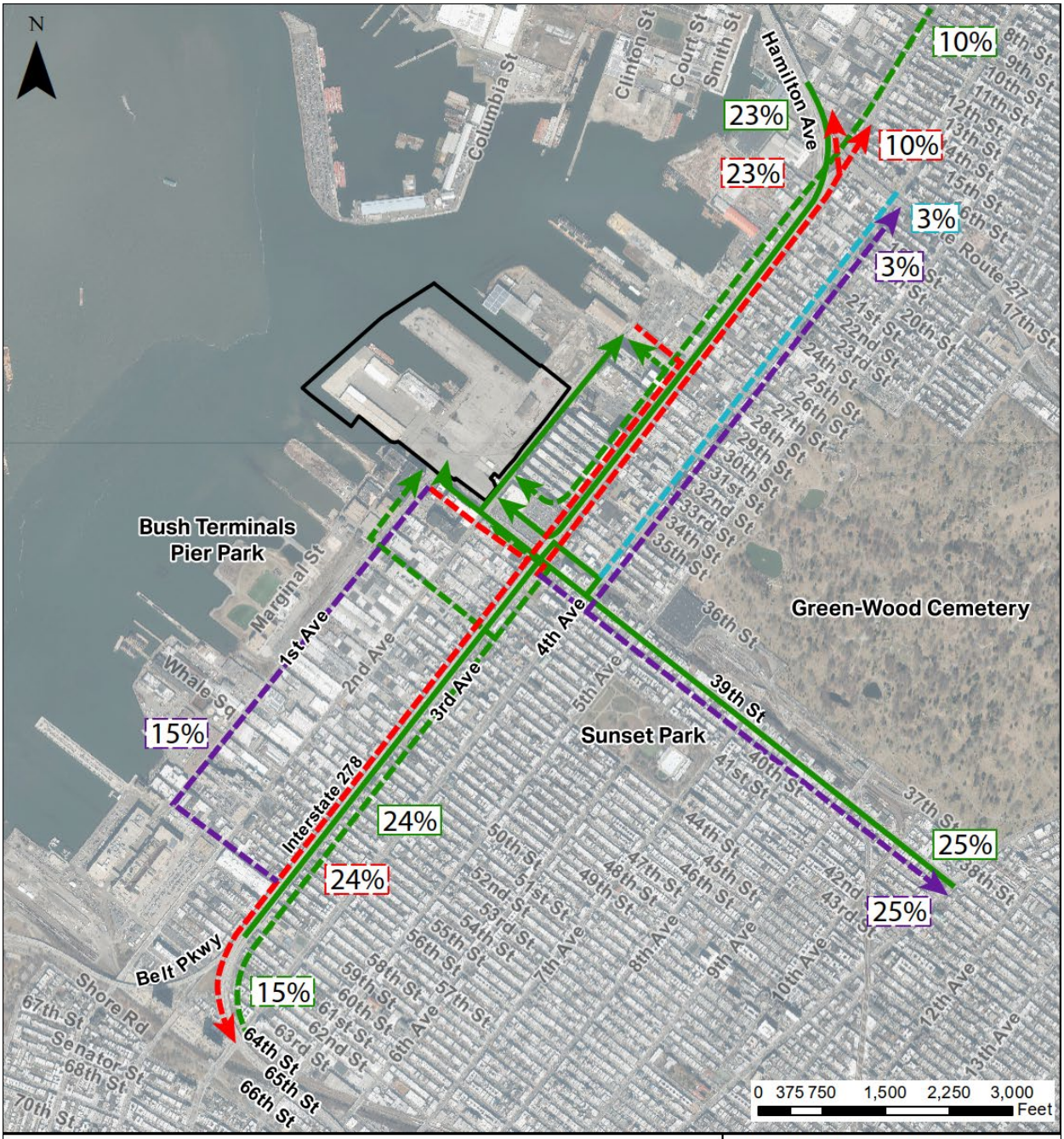
- Project Area
- Routes *to* Site via Gowanus Expressway
- Routes *to* Site via 3rd Avenue
- Routes *from* Site via Gowanus Expressway
- Routes *from* Site via 3rd Avenue
- Routes *to* Site via Other Roadways
- Routes *from* Site via Other Roadways

Figure 2: Estimated Traffic Assignment Support Vehicles

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

AECOM
New York, New York

Figure 3.20-3 Estimated Traffic Assignment for Trucks



Legend

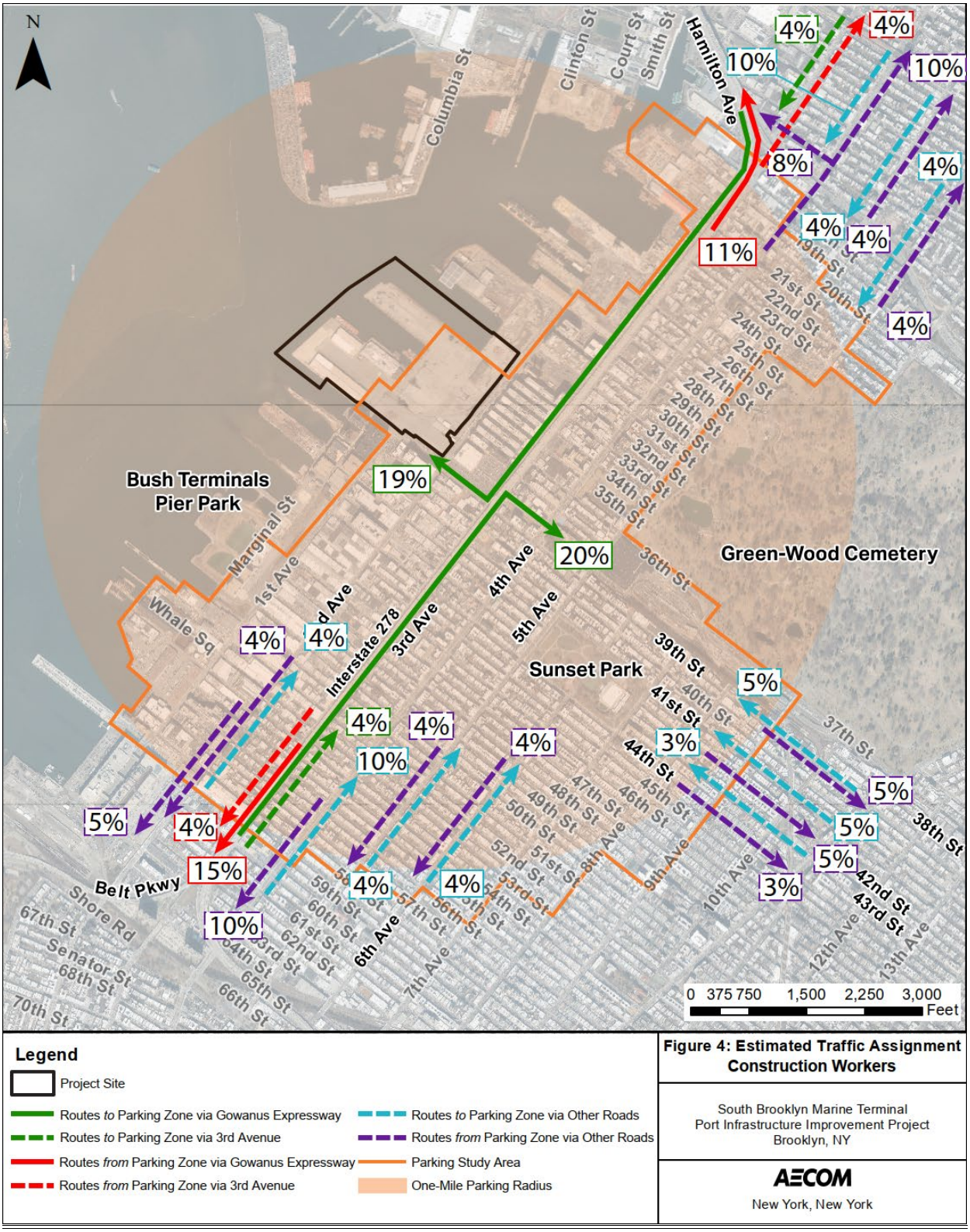
- Project Area
- Routes *to* Site via Gowanus Expressway
- Routes *to* Site via 3rd Avenue
- Routes *from* Site via Gowanus Expressway
- Routes *from* Site via 3rd Avenue
- Routes *to* Site via Other Roadways
- Routes *from* Site via Other Roadways

Figure 3: Estimated Traffic Assignment Trucks

South Brooklyn Marine Terminal
Port Infrastructure Improvement Project
Brooklyn, NY

AECOM
New York, New York

Figure 3.20-4 Estimated Traffic Assignment for Construction Workers



3.20.4.1.2.3 Peak Hour Intersection Incremental Volumes

Table 3.20-10 shows the resulting incremental traffic volumes at intersections in the vicinity of the Project Site, during the AM and PM peak hours. As shown, no intersection is projected to experience 50 or more vehicle trips in any peak hour, and in accordance with the *CEQR Technical Manual*, traffic screened out at Level 2. Therefore, no further detailed traffic analyses are required.

Table 3.20-10 Peak Hour Incremental Traffic Volumes

Intersection No.	Intersection	Approach	Incremental Volumes: AM Peak Hour	Incremental Volumes: PM Peak Hour
1	1st Avenue/39th Street	NB	1	0
		SB	12	27
		EB	0	0
		WB	29	5
		Total Intersection	42	32
2	2nd Avenue/39th Street	EB	10	24
		NB	1	0
		SB	2	0
		WB	36	9
		Total Intersection	49	33
3	3rd Avenue/39th Street	NB	3	1
		SB	5	3
		EB	12	23
		WB	20	4
		Total Intersection	40	31
4	4th Avenue/39th Street	NB	0	0
		SB	9	2
		EB	5	6
		WB	11	2
		Total Intersection	25	10
5	4th Avenue/38th Street	NB	4	0
		SB	1	0
		EB	10	2
		WB	0	0
		Total Intersection	15	2
6	3rd Avenue/29th Street	NB	4	0
		SB	7	1
		EB	6	17
		WB	0	0
		Total Intersection	17	18
7	2nd Avenue/29th Street	NB	13	3
		SB	2	1
		EB	6	17
		WB	4	0

Intersection No.	Intersection	Approach	Incremental Volumes: AM Peak Hour	Incremental Volumes: PM Peak Hour
		Total Intersection	25	21
8	8th Avenue/39th Street	NB	0	0
		SB	0	0
		EB	0	6
		WB	12	3
		Total Intersection	12	9
9	3rd Avenue/19th Street	NB	0	14
		SB	6	0
		EB	0	0
		WB	0	0
		Total Intersection	6	14
10	3rd Avenue/58th Street	NB	5	0
		SB	0	13
		EB	0	4
		WB	0	0
		Total Intersection	5	17

3.20.4.1.3 Summary and Conclusion

Based on the Level 1 and Level 2 screening assessments for construction of the Proposed Project, it was determined that the traffic volume threshold of 50 vehicles per hour would not be met or exceeded at any intersection during any given hour. Therefore, in accordance with the *CEQR Technical Manual*, the screening assessment concludes that no further transportation analyses are required for construction of the Proposed Project. **Accordingly, the Proposed Project would not result in any significant adverse impacts on transportation services in the area during construction.**

3.20.4.1.4 Indirect Effects and Cumulative Impacts

Construction of the Proposed Project, which would start in the first quarter of 2024 and end in the fourth quarter of 2026, is expected to overlap with construction of the EW 1 Project at/near SBMT between the second quarter of 2024 and first quarter of 2026. Vehicles associated with the Proposed Project's construction activities would use the 39th Street and 29th Street entrances to SBMT, and vehicles associated with the construction of the EW 1 Project would use the 29th Street entrance to SBMT.

Construction of the Proposed Project would start after the existing NYCDOT facility is relocated to the Red Hook Container Terminal. As such, Proposed Project construction generated traffic would not overlap with NYCDOT's facility-generated traffic.

Vehicular traffic, transit generated trips and pedestrian trips estimated to be generated during the peak construction month of the Proposed Project were all below the thresholds requiring further detailed analyses. In addition, the EW 1 Project would have a small number of construction workers and as a result the impact of construction vehicle traffic on land transportation and local traffic is anticipated to be minor. Accordingly, potential cumulative effects on transportation services in the area during construction of the Proposed Project would be minor.

The Proposed Project would not have indirect effects on transportation in the Study Area during construction, including inducing developments that could create additional vehicular traffic, transit generated trips and pedestrian trips. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional

developments and population growth in a highly-developed neighborhood that may introduce additional vehicular traffic, transit generated trips and pedestrian trips.

3.20.4.2 Air Quality

This section examines the potential for air quality impacts from construction activities associated with the Proposed Project. According to the *CEQR Technical Manual*, a quantitative assessment of air quality for construction activities is likely not warranted if the project's construction activities: (1) are considered short term, which for air quality assessments has generally been accepted as 24 months or less; (2) are not located near sensitive receptors; (3) do not involve the construction of multiple buildings where there is a potential for cumulative impacts from different buildings under simultaneous construction before the final build-out; and (4) would not operate multiple pieces of diesel equipment in a single location during peak construction. If a project does not meet one or more of the criteria above, a quantitative air quality assessment could be required.

Since construction of the Proposed Project would last 35 months (33 months of physical construction activity) and would involve the use of multiple pieces of diesel equipment, a quantitative air quality assessment was performed. The activities considered, the analysis methodologies, and results of this analysis are described below.

3.20.4.2.1 Construction Activities

Air pollutant emissions would be generated from equipment (such as excavators, loaders, cranes, commercial marine vessels, generators, loaders, impact drivers, and dump and concrete trucks) the material handling process, and surface and fugitive dust associated with the following construction operations:

- Site clearing, demolition, and excavation;
- Site fill, grading and foundation construction;
- Material transportation;
- Material such as soil transferring among various sites within the Project Area;
- Building and structure construction; and
- Dredging and bulkhead reinforcement and replacement.

3.20.4.2.2 Methodology

Emissions from on-site construction equipment and on-road construction-related vehicles, as well as dust generating construction activities, have the potential to affect air quality. The analysis of potential impacts of the construction activities includes a screening analysis of non-road sources and a quantitative analysis of on-site sources of air emissions.

3.20.4.2.2.1 Off-site Sources

The *CEQR Technical Manual* recommends a two-step approach – an air quality mobile source screening assessment followed by a detailed air quality mobile source concentration dispersion analysis, if necessary. An air quality mobile source screening assessment was conducted for CO and $PM_{2.5}$, in accordance with the *CEQR Technical Manual*, at major construction vehicle convergence points that would experience the highest volume of construction-generated traffic, to determine if the Proposed Project would exceed the *CEQR Technical Manual* screening thresholds.

The screening assessment was conducted at each of the signalized intersections along the main truck routes that are subject to the traffic screening analysis assessed in **Section 3.20.4.1.2** (Level 2 Screening Assessment). The construction-generated traffic volumes during peak traffic hours were compared to the applicable CEQR screening thresholds. These CEQR screening thresholds include:

- CO screening: 170 or more auto trips per hour as a result of the Proposed Project; and
- $PM_{2.5}$ screening: the number of equivalent heavy-duty diesel vehicle (HDDV) trips per hour applicable for various roadway types, including arterial and collector road types.

Based on the screening assessment, these peak hour construction worker, support vehicle, and truck trips combined are well below the CEQR screening thresholds of 170 or more auto trips per hour for CO; and HDDV equivalents

applicable for each roadway type are below the respective CEQR $PM_{2.5}$ screening threshold. Therefore, no further refined dispersion modeling analysis of potential construction period on-road mobile source impacts is warranted and there would be no singificant adverse off-site mobile source air quality impacts.

3.20.4.2.2.2 On-site Sources

The following on-site emission sources were considered in the analysis:

- Trucks and non-road equipment engine exhaust (including marine vessels); and
- Surface fugitive dust resulting from the movement of trucks on-site.

The on-site non-road equipment is primarily powered by diesel engines that would generate CO, NO_2 and PM. Fugitive dust generated by construction activities is also a source of PM. Therefore, the impact assessment on potential construction air quality impacts focuses on these two pollutant categories plus CO for which short-term impact standards have been established. Because these actual equipment activities would occur for 33 months (within the total 35-month construction schedule), the reasonable worst-case periods for the pollutants of concern (PM, CO, and NO_2) were determined throughout the duration of construction on a 'peak day' basis and a rolling 12-month annual basis. Emission profiles were generated over the construction duration to determine the construction periods with the highest potential to affect air quality.

Based on the resulting 12-month rolling annual,peak day, and peak hourly profiles, the worst-case short-term and annual periods for construction were identified for dispersion modeling of annual, 24-hour, 1-hour, and 8-hour average concentrations, respectively. These modeling periods include annual and 24-hour $PM_{2.5}$, 24-hour PM_{10}, one-hour and eight-hour CO, and annual NO_2 average conditions. Dispersion of the relevant air emissions over these averaging periods was modeled and is described in the following sections.

3.20.4.2.2.3 Engine Emissions

The sizes, types, and number of units of construction equipment were estimated based on the construction activity schedule depicted in detail in Appendix M. Emission factors for NO_x, CO, PM_{10}, and $PM_{2.5}$ from on-site construction engines were developed using the EPA's "Motor Vehicle Emission Simulator" emission model (Version MOVES2014b) associated with default Kings County model input parameters provided by the NYSDEC. The same model was also used to estimate on-site truck engine emission rates for NO_X, CO, PM_{10}, and $PM_{2.5}$. Marine vessel emissions were based on commercial marine vessel emission factors provided in USEPA's "Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions" document, published in September 2020.[18] Since project-specific engine tiers for the marine vessels were not available at the time of the analysis, the emission factors assumed the use of Tier 2 engines to be conservative.

3.20.4.2.2.4 Fugitive Dust

Fugitive dust emissions from construction truck travel on-site were calculated based on EPA procedures provided in AP-42 Sections 13.2.1. In order to minimize potential adverse air quality impacts from construction activities, measures would be implemented as practicable to reduce pollutant emissions in compliance with applicable regulations. These regulations, which are designed to minimize potential emissions, ensure compliance with the New York City Air Pollution Control Code regulating construction-related dust emissions. Pursuant to New York City Local Law 77, all construction equipment will use ultra-low sulfur diesel (ULSD) fuel and Best Available Technology (BAT) such as requiring all combustion equipment to be equipped with Tier 4 engines as applicable to minimize potential effects of construction on air quality. Dust suppression measures also will be implemented, such as: trucks and tugs hauling loose material will have loads securely covered prior to leaving the Project Area to minimize airborne dust; and water spray will be used for demolition, excavation and transfer of soil and debris to avoid the suspension of dust into the air. The planned control of fugitive emissions during construction would result in reduction of PM emissions by 50 percent or greater. It should be noted that a Community Air Monitoring Plan (CAMP) will also be implemented during subsurface work as part of the NYSDEC Brownfield Clean-up Program (BCP) to monitor dust emissions. Under the CAMP, PM concentrations at the construction site would be monitored in real time at both downwind and upwind locations with an automated alert

[18] USEPA, 2020. Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions. EPA-420-B-20-046. September 2020. https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10102U0.pdf

system. If the monitored level over a 24-hour time weighted average period exceeds the pre-set Action Level, mitigation techniques would be implemented to ensure no violations of the ambient standards would occur.

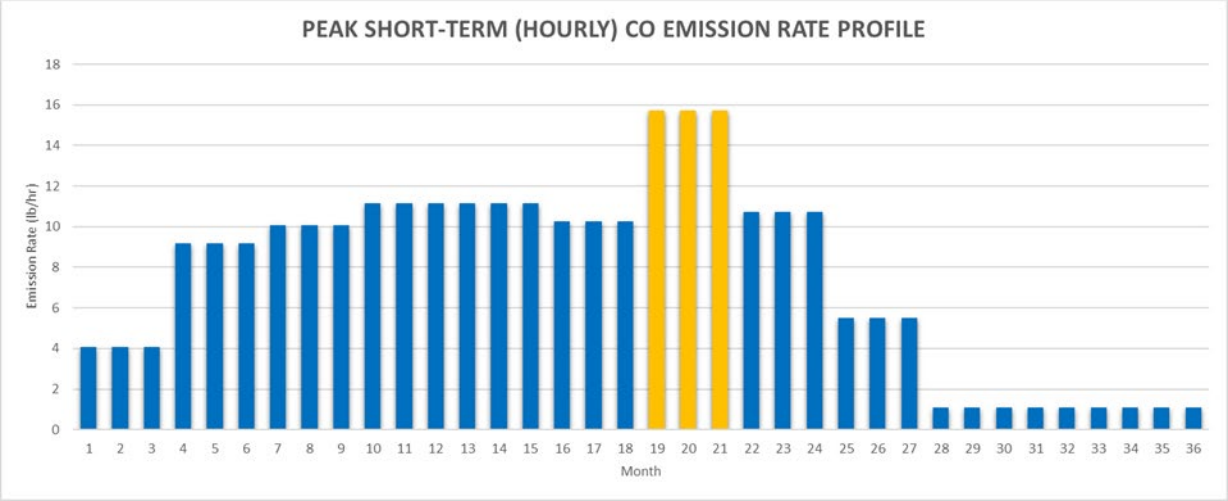
3.20.4.2.2.5 Analysis Periods

In order to use reasonably conservative emission rates as the inputs for further dispersion modeling, the emission rate profiles over the entire construction period were developed. The emission factors from each equipment type estimated from MOVES as described above were multiplied with each piece of equipment's operating hours, size in horsepower, and power usage load factor according to the scheduled construction activity data to determine short-term and long-term average emission rates for CO, PM_{10} and $PM_{2.5}$. Short-term profiles for CO, PM_{10} and $PM_{2.5}$ are depicted in **Figure 3.20-5**, **Figure 3.20-6**, and **Figure 3.20-7**, respectively. The worst-case short-term scenario (i.e., highest emission rate) for CO, PM_{10} and $PM_{2.5}$ occurs during Quarter 3 2025 (highlighted in orange on the below figures).

Average annual NOx and $PM_{2.5}$ engine emission profiles were developed by multiplying the emission factors for each piece of equipment, horsepower, load factor and hours each equipment engine would be operating during each calendar year. Since the first and third calendar years of construction are only partial years, a rolling 12-month total of emissions was calculated to identify the worst-case 12-month period. As shown in **Figure 3.20-8** and **Figure 3.20-9**, the worst-case annual scenario is estimated to occur during 2025 for both NOx and $PM_{2.5}$. It should be noted that even with the rolling 12-month emissions for NOx as shown in **Figure 3.20-8**, the annual levels would be well below the general conformity rule *de minimis* threshold of 25 tons per year as discussed in the supplemental air quality analysis in Appendix P.

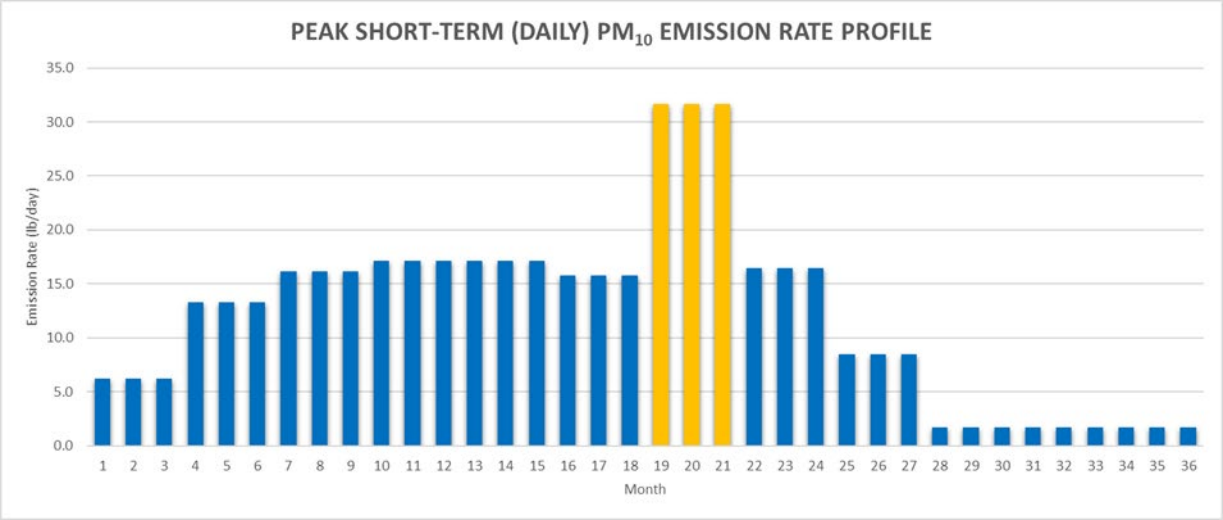
Note that different construction activities (sub-phases) occur during each month and each year of construction. Only those activities that occur during the peak month or quarters shown in the profiles in **Figure 3.20-5** through **Figure 3.20-9** were modeled for comparison to appropriate air quality standards. Other months or quarters would result in lower levels as compared to the worst-case months or quarters considered in the modeling.

Figure 3.20-5 CO Short-Term (1 and 8-hour) Emission Rate Profile



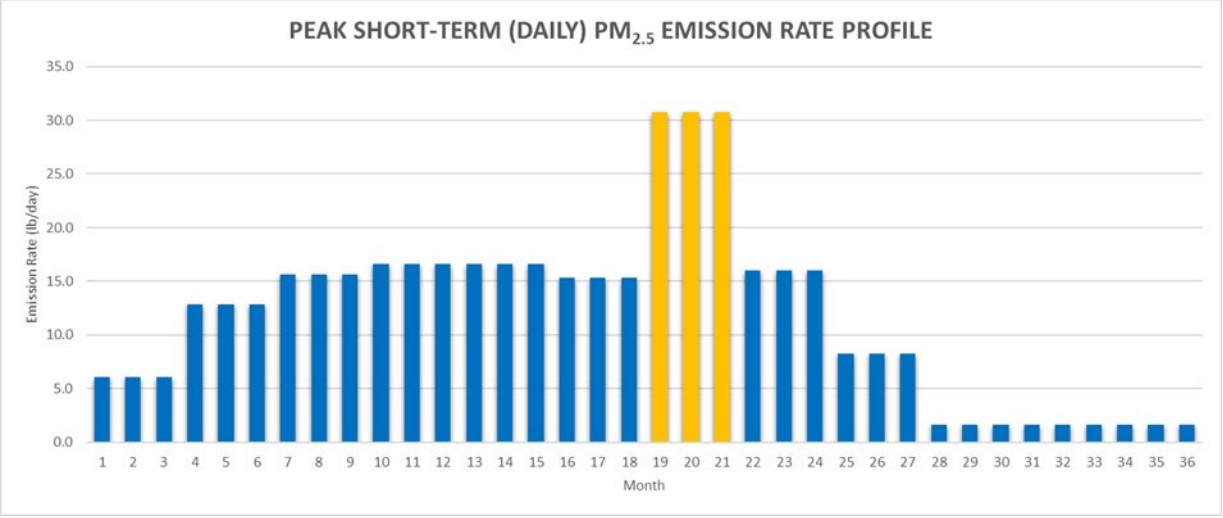
Source: AECOM, September 2023.

Figure 3.20-6 PM_{10} Short-Term (24-hour) Emission Rate Profile



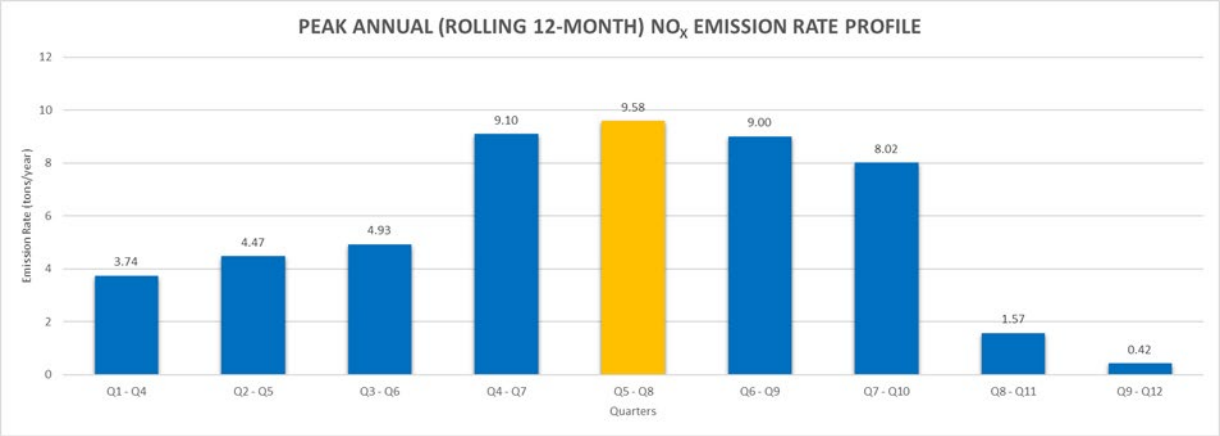
Source: AECOM, September 2023.

Figure 3.20-7 $PM_{2.5}$ Short-Term (24-hour) Emission Rate Profile



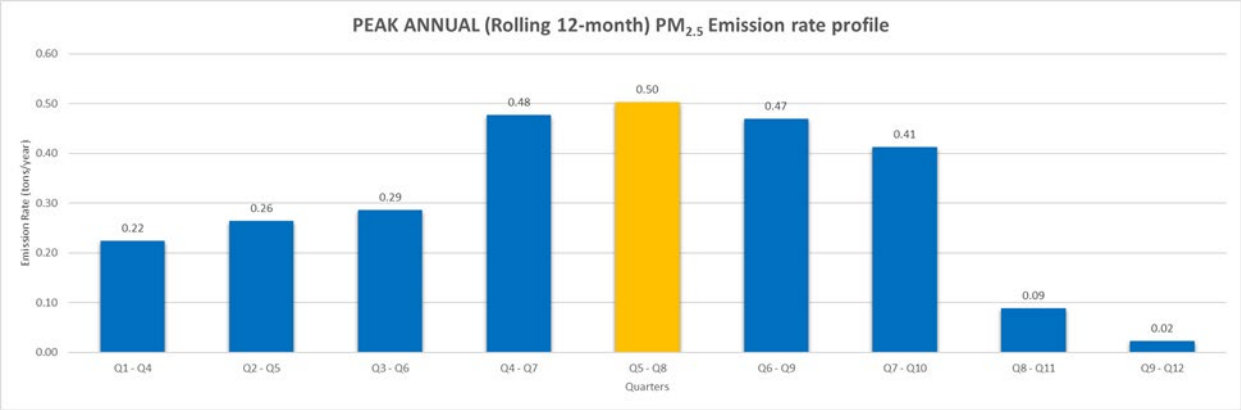
Source: AECOM, September 2023.

Figure 3.20-8 NO_x Annual Emission Rate Profile



Source: AECOM, September 2023.

Figure 3.20-9 $PM_{2.5}$ Annual Emission Rate Profile



Source: AECOM, September 2023.

3.20.4.2.2.6 Dispersion Modeling and Receptors

The refined dispersion model (EPA/AMS AERMOD) was used to predict the reasonable worst-case condition of PM, CO, and NO_2 concentrations during the construction period at the sensitive receptors (e.g., residential, commercial, and mixed-use buildings) located within a 1,000-foot radius impact area of the construction sites as depicted in **Figure 3.20-10**. The *CEQR Technical Manual* defines the study area based on whether there are major stationary sources, such as solid waste or medical waste incinerators, cogeneration facilities, asphalt and concrete plants, or power generating plants, within the potential impact area. Typically, when there are no such major stationary sources in or immediately surrounding the Project Site, the analysis would assess impacts within 400 feet of the Study Area. However, impacts at receptors within 1,000 feet of the Study Area were evaluated for this analysis due to the large size of the Project Area and the potential for areas beyond 400 feet to be impacted from multiple phases of construction and construction equipment operating at the same time. Discrete receptors were placed at residential unit windows of each floor of the residential buildings within the Study Area. The maximum number of residential building floors located within the 1,000 feet study area was three. Therefore, receptor heights (i.e., flagpole height) used in the model include ground level or 0 feet, 12 feet, and 24 feet. Additionally, flagpole receptors were placed and modelled at commercial and institutional buildings within the Study Area. These specific sensitive receptors and modeled construction sites are depicted in **Figure 3.20-10**.

The dispersion of pollutants during the worst-case short-term and annual periods was then modeled to predict resulting maximum concentration increments from construction activities and total concentrations (including background concentrations) in the surrounding area. Overall, the modeled peak construction periods are considered representative of worst-case construction activities associated with the Proposed Project.

3.20.4.2.2.7 Source Modeling

For both short- and long-term model scenarios (predicting concentration averages for periods of 24 hours or less, or annual), all non-road equipment were simulated as ground level area sources since all sources would move around from time to time within their designated construction area. The emissions were assigned to their respective construction sub-phase areas in the model for the worst-case short-term modeling of CO, PM_{10} and $PM_{2.5}$, operating during those relevant construction phases identified from **Figure 3.20-5** to **Figure 3.20-7**. Based on the worst-case emission profile for the short-term averaging periods of these pollutants, construction activity would be associated with bulkhead improvements, dredging (sub phases 9 to 11), marine improvements, land improvements, as well as the construction of the O&M base. Since AERMOD is a land source model, in-water dredging emissions were conservatively placed over the closest land area versus modeling over open water.

The worst-case annual NOx and $PM_{2.5}$ identified in **Figure 3.20-8** and **Figure 3.20-9** would result from construction activity associated with demolition, pavement improvements, bulkhead improvements, marine improvements, land improvements, dredging, and the construction of the O&M base.

Figure 3.20-10 Potential Affected Sensitive Receptors within the Study Area

3.20.4.2.2.8 Impact Determination

The highest predicted concentrations are compared with the NAAQS as summarized in **Table 3.20-11** and the *de minimis* thresholds for $PM_{2.5}$ established in the *CEQR Technical Manual* as shown below. *De minimis* threshold levels have been defined for certain pollutants per the *CEQR Technical Manual*, as a means to maintain ambient concentrations below the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in nonattainment areas:

- Predicted increase of more than half the difference between the background concentration and the 24-hour NAAQS; and
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Based on the background levels monitored at the stations that are closest to the Project Area as shown in **Table 3.20-12**, the 24-hour $PM_{2.5}$ *de minimis* criterion was calculated to be 9.95 $\mu g/m^3$.

If the worst-case results show exceedances, the next level of annual and/or short-term period activities should be considered in the modelling to determine the duration of potential impacts. This incremental 'stepping' process would be carried out, if exceedances of either NAAQS and/or CEQR *de minimis* levels are predicted, until the broader conclusions can be reached regarding potential pollutant concentration impacts over other periods of construction. In other words, if exceedances are predicted for the worst-case time periods, the time period with the second-highest level of activities is compared with the worst-case condition to determine the duration of potential impacts within the overall construction schedule. It should be noted that, given the construction duration for the Proposed Project is less than three years, several NAAQS based on three-year average conditions do not apply as indicated in **Table 3.20-11**.

Table 3.20-11 National Ambient Air Quality Standards and Applicability

Pollutant	Averaging Time	Level	Form	Applicable to Proposed Temporary Construction
CO	8-hour	9 ppm	Not to be exceeded more than once per year	Yes
CO	1-hour	35 ppm	Not to be exceeded more than once per year	Yes
NO_2	1-hour	100 ppb	98th percentile, averaged over 3 years	No
NO_2	Annual	53 ppb	Annual mean	Yes
$PM_{2.5}$	Annual	12 µg/m^3	Annual mean, averaged over 3 years	No
$PM_{2.5}$	24-hour	35 µg/m^3	98th percentile, averaged over 3 years	No
PM_{10}	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years	Yes

Source: see **Table 3.15-1** in **Section 3.15** (Air Quality).

3.20.4.2.3 Modeling Results

Maximum predicted concentration increments from construction, and maximum overall concentrations including background concentrations, are presented in **Table 3.20-12** for the construction peak periods analyzed. For the $PM_{2.5}$ *de minimis* criteria, monitored background concentrations are not added to modeled concentrations from sources, since impacts are determined by comparing the predicted increment from construction activities to the CEQR *de minimis* criteria.

All maximum predicted concentrations would occur at the residential or commercial units on the lowest floor at the sensitive receptors shown in **Figure 3.20-10**. Based on the dispersion modeling results presented in **Table 3.20-12**, the maximum predicted 24-hour average $PM_{2.5}$ incremental concentration would be below the CEQR *de minimis* criterion. As a result, no exceedances of the CEQR annual $PM_{2.5}$ *de minimis* criterion were predicted to occur during the worst-case 12-month construction period, and all modeled concentrations plus background are below respective NAAQS.

Table 3.20-12 Maximum Predicted Pollutant Concentrations under Worst-case Periods

Pollutant	Averaging Period	Background	Maximum Modeled Increment	Total Concentration	*de minimis* Criteria	NAAQS	Exceed *de minimis* Criteria or NAAQS
$PM_{2.5}$	24-hour[1]	—	2.02 µg/m^3	--	9.95 µg/m^3 [2]	—	No
$PM_{2.5}$	Annual (12-month) Local[1]	—	0.03 µg/m^3	--	0.3 µg/m^3	—	No
$PM_{2.5}$	24-hour[3]	15.1 µg/m^3	2.02 µg/m^3	17.12 µg/m^3	—	35 µg/m^3	No
$PM_{2.5}$	Annual[3]	5.9 µg/m^3	0.03 µg/m^3	5.93 µg/m^3	—	12 µg/m^3	No
PM_{10}	24-hour	29.3 µg/m^3	4.46 µg/m^3	33.76 µg/m^3	—	150 µg/m^3	No
NO_2	Annual[4]	29.6 µg/m^3	0.65 µg/m^3	30.29 µg/m^3	—	100 µg/m^3	No
CO	One-hour	1.7 ppm	0.37 ppm	2.07 ppm	—	35 ppm	No
CO	Eight-hour	1.2 ppm	0.05 ppm	1.25 ppm	—	9 ppm	No

Notes:

$PM_{2.5}$ concentration increments were compared with the applicable *de minimis* criteria. Total concentrations were compared with the NAAQS.

[1] Monitored concentration is not added to modeled $PM_{2.5}$ value.

[2] $PM_{2.5}$ *de minimis* criteria — 24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.
[3] $PM_{2.5}$ comparison with NAAQS including the background concentration.
[4] Conversion from ppb to $\mu g/m^3$ for NO_2 where, $\mu g/m^3$ = (ppb)*(12.187)*(46.0055)/(273.15+25).

This air quality assessment was conducted for the Proposed Project's construction period during which the most intensive air emissions from all sources would occur. The assessment, conducted via dispersion modeling, not only estimated the contributions of the Proposed Project to ambient pollutant concentrations in the neighborhood, but it also included the monitored ambient concentrations recorded at the closest monitoring station (see **Table 3.20-12**). These monitored ambient conditions reflect background stationary and mobile sources such as off-site traffic along local roadways and highways. Therefore, the contributions from off-site sources were accounted for in the modeling in an aggregated way. The results from the analysis of the most intensive use of emission sources during the construction period plus the ambient monitoring results from other sources show no violation of the NAAQS. It is anticipated that during other operational periods, when emissions are lower, there would be fewer impacts as compared to the phases modeled (which showed no violation of the NAAQS). Therefore, potential air quality impacts during the Proposed Project's construction and operational periods would be minor and further aggregated analysis is not necessary.

3.20.4.2.4 Indirect Effects and Cumulative Impacts

An analysis was conducted to determine the potential emissions generated by project-related construction activity including combustion engines and fugitive dusts on both short-term and an annual basis for the pollutants CO, PM_{10}, $PM_{2.5}$, and NO_2. The potential concentrations from these pollutants at sensitive receptors within a 1,000-foot radius around SBMT were further modeled using AERMOD. Maximum predicted concentration increments from construction and maximum overall concentrations including background concentrations show no exceedances of the respective NAAQS and applicable CEQR *de minimis* criteria for the Proposed Project (see **Table 3.20-12**). Therefore, the Proposed Project would have no significant adverse air quality impacts during construction.

With respect to potential cumulative air quality impacts during construction of the Proposed Project and the Future without Project condition, the potential overlap for construction would exist in the northern section of the Project Site and the southernmost boundary of the EW 1 Project area from February 2024 to the end of December 2026. The equipment to be used for EW 1 Project would be comparable to the Proposed Project. Given the separation of these two projects in location and the predicted maximum concentrations under the Proposed Project condition that are well below the NAAQS and applicable CEQR *de minimis* criteria, the cumulative impacts during construction from the Proposed Project and Future without Project Condition projects related to air quality of concurrent construction at local sensitive receptors would be minor.

The Proposed Project would not have indirect effects on air quality in the Study Area during construction, including inducing developments that could create additional vehicular traffic. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood that may introduce additional vehicular traffic.

3.20.4.3 Noise and Vibration

This section examines the potential for noise impacts from the construction activities to upgrade the current SBMT to enable it to serve as a staging facility and an O&M base for the OSW industry. In accordance with the *CEQR Technical Manual*, a noise assessment was conducted to assess the potential for significant adverse impacts during construction activities. The noise assessment includes a monitoring program to document baseline noise levels at the closest noise-sensitive receptors and a modeling analysis to predict noise levels from the Proposed Project construction activities. The affected noise environment and operational noise impacts are addressed in **Section 3.17** (Noise).

Effects on community noise levels during construction include operation of construction equipment within the Study Area. Noise levels at a given location are dependent on the type and quantity of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and shielding effects (from structures such as buildings, walls, or barriers). Noise

levels caused by construction activities would vary widely, depending on the stage of construction (i.e., dredging) and the location of the construction activities relative to noise-sensitive receptor locations.

The noise assessment included a screening assessment to identify noise-sensitive receptors, a monitoring program to document baseline noise levels at the closest receptors and a detailed modeling analysis to evaluate the potential for noise impacts during construction of the Proposed Project. Effects of construction and delivery vehicles and/or vessels traveling to and from the site were also evaluated based on the level of commuter and truck traffic levels.

3.20.4.3.1 Noise Fundamentals and Regulatory Context

3.20.4.3.1.1 Noise Fundamentals

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel (dB) measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level (dBA), and it is the descriptor of noise levels most often used for community noise assessments. As shown in **Table 3.20-13**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library or rural area at night) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office at 50 dBA is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, a change in noise level would be readily noticeable.

Table 3.20-13 Noise Levels of Common Sources

Sound Source	SPL (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	70
Typical Suburban Area	60
Quiet Suburban Area at Night	50
Typical Rural Area at Night	40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Source: *CEQR Technical Manual*, Chapter 19, Noise, Table 19-1.

3.20.4.3.1.2 Regulatory Context

Projects constructed in New York City are subject to the following noise regulations:

- New York City *Noise Control Code* or Local Law No. 113 of 2005; and
- Rules of New York City, Title 15: Department of Environmental Protection, Chapter 28 *Citywide Construction Noise Mitigation.*

During construction, according to Chapter 22 of the *CEQR Technical Manual*, a quantitative assessment of noise impacts from construction activities is likely not warranted if the project's construction activities:

- are considered short term with the duration expected to last less than 24 months;
- are not located near sensitive receptors; and
- do not involve the construction of multiple buildings where there is a potential for cumulative impacts from different buildings under simultaneous construction before the final build-out.

If a project meets one or more of the criteria above or if one of the above criteria is unknown at the time of review, a noise assessment may be required with further consideration of various factors. Additional factors for consideration include the types of construction equipment, the nature and extent of any commitment to use best management practices for construction equipment, the physical relationship of the project site to nearby sensitive receptors, the type of construction activity, and the duration of any heavy construction activity.

The Proposed Project is scheduled to take place during a time span of 35 months for all stages of demolition and construction with the anticipated equipment operating for 33 months. Additionally, many major tasks such as land improvement, pavement demolition, and certain in-water dredging would occur in proximity to sensitive receptors. Therefore, a quantitative construction noise assessment was conducted in accordance with *CEQR Technical Manual* Chapters 19 (Noise) and 22 (Construction). In accordance with *CEQR*, an average hourly noise level ($L_{eq(1)}$) threshold of 65 dBA was applied to all noise-sensitive receptors. In accordance with *CEQR Technical Manual* Chapter 19, Section 410 "Impact Thresholds at Receptors", the operational noise threshold criteria of 3-5 dBA over the No-Project noise levels were applied. This allowable increase in noise is based on the future cumulative noise level of 65 dBA whereby:

- dBA increase – No-Project levels are less than or equal to 60 dBA;
- dBA increase – No-Project levels are equal to 61 dBA; and
- dBA increase – No-Project levels are greater than or equal to 62 dBA or during nighttime hours between 10 pm and 7 am.

Due to the temporary and transient nature of construction impacts, the affected area, the magnitudes, and the duration of the impacts would be also considered in the final determination of whether the noise impacts exceed the significant adverse impact criteria described above. In addition to the above noise impact criteria, the following additional incremental impact criteria were considered to determine the potential for significant adverse construction noise impacts:

- Increase of 15 dBA or more for a prolonged duration of 12 consecutive months or more; and
- Increase of 20 dBA or more for a prolonged duration of 3 consecutive months or more.

3.20.4.3.2 Methodology

3.20.4.3.2.1 Off-site Sources

The *CEQR Technical Manual* recommends a two-step approach – a mobile source noise screening assessment followed by a detailed mobile source noise analysis, if necessary.

In accordance with the *CEQR Technical Manual*, a mobile source noise screening assessment was conducted using the construction vehicle trip distribution data in terms of PCEs to determine if the Proposed Project would result in a doubling of noise PCEs and therefore would have the potential to increase existing (ambient) noise levels by 3 dBA or greater. The screening assessment was performed along the main routes for construction vehicles with noise-sensitive receptors and available existing condition traffic counts collected for the Proposed Project to determine the locations and the expected hour(s) at which the greatest change in traffic noise levels would occur due to the Proposed Project.

In accordance with the *CEQR Technical Manual*, the noise PCEs were calculated for the hours when construction vehicles would be traveling to/from the construction sites using the following scaling factors.

- Each automobile or light truck = 1 noise PCE
- Each medium truck = 13 noise PCEs
- Each bus = 18 noise PCEs
- Each heavy truck = 47 noise PCEs

Existing traffic PCEs used for the mobile noise screening assessment were calculated based on the ATR counts and classification survey data collected in February 2023 along the main routes for construction vehicles to and from the Project Site. Using a threshold for the proposed condition of a 100-percent increase (or doubling) in noise PCE values over existing conditions, the screening analysis was performed for the hours when construction vehicles would be traveling to/from the construction sites to determine if any locations and periods would require a more detailed evaluation. There were no exceedances of the noise PCE screening threshold at all locations and construction hours and therefore, no further detailed off site mobile source noise analysis is warranted. Therefore, potential adverse off-site mobile source noise impacts would not be significant.

It is anticipated that, during construction periods, the use of vessels would be limited as the majority of material would be transported via trucks. However, if more vessels would be utilized by the Contractor in the future, the distance from vessels to the onshore sensitive receptors would be beyond 1,500 feet resulting in no significant noise impacts to the community.

3.20.4.3.2.2 On-site Sources

The construction impacts were evaluated using the guidelines set forth in the *CEQR Technical Manual* Chapters 19 and 22. Construction equipment levels were determined using the *Noise Control Code* or Local Law No. 113 and 15 RCNY 28-109. Construction scenarios, equipment types, operating times, equipment usage factors and staging were developed and provided by the Proposed Project designers. A detailed analysis may be appropriate if the proposed project would:

- Cause a substantial stationary source (e.g., unenclosed mechanical equipment, manufacturing activities purpose or playground) to be operating within 1,500 feet of, and have a direct line of sight to, a receptor; or
- Introduce a new receptor in an area with high ambient noise levels resulting from stationary sources, e.g., unenclosed mechanical equipment, manufacturing activities or playgrounds.

Construction noise was assessed using the prediction methods outlined in the Federal Highway Administration's (FHWA) *Highway Construction Noise Handbook* and codified in the FHWA *Roadway Construction Noise Model* (RCNM). The *Noise Control Code* and the *CEQR Technical Manual* guidelines utilize the same construction equipment reference noise levels as the FHWA RCNM. These references include maximum noise emission levels (L_{max}) and equipment usage factors, which were then used to predict $L_{eq(1)}$ noise levels at a given distance. Concurrent noise sources for each stage of construction were added logarithmically and compared to the applicable noise criteria outlined above.

Noise modeling assumptions for this analysis include the following:

- The estimated inventory of proposed construction equipment types and quantities expected for each activity are described in more detail in Appendix M;
- The noise levels and usage factors for each of the equipment types selected for each major task are based on the inventory included in the *CEQR* Chapter 22 "Noise Emission Reference Levels" (Table 22-1);
- A screening assessment was conducted to identify the closest noise-sensitive receptors in the vicinity of the Study Area;
- Equipment activity levels for each month (based on equipment hours) over a 35-month period are provided in Appendix M;
- Using the FHWA's noise modeling guidance, noise levels were determined for each equipment type, activity level and phase of construction;

- Cumulative noise levels were computed using the estimated quantity of equipment, usage factors and quarterly activity levels. These maximum noise levels were adjusted to reflect source-receptor distances for each applicable construction activity; and
- No adjustments were applied for acoustically 'soft' ground or building noise shielding effects. This applies to both ground-level and elevated receptors.

3.20.4.3.3 Modeling Results

The construction equipment projections shown in Appendix M reflect the average daily variation in construction activities estimated for each phase and subphase of construction. Since the level of noise produced by construction fluctuates throughout the days and months of the construction period, maximum or worst-case noise reflects the period with the peak construction activity relevant to each analyzed sensitive receptor. By comparing the noise effects from different construction scenarios and operating conditions over the entire construction period, the peak noise impact was determined.

The results of the detailed construction noise analysis are summarized in **Table 3.20-14** for the receptors closest to the Project Area (shown in **Figure 3.20-11**). The maximum predicted noise levels shown in **Table 3.20-14** would occur during the most noise-intensive activities of construction, which typically would not occur every hour or even every day. During hours when the loudest pieces of construction equipment (e.g., hydraulic hammers) would not be in use, receptors would experience significantly lower construction noise levels. As described above, construction noise levels would fluctuate during the construction period at each receptor, with the greatest levels of construction noise occurring for limited periods during construction.

As shown in **Table 3.20-14**, maximum exterior construction noise levels are predicted to range from 43 to 74 dBA resulting in noise level increases between twoto eightdBA during the most noise-intensive stages of construction. Receptors immediately adjacent to the proposed construction would experience the highest noise levels. During all other times, the future construction noise levels are predicted to be at or below the measured background levels. The cumulative future noise levels with construction are shown graphically in **Figure 3.20-12** and **Figure 3.20-13**. Due to the high background levels measured in the community adjacent to the SBMT, exceedances of the CEQR noise criteria are predicted for different Proposed Project construction phases.

During the over 33 months of construction with the use of construction equipment during the total 35-month construction schedule, the activities that would produce the highest noise levels would be activities that utilize hydraulic impact hammers, clamshell rehandling and loaders. The most dominant activities and durations associated with the loudest predicted noise levels include the following:

- Pavement Demolition – Duration: 3 months
- Land Improvements – Duration: 22 months
- O&M Base Construction – Duration: 25 months

Consequently, except for the 25-month O&M base construction, the maximum noise levels predicted by the construction noise analysis would not persist throughout the entire construction period. Construction noise levels occurring during activities other than pile driving and impact hammering would still be audible, but their noise levels would be similar to or slightly above the measured existing background. In other words, the noise levels associated with non-impact construction equipment would be substantially lower than the maximum levels predicted for hydraulic hammers. For the majority of the construction period, noise levels at residences and businesses adjacent to the Project Area would be perceptibly lower than the maximum level by 10-15 dBA as depicted in **Table 3.20-14**.

For all of the reasons stated above, although exceedances of the threshold criteria are predicted, due to the temporary nature of the construction, it was determined that there would not be any significant adverse impact. Therefore, no noise mitigation measures are warranted under CEQR. However, the Proposed Project construction activities would need to meet the requirements established by the City Noise Control Code Chapter 28, *Citywide Construction Noise Mitigation* to the maximum extent practicable with regard to work within the Project Area by the Contractor.

As required under the New York City Noise Control Code, a site-specific noise mitigation plan for the Proposed Project would need to be developed and implemented that may include noise source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented:

- Equipment that meets the reference sound level specified in Subchapter 5 of the New York City Noise Control Code and Table 22-1 of the *CEQR Technical Manual* would be utilized from the start of construction;
- Since electric power is available at the project site, electrically powered equipment such as welders would be used over diesel-powered versions of that equipment, to the extent feasible and practicable;
- Where feasible and practicable, the construction site would be configured to minimize backup alarm noise;
- In addition, trucks would not be allowed to idle more than 3 minutes at the construction site as per Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code; and
- Contractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the Proposed Project would meet the local noise code requirements and implement measures to the extent feasible and practicable such as:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations;
- Noise barriers constructed from plywood or other materials along the construction site boundary would be utilized to provide noise shielding for neighborhood sensitive receptors; and
- Other path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents) would be required for certain dominant noise equipment such as compressors to the extent feasible and practical.

Table 3.20-14 Construction Noise Analysis Results (Leq in dBA)

Receptor ID	Receptor Address	Receptor Land use	Existing Condition	(PA)[1] 2024 Q1	(PA)[1] 2024 Q2	(PA)[1] 2024 Q3	(PA)[1] 2024 Q4	(PA)[1] 2025 Q1	(PA)[1] 2025 Q2	(PA)[1] 2025 Q3	(PA)[1] 2025 Q4	(PA)[1] 2026 Q1	(PA)[1] 2026 Q2	(PA)[1] 2026 Q3	(PA)[1] 2026 Q4	(PA)[1] MAX	Future[2] EX + PA	Future[3] Maximum Change	CEQR Significant Impact Criterion (12 month or more)
1	126 41st Street	MIX	66	63	73	73	65	65	67	67	64	59	52	52	47	73	74	8	15
2	260 39th Street	MIX	66	63	70	70	65	65	67	67	65	60	53	53	49	70	72	6	15
3	850 3rd Avenue	MIX	70	59	67	68	63	63	65	65	63	61	59	59	54	68	72	2	15
4	363 37th Street	COM	66[4]	63	72	73	65	65	67	67	64	60	55	55	50	73	74	8	15
5	632 2nd Avenue	COM	66[4]	64	73	74	66	66	68	68	66	62	57	57	52	74	74	8	15
6	80 29th Street	INST	70[5]	61	68	69	65	65	67	67	65	62	61	61	56	69	73	3	15
7	4201 1st Avenue	MIX	66[6]	62	70	71	64	64	67	67	64	58	50	50	45	71	72	6	15
8	230 43rd Street	MIX	66[6]	60	68	69	62	62	66	66	62	56	48	48	43	69	71	5	15

Notes:

1 The 'Proposed Project (PA)' represents the predicted noise levels for the construction only.

2 The 'Future (EX (existing ambient) + PA)' represents the future combined noise levels.

3 The 'Future Change' represents the future increase over the measured existing levels.

4 The existing noise level reported for Receptors 4 and 5 is based on the measured level for Receptor 2 given their close proximity.

5 The existing noise level reported for Receptor 6 is based on the measured level for Receptor 3 given their close proximity.

6 The existing noise level reported for Receptors 7 and 8 is based on the measured level for Receptor 1 given their close proximity

Figure 3.20-11 Noise Modeling Sites in the Study Area

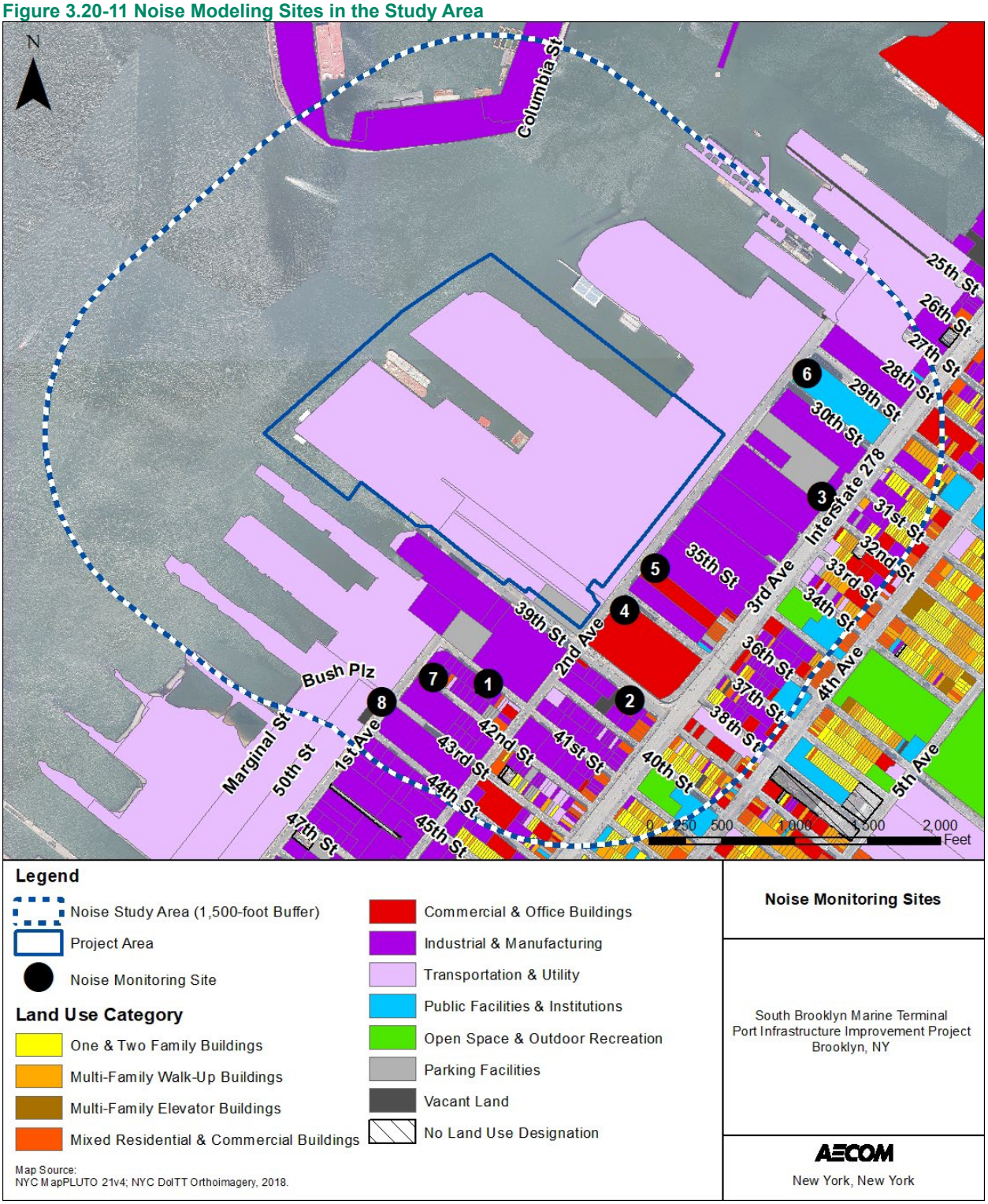


Figure 3.20-12 Construction Noise Profiles at Receptor Sites 1, 2, 4, 5, 7 and 8

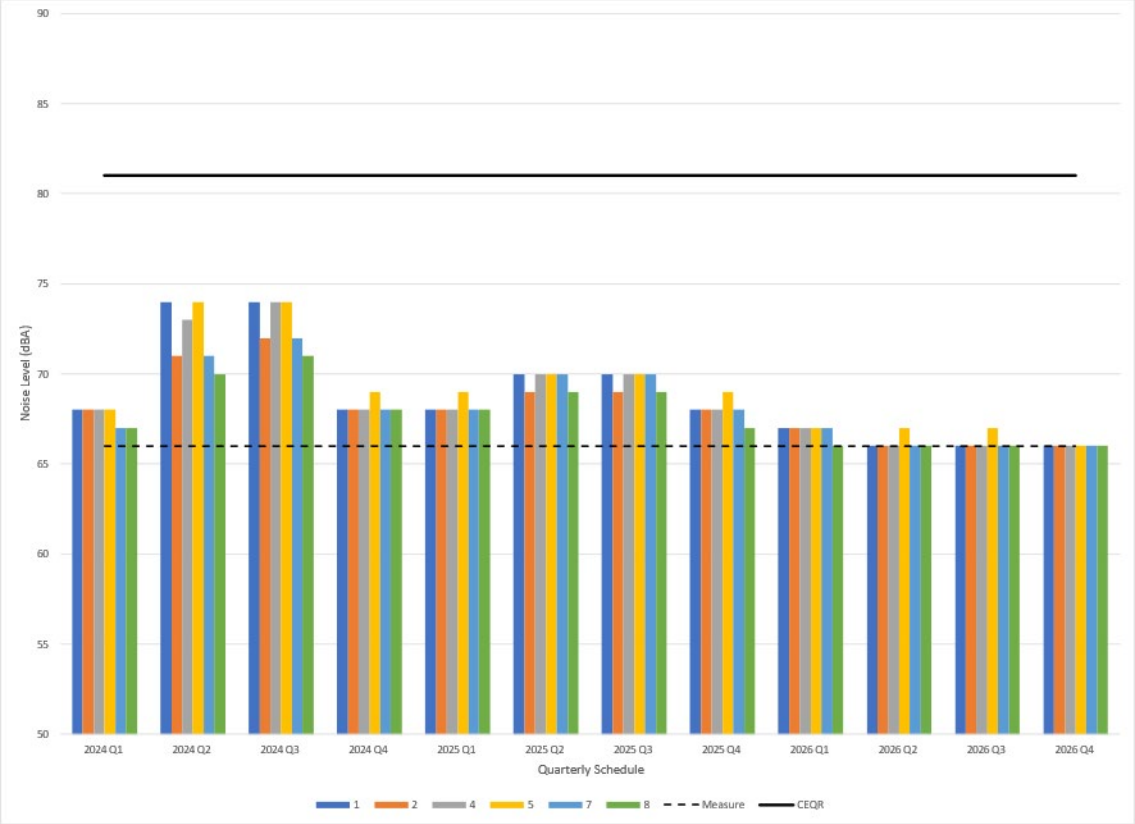
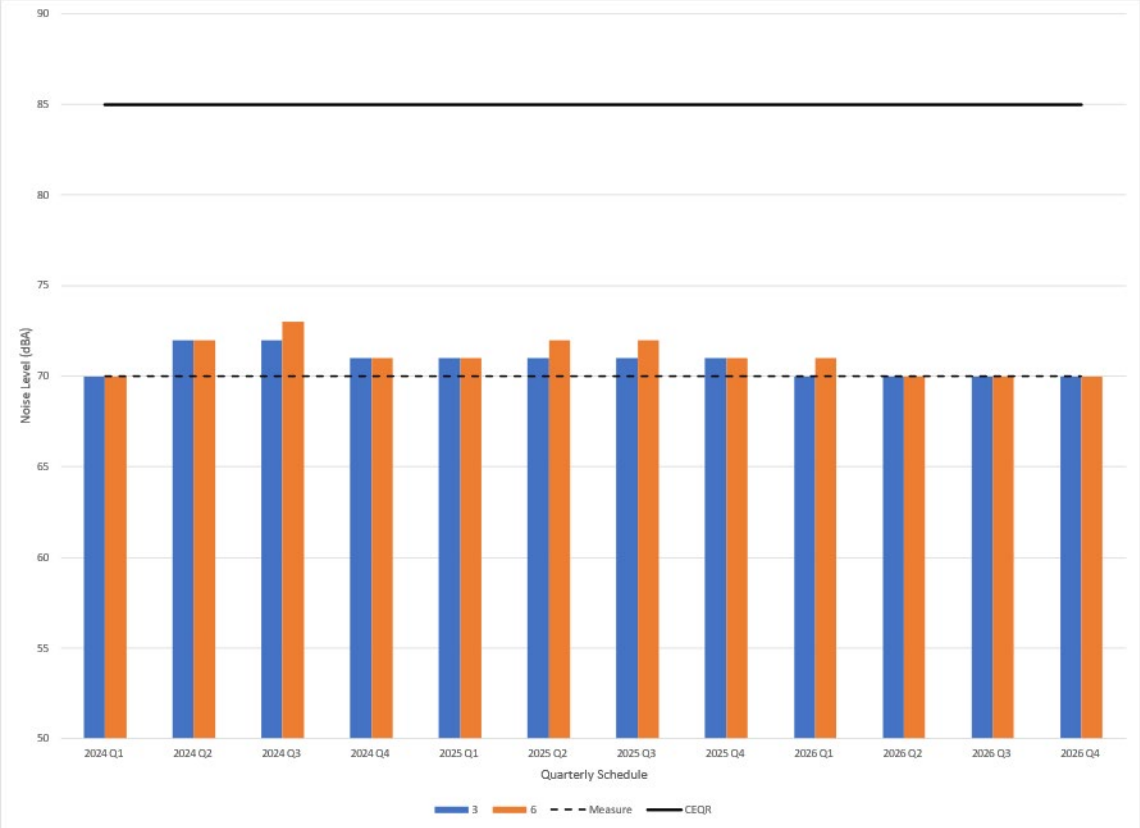


Figure 3.20-13 Construction Noise Profiles at Receptor Sites 3 and 6



3.20.4.3.4 Vibration

Unlike noise, which travels in air, vibration typically travels along the surface of the ground. The geological properties of the surrounding terrain and the type of building structure exposed to vibration can affect the level of vibration propagation within the building. For example, buildings with a solid foundation set in bedrock experience relatively higher vibration levels than buildings located in sandier soil. Heavier buildings (such as masonry structures) are less susceptible to vibration than wood-frame buildings because they absorb more vibration energy.

To assess the potential for building structural damage, the peak particle velocity (PPV) is used in monitoring of construction vibration since it is related to the stresses that are experienced by buildings rather than human annoyance. PPV is the maximum instantaneous positive or negative peak of the vibration signal and is expressed in inches per second (in/sec).

Ground-borne vibration associated with construction activity is usually the result of pounding or dropping of heavy equipment elements. Examples of such activities (and subsequent vibrations) include clam shovel drops, hydraulic hammer pounding and hoe ram impacts.

The *CEQR Technical Manual* (Chapter 22, Section 710) recommends using a conservative criterion for a significant adverse impact of 0.5 in/sec PPV to assess minor cosmetic or structural damage at historic structures from construction activities.[19] By using the Federal Transit Administration *Manual* (September 2018), the maximum vibration levels from all construction activities for each of the proposed construction tasks are predicted to occur when a vibratory impact hammer is operating at the closest distance to a specific building structure. The closest building is located approximately 50 feet immediately south of the Proposed Project in the Bush Terminal Historic District. At the closest distance, the pile driving could result in a maximum vibration of 0.3 in/sec. Vibration levels at all of the closely located buildings and structures to the proposed construction activities would still be well below the 0.5 in/sec potential damage threshold

[19] NYCDOB, Technical Policy and Procedure Notice (TPPN) #10/88, June 6, 1988.

and would not have the potential to cause cosmetic or structural damage. **Therefore, construction vibration associated with the Proposed Project would not result in a significant adverse impact.**

Since the Bush Terminal Historic District is located within 90 feet of the Proposed Project on its south and east sides (see **Section 3.6.1** (Historic and Cultural Resources)), demolition and construction activities in close proximity to the buildings within this historic district could cause potential vibration impacts that should be monitored during construction periods. A CPP would be prepared in accordance with the New York City DOB "Technical Policy and Procedure Notice 10/88: Procedures for the Avoidance of Damage to Historic Structures Resulting from Adjacent Construction When Subject to Controlled Inspection by Subsection 27-724 and for Any Existing Structure Designated by the Commissioner."

3.20.4.3.5 Indirect Effects and Cumulative Impacts

Noise from temporary construction activities associated with the Proposed Project are predicted to exceed the CEQR Technical Manual threshold of 65 dBA Leq(1) as well as the 3-dBA increase threshold over the existing ambient levels at several residences closest to the proposed project. Depending on the construction activity, the noise impacts are typically dominated by several equipment types such as hydraulic impact hammers, clamshell rehandling equipment and loaders. The maximum noise levels predicted by the construction noise analysis would not persist throughout the entire construction period. Construction noise levels occurring during activities other than pile driving and impact hammering would still be audible, but their noise levels would be similar to or slightly above the measured existing background. In other words, the noise levels associated with non-impact construction equipment would be substantially lower than the maximum levels predicted for hydraulic hammers. As further compared with the incremental impact significance criteria based on the magnitude and duration of construction noise, the Proposed Project would have no significant adverse impacts related to noise during construction.

Although no noise mitigation measures are warranted under CEQR, the Proposed Project construction activities would need to meet the requirements established by the City Noise Control Code Chapter 28, Citywide Construction Noise Mitigation to the maximum extent practicable with regard to work within the Project Area by the Contractor. As required under the New York City Noise Control Code, a site-specific noise mitigation plan for the Proposed Project would need to be developed and implemented that may include noise source and path controls. This plan is discussed in detail in Section 3.20.4.3.3 (Modeling Results).

Regarding construction impacts from vibration, equipment causing instantaneous impacts, such as the vibratory impact hammer and pile driver, are expected to cause the most impact. The maximum vibration levels from all construction activities for each of the construction tasks are predicted to occur when a vibratory impact hammer is operating at the closest distance to a specific building structure. The closest building is located approximately 50 feet immediately south of the Proposed Project in the Bush Terminal Historic District. At the closest distance, the pile driving could result in the likely maximum vibration in 0.3 in/sec. Vibration levels at all of the closely located buildings and structures to the proposed construction activities would still be well below the 0.5 in/sec potential damage threshold and would not have the potential to cause cosmetic or structural damage. Therefore, the Proposed Project would have no significant adverse impacts related to vibration during construction.

Since the Bush Terminal Historic District is located within 90 feet of the Proposed Project on its south and east sides (see Section 3.7 (Historic and Cultural Resources)), demolition and construction activities in close proximity to the buildings within this historic district could cause potential vibration impacts that should be monitored during construction periods. A CPP would be prepared in accordance with the NYCDOB "Technical Policy and Procedure Notice 10/88: Procedures for the Avoidance of Damage to Historic Structures Resulting from Adjacent Construction When Subject to Controlled Inspection by Subsection 27-724 and for Any Existing Structure Designated by the Commissioner."

With respect to potential cumulative noise and vibration impacts during construction of the Proposed Project and the Future without Project condition, the potential overlap for construction with comparable equipment activities would exist in the northern section of the Project Area and the southernmost boundary of the EW 1 Project area from February 2024 to December 2026. Because the potential Proposed Project noise and vibration impacts would be minor and well below the significance thresholds, the distant activities at EW 1 Project underground cables and onshore substation would likely result in comparable but lower noise and vibration levels at the worst-case sensitive receptors identified under the Proposed Project condition. Therefore it is anticipated that cumulative noise and vibration impacts to noise

sensitive receptors related to construction of the Proposed Project and EW 1 Project underground cables and onshore substation also would be minor.

The Proposed Project would not have indirect effects on noise and vibration in the Study Area during construction, including inducing developments that could create additional construction activities and vehicular traffic. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce construction activities and additional vehicular traffic.

3.20.4.4 Land Use and Neighborhood Character

The Proposed Project would redevelop an underutilized waterfront space with existing transportation and utility land uses and zoned as M3 for heavy manufacturing. There is no existing public recreational access or views of the waterfront in the vicinity of the Project Area. The Proposed Project would maintain the existing land use and be permitted as-of-right in the existing M3 zoning district. The Proposed Project would also be consistent with all relevant and applicable public policies, programs and plans.

In terms of neighborhood character, construction activities would temporarily take place and impact the neighborhood in terms of visual resources. However, this temporary construction impact to the visual resources would not result in a permanent change in the character of the neighborhood.

No significant adverse impacts to land use, zoning and public policy and neighborhood character from construction activities would occur and no further assessment is warranted.

3.20.4.4.1 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts on land use, zoning and public policy during construction. After the relocation of the NYCDOT function, the construction activities for the Proposed Project and EW 1 Project would be permitted as-of-right in SBMT, which is in a M3 zoning district. Construction activities would be limited to the SBMT site. Therefore, there would be no adverse cumulative impacts during construction to land use, zoning and public policy resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on land use, zoning and public policy in the Study Area during construction, including inducing developments that could change existing land uses or zoning. The Proposed Project would redevelop an underutilized industrial waterfront, and its uses are permitted as-of-right in a M3 zoning district and the Southwest Brooklyn IBZ. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood.

3.20.4.5 Socioeconomic Conditions

The Proposed Project would displace a small marine operator utilizing the solid fill “pier” structures in the Project Area, but this marine operator is not uniquely dependent on this location and would be able to relocate nearby. **As the Proposed Project results in no residential displacement no retail development, does not create land uses markedly different from existing conditions and does not affect a specific industry, there would be no significant adverse impacts of construction activities on socioeconomic conditions.**

3.20.4.5.1 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts to socioeconomic conditions during construction. Although the Proposed Project would displace a small marine operator, Phoenix, which has a maximum of three employees. The marine operator is not uniquely dependent on the Project Area and would be able to relocate to a nearby location. The NYCDOT function would relocate to the Red Hook Container Terminal regardless of the Proposed Project. Therefore, the EW 1 Project would not displace the NYCDOT function and there would be no adverse cumulative impacts during construction to socioeconomic conditions resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on socioeconomic conditions in the Study Area during construction. The Proposed Project would introduce construction workers to the Project Area for a 35-month construction period, and these construction workers would likely increase demand for local commerce in the

surrounding neighborhood, including restaurants, retail, and gas stations. However, it is not expected that this increase in demand would induce the creation of new businesses to meet this increased demand.

3.20.4.6 Community Facilities and Services

The Proposed Project would not physically impact or displace any community resources, nor result in any increases in residential population. It would not have any impact on public schools, healthcare facilities, publicly funded group early childhood programs, libraries or local police and fire facilities. **Accordingly, there would be no significant adverse impacts of construction activities on community facilities.**

3.20.4.6.1 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts to community facilities from construction activities. The Proposed Project would not physically impact or displace any community resources, nor result in any increases in resident population that would increase demand for community facilities. In addition, all access to community facilities, including emergency services, would be maintained during construction. The EW 1 Project would also maintain access to community facilities, not physically impact or displace community resources, or result in any increases in residential population. As the EW 1 Project would maintain access to community facilities during construction, there would be no adverse cumulative impacts during construction to community facilities and services resulting from the Proposed Project and Future without Project condition.

The Proposed Project would not have indirect effects on community facilities and services in the Study Area during construction, including inducing developments that could create additional demand for community facilities and services. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments and population growth in a highly-developed neighborhood that may introduce additional developments and population.

3.20.4.7 Open Space

As the Project Area is not located on or near open spaces, there would be no significant adverse direct or indirect impacts of construction activities on open space.

3.20.4.8 Historic and Cultural Resources

There are five historic architectural resources situated within the proposed Historic Architectural APE, which forms a ¼-mile buffer around the Project Area. As indicated in **Section 3.6.1** (Historic and Cultural Resources), four of the five resources would not be impacted by construction. On March 21, 2022, SHPO opined that the project will result in No Adverse Effect. One resource for which the Proposed Project would have No Adverse Effect requires coordination prior to construction: the Bush Terminal Historic District.

The Bush Terminal Historic District is located directly south and east of proposed construction activities. The portion of the district immediately south of the Project Area would be in close proximity to pavement stripping, pavement removal, and building demolition. The portion of the district immediately east of the Project Area would be in close proximity to pavement stripping and pavement removal. Therefore, it is recommended that a CPP be prepared for the Bush Terminal Historic District in accordance with the NYCDOB “Technical Policy and Procedure Notice 10/88: Procedures for the Avoidance of Damage to Historic Structures Resulting from Adjacent Construction When Subject to Controlled Inspection by Section 27-724 and for Any Existing Structure Designated by the Commissioner,” which defines adjacent historic structures as resources that are located contiguous to or within a lateral distance of 90 feet from a lot under development or alteration (Polsky, June 6, 1988).

Significant adverse impacts on archaeological resources are physical – disturbance or destruction – and typically occur as a result of construction activities that would not occur but for a proposed project. If any significant archaeological resources were identified in the Project Area, and the Proposed Project may disturb or destroy those resources in any way, a significant adverse impact would occur.

As indicated above, SHPO has responded to the initial consultation letter with a determination of No Adverse Effect on historic properties. Therefore, no additional archaeological studies are required for the Proposed Project.

3.20.4.8.1 Indirect Effects and Cumulative Impacts

3.20.4.8.1.1 Archaeological Resources

The onshore construction actions associated with the Proposed Project and EW 1 Project would not incur short-term construction impacts to archaeological resources. There are no previously identified or potential archaeological resources within the Terrestrial, or onshore, Archaeological APEs of either project. It is not anticipated that the Proposed Project would result in cumulative short-term construction impacts to archaeological resources due to onshore construction.

The marine, or in-water, actions associated with the Proposed Project would not incur short-term impacts to archaeological resources. There are no previously identified or potential submerged archaeological resources within the Proposed Project Marine Archaeological APE. It is unknown whether the marine, or in-water, construction actions associated with the EW 1 Project Marine Archaeological APE would incur short-term construction impacts to archaeological resources.

The Proposed Project would not have indirect effects on archaeological resources in the Study Area during construction, including inducing developments that could have an effect on archaeological resources in the surrounding area. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional developments.

3.20.4.8.1.2 Historic Architectural Resources

The construction activity of the Proposed Project and EW 1 Project may have short-term construction impacts on one historic architectural resource: the Bush Terminal Historic District. As indicated above, the Bush Terminal Historic District is located within 90 feet of the site of the Proposed Project at SBMT, on its south and east sides. The portion of the district immediately south of the Project Area would be in close proximity to pavement stripping, pavement removal, and building demolition. The portion of the district immediately east of the Project Area would be in close proximity to pavement stripping and pavement removal. To ensure that the district's integrity remains intact during and after construction, a CPP would be prepared. It is anticipated that preparation of the CPP will ensure that the Bush Terminal Historic District would not be subject to cumulative short-term construction impacts.

The Proposed Project would not have indirect effects on historic architectural resources in the Study Area during construction, including inducing developments that could have an effect on historic properties or historic districts. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional developments.

3.20.4.9 Natural Resources

A preliminary assessment is needed for natural resources if the construction activities, particularly excavation, grading, site clearance or other vegetative removal, cutting and filling, installation of piles, bulkheads or other waterfront structures, dredging, dewatering, or soil activities related to the Proposed Project would disturb natural resources on or adjacent to the site.

3.20.4.9.1 Habitats

3.20.4.9.1.1 Terrestrial

The Proposed Project would remove all existing structures and approximately 40 percent of the currently paved area (approximately 26.1 acres in total area). After additional excavation for installation of subsurface piles, utilities, and building structures, only minor grade changes are anticipated. The site would be repaved, and new structures installed, as described in **Section 1.3** (Project Description).

Impact to upland vegetation would be limited to removal of at least 40 poplar trees and approximately 0.10 acres of volunteer vegetation. Trees to be removed are approximately two to ten inches in diameter at breast height (DBH). In addition, trees and vegetation located over a 500-feet length between the 32-33 bulkhead replacement and the 35N wharf installation must be removed due to safety requirements of on-shore staff having line-of-sight to the entirety of any vessel docked at any wharf. The remainder of the line of trees and volunteer vegetation on the north side of the 35th Street "Pier," a length of approximately 900 feet, would be retained during construction. Trees and vegetation to

be removed are of limited habitat value and are common in non-maintained habitats in the vicinity. A small (0.03-acre) section of planted vegetation at the end of the "interpier" basin between the 35th Street and 39th Street "Piers" would be retained.

3.20.4.9.1.2 Marine

As part of the Proposed Project, approximately 189,000 CY of sediment, over an area of approximately 14.2 acres, would be mechanically dredged and removed for off-site upland disposal. The sediment bed within the dredge footprint is expected to be rapidly covered by newly deposited sediment composed of predominantly unconsolidated silts. Based on measures of prior dredging and natural sedimentation at the SBMT site, and adjacent areas, the annual average sediment accumulation would be up to one foot per year. The new sediment surface is expected to be rapidly colonized by organisms from adjacent similar habitats.

In addition to dredging impacts, the installation of new piles and bulkheads would remove an estimated 0.03 acres of existing benthic and water column habitats due to occupation by structures and fill. Newly installed wharves and fenders would permanently shade approximately 0.64 acres of marine habitat.[20] Piles and fill for the wharves and bulkheads would remove marine habitat but would also present solid structures which may be colonized by sessile organisms (e.g., striped mussels, sponges, etc.). Wharves would also increase habitat diversity for marine life, presenting possible refuges for smaller fish species, attachment surfaces, and shading.

The Proposed Project would result in temporary impacts to the water column from turbidity associated with sediment resuspension during dredging and installation of bulkheads and wharf-supporting piles. Turbidity control measures will be employed to minimize both the magnitude and migration of suspended sediments that could impact water quality. Turbidity curtains would be employed where possible to minimize both the magnitude and migration of suspended sediments that could impact water quality. Currents in Upper New York Bay would be too strong to deploy turbidity curtains for dredging in the 35W and 39W dredge areas (and the construction of the 35W Construction Barge Wharf); however, turbidity curtains would be employed for dredging in the basins. Slow withdrawal of the clamshell dredger with a closed environmental bucket through the water column would minimize turbidity throughout the dredging areas.

During periods of active mechanical dredging, water column total suspended solids (TSS) levels could increase up to 445 milligrams per liter (mg/L) (NOAA Fisheries, 2021b). Pile driving is estimated to produce TSS concentrations of approximately five to ten mg/L above background levels within approximately 300 feet of the point of origin (Federal Highway Administration, 2012). It is anticipated that proposed construction techniques and BMPs employed on the Proposed Project would minimize TSS increases in the water column. TSS transport will also be minimal and the amount of TSS is not expected to measurably impact adjacent habitats, including the SAV identified south of Pier 7. The vegetation, which, at its nearest point, is approximately 700 feet horizontal distance from the Project Area. There is more detailed discussion of SAV in Section 3.6 of the SSAP (Appendix F in the JPA PIP).

While the increase in TSS would result in a temporary increase in sediment-bound contaminant levels in the water column, the measures used to minimize and control TSS will also serve to reduce contaminant levels in the water column. The TSS and contaminant concentrations generated by dredging would be below levels associated with physiological impacts and would quickly return to ambient conditions. **Impacts to water quality from dredging, both through increased TSS and potential exposure to contaminants, would be temporary, with a scheduled duration of approximately 140 days. Construction of the Proposed Project would not cause significant adverse impacts to water quality.**

3.20.4.9.1.3 Wetlands

The potential for impacts to Article 25 Tidal Wetlands by the Proposed Project would be limited. NYSDEC Article 25 Tidal Wetland areas within the Project Area are limited to riprap-covered slopes that end at an impervious surface. There are no federally-regulated wetlands in the Project Area. Construction of the proposed Construction Barge Wharf (35W) and SOV Wharf (35N) would involve installation of piles in the rip rap slopes prior to installation of deck surfaces. Impacts will be limited to Area B (see **Figure 3.9-5**), where approximately 0.16 acres of LZ Tidal Wetlands habitat would be removed by installation of piles for both wharves. However, the removal of the cofferdam and associated fill at 35W would reduce the volume of existing fill occupying the water column and the area of mudline disturbance by approximately 0.18 acres. In addition, the regrading of the slope associated with the installation of the wharf at 35N

[20] Quantities have been rounded to the nearest hundredth decimal.

would temporarily disturb 0.50 acres of tidal wetland habitat, replacing it with similar material, and 0.74 acres of marine habitat. In total, approximately 0.02 acres of unvegetated tidal wetlands would be created. Approximately 0.22 acres would be permanently shaded from the new structures installed over the unvegetated tidal wetland area.[21]

Sedimentation caused by a temporary increase in TSS in the water column due to dredging and in-water construction has the potential to impact tidal wetland areas listed in **Table 3.9-2**. Accumulation would be minimal and would not have a measurable impact on the quality of the tidal wetland habitat versus existing rates of sedimentation. Furthermore, all dredging within the "interpier" basins and installation of in-water structures are expected to take place within silt curtains, which will minimize migration of construction-related TSS into tidal wetland areas. Further, as described above, the small areas of tidal wetland habitat within the Project Area are compromised and provide limited habitat and function. **In summary, construction associated with the Proposed Project would not have significant adverse impacts to the limited wetland habitat in the Project Area.**

3.20.4.9.1.4 Finfish

There may be limited impacts to fish communities during the period of dredging which would occur for a total of approximately 140 days. It is expected that all motile life stages of fish would move to adjacent areas during dredging and/or construction activities, returning after the Proposed Project completion and as benthic communities begin to recolonize.

In coordination with NYSDEC, the Proposed Project would restrict in-water work between December 15 and May 31. This restriction includes allowance for in-water construction activities during the months of June, October, and November with the implementation of a monitoring and impact avoidance plan to avoid potential impacts to Atlantic Sturgeon. This proposed Time of Year Restriction (TOYR) was approved by the NYSDEC (NYSDEC Technical Comment Letter #3, April 7, 2023 included in the Biological Assessment, Appendix D to the JPA's PIP). The approved Atlantic Sturgeon Monitoring and Impact Avoidance Plan is provided in the Biological Assessment, Appendix D to the JPA's PIP and includes a list of the proposed avoidance and minimization measures to be utilized. Installation within the above-stated TOYR is required for SBMT to be operational on a schedule that would allow the port to support OSW and help New York State attain its renewable energy mandates.

Installation of structures and fill associated with structures would permanently eliminate and shade marine open water habitats. The areas of habitat eliminated (0.03 acres) and shaded (0.64 acres) constitute an infinitesimally small portion of similar available habitat in Upper New York Bay.[22] Existing habitat anticipated to be impacted is compromised by over two centuries of extensive industrial use. Additionally, given the abundance of adjacent habitat of the same type within the area, this loss of habitat is minor. **In summary, construction associated with the Proposed Project would not have significant adverse impacts to finfish that may be present in the vicinity of the Project Area. Section 3.20.4.9.1.7** (Threatened and Endangered Species) includes specific discussion on Atlantic and Shortnose sturgeon.

3.20.4.9.1.5 Benthic Invertebrates

Impacts on benthic invertebrates are expected as a result of the direct disturbance during installation of structures and dredging activities. Benthic invertebrate habitats would be eliminated (0.03 acres), shaded (0.64 acres), and disturbed via dredging (14.2 acres).[23]

Dredging would take place for a total of approximately 140 days. During this time, turbidity and TSS in the water column would increase within the vicinity of the Project Area due to the disturbance of the sediments. Turbidity control measures would be employed where feasible to reduce the transport of suspended sediments and minimize impact on benthic invertebrates. Slow withdrawal of the clamshell dredger with a closed environmental bucket through the water column would minimize turbidity throughout the dredging areas.

Within the Project Area, TSS could cause impacts both in the water column, via impacting light or interfering with gas exchange, and by burying invertebrates via sedimentation. The direct impacts due to the increase in TSS associated with dredging and pile driving activities would be insignificant, temporary, and limited in impact to any invertebrates in

[21] Quantities have been rounded to the nearest hundredth decimal.
[22] Quantities have been rounded to the nearest hundredth decimal.
[23] Quantities have been rounded to the nearest hundredth decimal.

the immediate vicinity of the activity. Outside of the dredging area, TSS levels would be below concentrations (390 mg/L) that may adversely affect benthic communities (USEPA, 1986; NOAA Fisheries, 2021b).

The use of sediment dredging best management practices (BMP) (e.g., silt curtains, no barge overflow, no draining of the bucket over the water column and careful placement of the dredge material onto the scows) would minimize sediment resuspension and deposition and burial impact in and immediately adjacent to the Project Area. The majority of benthic organisms recorded in the Project Area during a 2020 benthic survey were found to be mobile species, including polychaetes and gastropods. Mobile invertebrates are generally less vulnerable than sessile taxa to sedimentation, as they are able to move to areas with less sediment accumulation or are more efficient at physically removing particles (Fraser et al., 2017). In summary, impacts from construction associated with the Proposed Project would be temporary. Benthic invertebrates would rapidly begin recolonizing disturbed areas following completion of construction activities. **In summary, construction associated with the Proposed Project would not have significant adverse impacts to benthic invertebrates that may be present in the vicinity of the Project Area.**

3.20.4.9.1.6 Avifauna

It is expected that any birds present at the start of construction would temporarily relocate from the site once Proposed Project activities begin. During construction, areas within which construction activities would occur would not be available to avian species; however, functionally similar surfaces and structures would replace those to be removed. The loss of habitat is therefore a temporary impact. Similar habitat is commonly available in the vicinity of the Project Area, and therefore the temporary loss of habitat would have a negligible impact on avian populations. Initial site demolition would occur from March-May of 2024, when no nests will be in use on-site.

As noted in **Section 3.9** (Natural Resources), no Federally-listed Threatened, or Endangered species would utilize the Project Area; however, several NYS-listed species, including peregrine falcon, osprey, common tern, and American black duck, were observed on-site during surveys in 2020. Therefore, these species may occur on-site during construction. Due to the availability of habitat of similar quality in the vicinity, disturbance by construction activities would not impact these species. **In summary, construction associated with the Proposed Project would not have significant adverse impacts to avifauna that may be present in the vicinity of the Project Area.**

3.20.4.9.1.7 Threatened and Endangered Species

Analysis of Threatened and Endangered species is provided in the Biological Assessment appended to the JPA as Appendix D of the PIP. In-water construction activities, including dredging, installation of structures via pile driving (causing both a risk of direct physical impact and impact by underwater sound waves), and associated increases in vessel traffic, present potential hazards to protected species. The use of mitigation measures, including restriction of in-water construction pursuant to permit requirements, use of turbidity curtains, slow operation speeds, and “warning” taps prior to driving of piles, would avoid potential impacts, resulting in a *de minimis* impact to protected species by the Proposed Project during construction.

The Project Area is in the range of six threatened or endangered species under the jurisdiction of NOAA Fisheries, and four under the jurisdiction of USFWS. The protected species under the jurisdiction of NOAA Fisheries with ranges overlapping the Project Area are listed below with their associated Federal Register (FR) and Species Recovery Plan citations.

- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) (77 FR 5880 and 77 FR 5914; Critical habitat 82 FR 39160) Endangered/Threatened;
- Shortnose sturgeon (*Acipenser brevirostrum*) (32 FR 4001; Recovery plan: NMFS, 1998) Endangered;
- Loggerhead turtle (*Caretta caretta*) (76 FR 58868; Recovery plan: NMFS and USFWS, 2008; Critical habitat 79 FR 4837) Endangered;
- Leatherback turtle (*Dermochelys coriacea*) (35 FR 8491; Recovery plan: NMFS and USFWS, 1992) Endangered;
- Green turtle (*Chelonia mydas*) (81 FR 20057; Recovery plan: NMFS and USFWS, 1991) Threatened; and
- Kemp’s ridley turtle (*Lepidochelys kempii*) (35 FR 18319; Recovery plan: NMFS et al., 2011) Endangered.

Review of the USFWS IPaC system website indicated that the Proposed Project is within range of four endangered or threatened species under the jurisdiction of USFWS, and one candidate species. These species include:

- Piping Plover, *Charadrius melodus* – Threatened;
- Red Knot, *Calidris canutus rufa* – Threatened;
- Roseate Tern, *Sterna dougallii* – Endangered;
- Seabeach Amaranth, *Amaranthus pumilus* – Threatened; and
- Monarch Butterfly, *Danaus plexippus* – Candidate.

While the removal of the existing benthic community during construction activities and establishment of a new community may influence local distributions of fish that feed on these prey items on a small spatial scale, there would be no population-level effects since the Project Area represents only an infinitesimally small portion of a common habitat type in Upper New York Bay. Further, these impacts would be temporary, as the dredging footprint would be quickly re-colonized by similar species adjacent to the dredge area, and exposed post-dredging surface would be covered by continuous sedimentation from surrounding areas. Moreover, as approved by the NYSDEC, a one-foot clean sand cap will be placed in designated areas post-dredging to reduce potential contaminant exposure.

To complete the project on time and to support the Proposed Project's purpose, extended in-water work windows in June, October, and November was found to be acceptable by NYSDEC (NYSDEC Technical Comment Letter #3, April 7, 2023 included in the Biological Assessment, Appendix D to the JPA's PIP) in conjunction with an approved Atlantic Sturgeon Monitoring and Impact Avoidance Plan (see the Biological Assessment, Appendix D to the JPA's PIP, for a list of the proposed avoidance and minimization measures). Regarding pile driving, Atlantic sturgeon are expected to avoid or move out of areas where sound levels exceed 150 dB_{RMS}, the behavioral disturbance threshold. For SBMT, the 150 dB_{RMS} isopleth is calculated to be at a distance equal to or further than (depending on pile driving method) the 150 dB_{sSEL} isopleth. Therefore, Atlantic sturgeon are not expected to enter or remain within the area where they could accumulate enough sound energy to be injured. Use of cushioned hammer and bubble curtain during pile driving are expected to lower maximum sound levels by at least 10 dB, with concomitant reductions in physiological and behavioral effect distances. Hammer tapping (soft start procedure) will allow sturgeon that may be within the ensonified field time to react to the sound and leave the area. Upper New York Bay adjacent to SBMT is over 5.5 km wide. It is unlikely that avoidance of the ensonified area would affect essential sturgeon behaviors, such as foraging, resting, or migration, because of the small size of the ensonified area and the short duration of avoidance (only while the pile is being driven). Upper New York Bay is sufficiently wide in the Proposed Project's vicinity to allow sturgeon to easily avoid the ensonified field while continuing foraging, migrating, and other behaviors. Thus, the expected potential effects of pile driving sounds on Atlantic sturgeon are insignificant, and do not constitute an adverse effect or take.

Regarding dredging, as noted above, small areas of benthic habitat immediately adjacent to the wharves will be altered during dredging, and a one-foot clean sand cap will be placed in designated areas post-dredging to minimize potential contaminant exposure. The areas to be dredged contain contaminated sediment and feature a depauperate benthic community. As such, these areas do not provide suitable habitat for Atlantic sturgeon and their occurrence in the areas to be dredged is unlikely. Thus, the expected effects of dredging on Atlantic sturgeon are insignificant, and do not constitute an adverse effect or take.

As discussed in the NOAA Fisheries Letter of Concurrence (included in the Biological Assessment – Appendix D of the JPA PIP), an incidental take of marine mammals is unlikely to occur as a result of construction.

Due to low likelihood of avian, plant, and invertebrate protected species being on site, as well as the scheduling of site demolition shortly after the Proposed Project's February 2024 start date, impacts to avian, plant, and invertebrate protected species are not expected. This includes the monarch butterfly which would be absent until migration back to the vicinity in late Spring.

In summary, construction associated with the Proposed Project would not have significant adverse impacts to threatened and endangered species that may occasionally be present in the vicinity of the Project Area, and would not consitute a take.

3.20.4.9.2 Indirect Effects and Cumulative Impacts

Construction activities associated with the Proposed Project may result in localized and temporary adverse impacts to natural resources in the Project Area (e.g., benthic habitat disrupted by dredging). The incremental impact on natural resources from construction activities associated with the Proposed Project is expected to be minor as discussed below.

Dredging during construction of the Proposed Project is anticipated to occur concurrent with dredging for installation of the export cable for the EW 1 Project, using similar methods. The EW 1 Project would dredge an area of approximately 2.79 acres and 98,350 cubic yards of sediment from the bulkhead between the 35th Street "Pier" and the Sims Facility, and the Bay Ridge Channel (Empire, 2022). The EW 1 Project dredging footprint is immediately adjacent to Area 1 (2.9 acres, 18,300 CY of sediment) identified for dredging as part of the Proposed Project. The combined dredging activities would result in a greater overall impact, versus either individual project, to water quality and aquatic species in the Project Area via disturbance of the benthic surface and suspension of solids. The impact to water quality would be temporary, with turbidity levels anticipated to return to levels comparable to ambient within hours of completion of dredging. The EW 1 Project cable route would be backfilled with approximately 62,650 CY of stone to protect the cable from interaction with outside forces, which would alter the benthic habitat to an artificial hardbottom. This would temporarily present a diversity of habitats in the area, which could temporarily provide habitat for a greater diversity of recolonizing organisms, until covered by anticipated sedimentation by fine material from the water column. As sedimentation accumulates, the bottom habitat would be expected to return to the current unconsolidated silt conditions.

Dredging for both the Proposed Project and EW 1 Project would be subject to similar best management practices, including use of a clamshell dredger with a closed environmental bucket operating at slow withdrawal speeds to minimize generation of suspended sediment, no barge overflow, no draining of the bucket over the water column, careful placement of the dredge material onto the scows and deployment of turbidity curtains to minimize transport of suspended sediment. These measures would minimize potential impacts on marine resources from in-water construction activities associated with the Proposed Project and EW 1 Project. In addition, cumulative impacts on benthos are expected to be temporary, as the dredging footprint is expected to be quickly re-colonized by species adjacent to the dredge areas, and the post-dredging surfaces are expected to be covered by continuous sedimentation from surrounding areas.

None of the anticipated other projects described in **Section 2.1.1** (Future without Project) are expected to impact Article 25 Tidal Wetlands within or adjacent to the Project Area.

Upland construction of the EW 1 Project is anticipated to overlap with the construction period of the Proposed Project. Upland construction impacts from the EW 1 Project are anticipated to be similar and additive to those of the Proposed Project, temporarily removing similar low-value habitat as listed in **Section 3.9** (Natural Resources). The cumulative adverse impact of both projects to upland natural resources is anticipated to be negligible.

The EW 1 Project will replace a section of bulkhead adjacent to the 32-33 Bulkhead. Replacement will include removal of 3,330 sf of platform, removal of fill below MHW, cutting the timber piles, installation of sheet piles and installation of a new pile supported platform similar to the bulkhead replacements for the Proposed Project. Impacts due to bulkhead installation would be additive to those of the Proposed Project and include loss of a small area of compromised benthic habitat and creation of temporary underwater noise from pile installation, similar to the per-unit impacts described in the JPA (PIP Appendix D – Biological Assessment and Appendix E - EFH Report). The cumulative adverse impact to marine natural resources from these in-water construction activities is anticipated to be negligible.

The Proposed Project would not have indirect effects on natural resources in the Study Area during construction, including inducing developments that could result in in-water dredging activities or impacts to terrestrial, marine, and wetland habitats. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could impact terrestrial, marine, and wetland habitats and threatened and endangered species.

3.20.4.10 Hazardous Materials

The upland portion of the Proposed Project will include demolition of existing site buildings, utility improvements, and bulkhead improvements. This would include removal and replacement of existing pavement (concrete and asphalt) and excavations of soil/fill to install structural piles and utilities. Preliminary quantities of terrestrial materials include

approximately 25,000 tons of soil/fill and 725,000 tons of asphalt/concrete. A number of environmental and hazardous materials assessments have been conducted to date. The sections below provide a summary of each assessment as well as an analysis of potential impacts.

Based on a review of the Phase II ESAs and other subsurface investigations, as discussed in **Section 3.10** (Hazardous Materials), hazardous materials are present beneath the pavement at the SBMT. There are indications of contamination to soil/fill to depths of at least 15 feet below ground surface. The contamination is primarily related to urban or historic fill, but pockets of contamination related to historical storage and use of petroleum products may be encountered in the subsurface. Soil waste characterization sampling has been conducted in portions of the property (primarily around the 39th Street "Pier") and results indicated that materials in the subsurface are contaminated, non-hazardous (from a waste disposal perspective) and potentially reusable. The analytical data for groundwater also indicate contamination based on the presence of urban/historic fill materials in the subsurface. Soil vapor sampling indicates the presence of VOCs beneath the paved surfaces and building slabs that may have the potential to accumulate in future building interiors.

Based on the results of the Phase II ESA, there are exceedances of the applicable regulatory standards for VOCs, SVOCs, and metals in site soils, groundwater, and soil vapor. Therefore, an application was submitted for this site's entry into the NYSDEC BCP. On September 8, 2022, the NYSDEC accepted the site into the Brownfield Clean-up Program (Site No. C224360 - South Brooklyn Marine Terminal Site) and the Brownfield Clean-up Agreement was executed on September 29, 2022.

The Proposed Project has the potential to disturb hazardous materials in the subsurface and existing structures throughout the construction schedule, currently estimated to be February 2024 to the end of December 2026 (35 months) and increase the potential for human exposure to hazardous materials. This includes present and future users of the site, and construction workers.

However, with the implementation of appropriate protection and mitigation measures, including, but not limited to, asbestos abatement and removal, lead paint removal, soil vapor mitigation, dust suppression measures during construction, community air monitoring during soil disturbances, appropriate and regimented waste handling procedures, and odor suppression measures, the potential for moderate or large impacts from hazardous materials can be avoided. The Proposed Project's final site cover of upland areas will be paved impervious surfaces which would provide protection from pathways to exposures to contaminants present below the Project Area. The potential for future exposure can also be addressed via institutional controls, such as an (E) Designation, MOU for City-owned property, declaration of covenants and restrictions and/or mapping agreement.

The Proposed Project would require a dredging program that would remove contaminated sediment, and has the potential to expose the aquatic environment, site workers or the public without appropriate protections/mitigation.

During the dredging work, protective measures to reduce or eliminate impacts may include, but are not limited to, the use of turbidity curtains, a closed environmental bucket, air monitoring, odor suppression measures, and regimented waste handling and disposal procedures. Dredged material would be characterized for appropriate off-site disposal and/or beneficial reuse if appropriate.

Additionally, dredging programs require consultation with, and permitting by, relevant regulatory agencies, and all work would be conducted in accordance with any specific requirements or conditions imposed by these agencies during the permitting process. Based on observed sedimentation rates in the area, it is expected that the newly exposed post-dredging sediment surface would be covered by newly deposited sediments at rates of 6-12 inches per year, and that the quality of surface sediments across the project area would therefore be similar to the existing condition. **In summary, the Proposed Project would result in no significant adverse impacts.**

3.20.4.10.1 Indirect Effects and Cumulative Impacts

The Proposed Project has the potential to disturb hazardous materials in the subsurface and existing structures throughout the construction schedule and increase the potential for human exposure to hazardous materials. This potential for moderate or large impacts from hazardous materials would be avoided with the implementation of appropriate protection and mitigation measures, including, but not limited to, asbestos abatement and removal, lead paint removal, soil vapor mitigation, dust suppression measures during construction, community air monitoring during soil disturbances, appropriate and regimented waste handling procedures, and odor suppression measures.

The dredging and removal of contaminated sediment involved in both projects would have the potential to expose the aquatic environment, site workers or the public if appropriate best management practices were not implemented. Protective measures to reduce or eliminate potential exposure would include, but are not limited to, the use of turbidity curtains, no barge overflow, no draining of the bucket over the water column, careful placement of the dredge material onto the scows, a closed environmental bucket, air monitoring, odor suppression measures, and regimented waste handling and disposal procedures. Dredged material would be characterized for appropriate off-site disposal and/or beneficial reuse if appropriate.

After the relocation of the NYCDOT function, construction of the EW 1 Project underground cables and onshore substation would have the same potential for impacts, including the disturbance of hazardous materials in the subsurface and contaminated sediments during dredging. The potential for moderate or large adverse impacts from subsurface hazardous materials would also be avoided with the implementation of appropriate protection and mitigation measures. In addition, with dredging for the Proposed Project and EW 1 Project underground cables likely occurring concurrently, the same protective measures to reduce or eliminate impacts related to dredging would be used. Therefore, there would be minor adverse cumulative impacts during construction to hazardous materials resulting from the Proposed Project and Future without Project condition, and all potential impacts would be mitigated.

The Proposed Project would not have indirect effects on hazardous materials in the Study Area during construction, including inducing developments that could result in the identification of additional hazardous materials in the Study Area. The Study Area beyond the Project Area is already built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could impact upland hazardous materials or result in impacts from sediment dredging.

3.20.4.11 Water and Sewer Infrastructure

The disruption of existing surface conditions and excavation required for the construction of the proposed sewer infrastructure would have the potential to affect underground infrastructure by direct physical impact. However, such effects would be avoided through BMPs that include One Call mark-outs just prior to construction as well as extensive utility survey and plotting during design so that, to the extent possible, proposed infrastructure and construction activity does not conflict with such infrastructure. **With these BMPs in place, there would be no significant adverse impacts to water and sewer infrastructure during construction.**

3.20.4.11.1 Indirect Effects and Cumulative Impacts

The Proposed Project would have no significant adverse impacts to water and sewer infrastructure during construction. The disruption of existing surface conditions and excavation required for the construction of the proposed sewer infrastructure would have the potential to affect underground infrastructure by direct physical impact. However, such effects would be avoided through BMPs that include One Call mark-outs just prior to construction as well as extensive utility survey and plotting during design so that, to the extent possible, proposed infrastructure and construction activity does not conflict with such infrastructure.

After the relocation of the NYCDOT function, construction of the EW 1 Project has the same potential to affect underground infrastructure by direct physical impact. The same BMPs used for the Proposed Project would likely be used to ensure construction activity does not conflict with underground infrastructure. Therefore, there would be minor potential adverse cumulative impacts during construction to water and sewer infrastructure resulting from the Proposed Project and Future without Project condition, and all potential impacts would be mitigated.

The Proposed Project would not have indirect effects on water and sewer infrastructure in the Study Area during construction, including inducing developments that could require additional demand on water and sewer infrastructure in the Study Area. The Study Area beyond the Project Area is already well-developed with water and sewer and infrastructure and built with industrial, manufacturing, and commercial land uses, including Industry City and the Sims Facility. It is not expected that construction of the Proposed Project would induce additional developments in a highly-developed neighborhood that may introduce additional development activities that could increase demand on water and sewer infrastructure.