Empire Offshore Wind LLC
Empire Wind 2 Project

Appendix J

Article VII Application Summary Memorandum

Analysis of Visual Effects to Historic and Architectural Properties

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ACRONYMS AND ABBREVIATIONS

ac	acres
APE	Area of Potential Effect
AVEHAP	Analysis of Visual Effects to Historic and Architectural Properties
BOEM	Bureau of Ocean Energy Management
COP	Construction and Operations Plan
CRIS	Cultural Resource Information System
Empire	Empire Offshore Wind LLC
EW 2	Empire Wind 2
ft	foot
ha	hectares
HDD	horizontal directional drilling
HVAC	high-voltage alternating current
km	kilometer
kV	kilovolt
Lease Area	designated Renewable Energy Lease Area OCS-A 0512
LIPA	Long Island Power Authority
m	meter
mi	mile
nm	nautical mile
NPS	National Park Service
NRHP	National Register of Historic Places
NRIS	National Register Information System
NY SHPO	New York State Historic Preservation Office
NYSPC	New York State Public Service Commission
OCS	Outer Continental Shelf
PAPE	Preliminary APE
POI	Point of interconnection at an expansion of the Barrett 138-kV Substation
PSEG-LI	PSEG Long Island
NY Project	EW 2 Project transmission system in New York
NY Project Area	The submarine export cable corridor, onshore export and interconnection cable corridors and onshore substation facilities within New York State jurisdiction
SHPO	State Historic Preservation Office
Tetra Tech	Tetra Tech, Inc.
VIA	Visual Impact Assessment

J.1 Introduction

Tetra Tech, Inc. (Tetra Tech) was contracted by Empire Offshore Wind LLC[1] (Empire, or the Applicant) to prepare an Analysis of Visual Effects to Historic and Architectural Properties (AVEHAP) in support of the development of the Empire Wind 2 (EW 2) Project. Empire proposes to construct and operate the EW 2 Project (**Figure J-1**) as one of two separate offshore wind projects to be located within the Bureau of Ocean Energy Management (BOEM) designated Renewable Energy Lease Area OCS-A 0512. This assessment is being submitted as part of the review by the New York State Public Service Commission (NYSPSC or Commission) for the portions of the EW 2 Project transmission system located within the State of New York (collectively the NY Project) pursuant to Article VII of the New York Public Service Law. This memorandum provides an abbreviated summary of the AVEHAP for the onshore NY Project in New York.

The NY Project will interconnect to the New York State Transmission System operated by the New York Independent System Operator, Inc. at the Oceanside Point of Interconnection (POI) at an expansion of the Barrett 138-kilovolt (kV) Substation. The Barrett 138-kV Substation is owned by the Long Island Power Authority (LIPA) and operated by PSEG Long Island (PSEG-LI) and is located in Oceanside in the Town of Hempstead, New York. The onshore NY Project will be located entirely within Nassau County, New York.

The purpose of the AVEHAP is to assess the potential visual effects of the construction and operation of the NY Project from above-ground historic properties (e.g., cultural properties, districts, buildings, structures, or objects, that are 50 years old or older and are listed in or eligible to be listed in the National Register of Historic Places [NRHP]) that will have views or partial views of NY Project components. The term "historic properties" is defined as properties listed on the NRHP or determined NRHP eligible. "Architectural property" is the term used here to denote an above-ground building, structure or object, 50 years old or older, that has not been evaluated for NRHP eligibility or that has been determined not eligible for the NRHP.

The AVEHAP focuses on the preliminary Area of Potential Effect (PAPE) for the onshore NY Project facilities associated with the onshore substation (Onshore AVEHAP PAPE). One historic property, Cobble Villa (National Register Information System [NRIS] No. 14001214), located within the Onshore AVEHAP PAPE may have a view of an onshore NY Project component. The submarine export cables and onshore export and interconnection cables will be entirely submerged under water and/or buried, with the exception of a proposed cable bridge crossing over Barnums Channel (see **Appendix I Visual Impact Assessment** for further discussion); therefore, these NY Project components will not be addressed further in this analysis.

The AVEHAP includes a detailed description of the NY Project components evaluated (Section J.2 NY Project Description); a summary of the regulatory framework driving the analyses herein (Section J.1.1 Regulatory Context); a detailed discussion of the methods used to identify the Study Area and the PAPE (i.e., locations of NRHP-listed and -eligible resources potentially affected by the construction and operation of the NY Project, Section 4 Architectural Property Survey Methodology); the environmental context of the NY Project Area (Section J.3.1); the PAPE description and descriptions of historic and architectural properties that may be impacted (Section J.4.1.3 Onshore AVEHAP PAPE); and a summary of recommendations (Section J.5 Summary and Conclusions). This analysis also relies upon assessments reported in a separate Visual Impact Assessment developed for the NY Project and presented in a report detailing onshore visual effects, which was filed with the Article VII Application.

[1] Empire is a direct, wholly owned subsidiary of Empire Offshore Wind Holdings LLC (Empire HoldCo). Empire HoldCo is jointly owned by (1) an indirect, wholly owned subsidiary of Equinor ASA (collectively, Equinor); and (2) an indirect, wholly owned subsidiary of BP Wind Energy North America Inc. BP Wind Energy North America Inc. acquired ownership interest in Empire HoldCo in a transaction that closed on January 29, 2021.

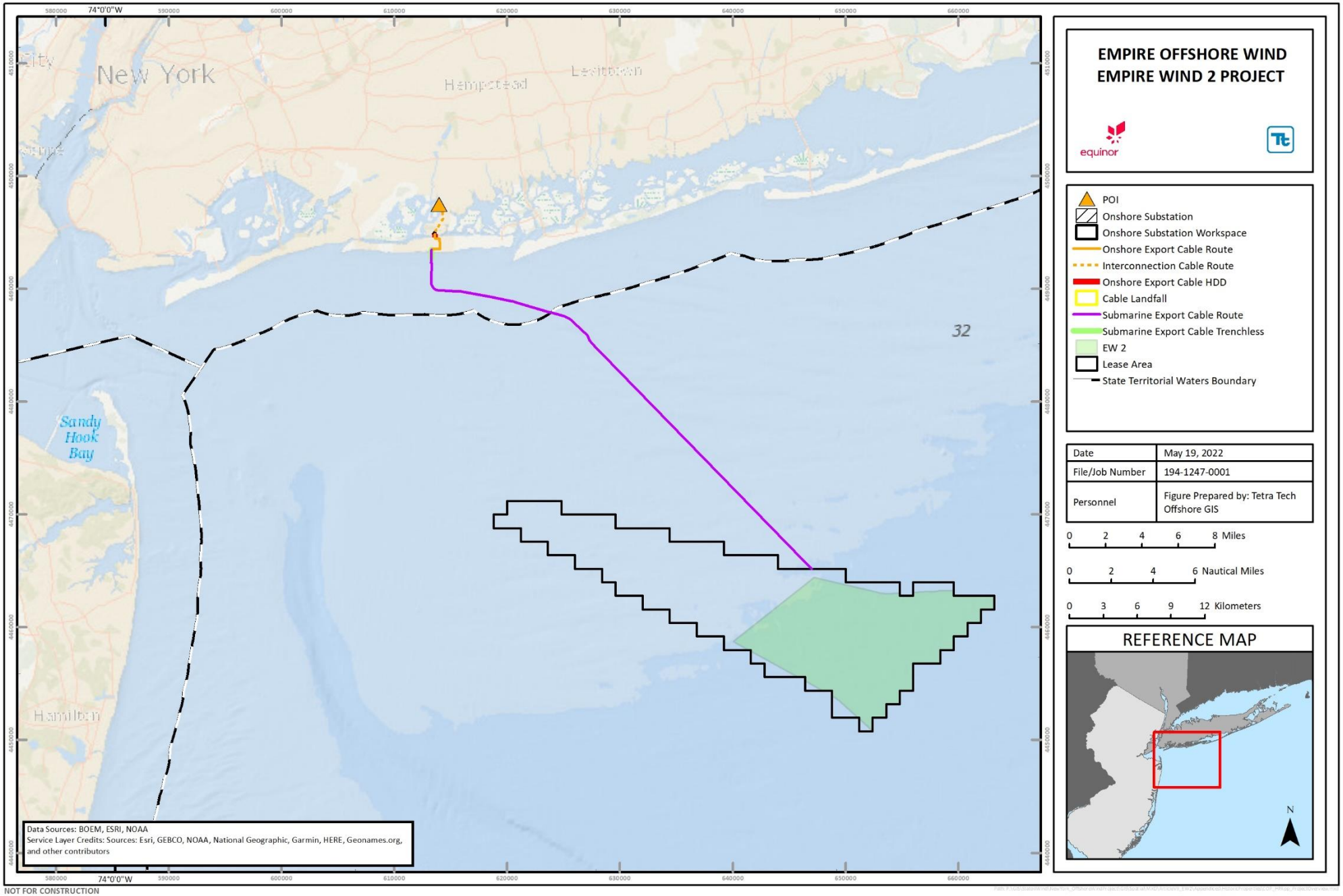

Figure J-1 Overview of the EW 2 Project Area

J.1.1 Regulatory Context

Several federal, state, and local agencies have regulatory authority over the NY Project, based on the location of the different NY Project components. Onshore facilities, including the onshore substation, will be located in Nassau County, New York.

The NY Project is subject to regulation by BOEM under provisions of the Outer Continental Shelf Renewable Energy Program authorized by the Energy Policy Act of 2005 (42 United States Code §§ 13201 *et seq.*). Assessments of effects on historic architectural resources are required to support BOEM's National Environmental Policy Act review process and the review performed under Section 106 of the National Historic Preservation Act (54 United States Code. § 306108). In its Construction and Operations Plan (COP) Guidelines, BOEM provides recommended approaches for assessing historic architectural resources during the permitting phase of offshore wind projects (BOEM 2017). BOEM directs that an AVEHAP should be conducted in a manner acceptable to the relevant State Historic Preservation Office (SHPO) for the state with the onshore viewshed.

In 2016, BOEM executed a Programmatic Agreement with the SHPOs of New Jersey and New York, the Shinnecock Indian Nation, and the Advisory Council on Historic Preservation to formalize agency jurisdiction and coordination for the review of offshore renewable energy development regarding cultural resources (BOEM 2016). The Programmatic Agreement recognized that issuing renewable energy leases on the Outer Continental Shelf constituted an undertaking subject to Section 106 of the National Historic Preservation Act. BOEM, as the lead federal agency in this process, has authority to initiate consultations with the SHPOs, and to consult with interested Native American Tribes.

An electric transmission line with a design capacity of 125 kV or more, extending a distance of one mile (mi) or more, is also subject to review and approval by the NYSPSC as a major electric transmission facility pursuant to Article VII of the New York Public Service Law. The EW 2 Project is subject to review by the Commission for the portions of the EW 2 Project transmission system located within the State of New York. Per 16 New York Code of Rules and Regulations § 86.5, Article VII applications must consider avoidance of "scenic, recreational and historic areas." The New York State Historic Preservation Act of 1980, the state counterpart to the National Historic Preservation Act, establishes the New York State Register of Historic Places (NYSRHP).

J.1.2 State Historic Preservation Office Coordination

The scope and approach to the AVEHAP were supported through engagement with federal and state agencies. Empire met with BOEM and the National Park Service (NPS) on August 29, 2018 to discuss approaches to the historic architectural survey and visual impact analysis. Empire initiated discussions with the New York State Office of Parks, Recreation and Historic Preservation in its role as New York State Historic Preservation Office (NYSHPO) via a letter dated December 13, 2018. The NY SHPO concurred with the approach in a letter dated December 27, 2018. As the NY Project evolved, Empire provided NY SHPO with a NY Project update letter on August 22, 2019 and met with NY SHPO on September 26, 2019 to describe the most recent preferred locations for the EW 2 onshore electrical systems[2]. Empire provided a NY Project update letter to the NY SHPO on April 2021 for additional routes/sites under consideration. NY SHPO confirmed receipt of the update and had no comments at the time. Empire also provided NY SHPO an EW 2 Project update letter introducing an additional alternative landfall site (Landfall E) and additional EW 2 onshore export and

[2] This update letter did not include some of the submarine export cable landfall alternatives and associated onshore export and interconnection cable route alternatives. However, these were included within the AVEHAP Study Areas using consistent approaches outlined in the consultation letter.

interconnection cable routes on May 9, 2022. Empire continues to engage with stakeholders with regards to potential impacts to architectural properties.

J.2 NY Project Description

The NY Project includes:

- Three three-core 230-kV high-voltage alternating current (HVAC) submarine export cables located within an approximately 7.7-nautical mile [nm] (14.2-kilometer [km])-long submarine export cable corridor from the boundary of New York State waters 3 nm (5.6 km) offshore to the cable landfall;
- A cable landfall in the City of Long Beach, New York;
- Three 230-kV onshore export cable circuits, each with three single-core HVAC onshore export cables, buried underground within an approximately 1.5-mi (2.4-km)-long onshore export cable corridor from the cable landfall to the onshore substation;
- An onshore substation in the Village of Island Park, within the Town of Hempstead, New York, which will step up the voltage to 345 kV for the onshore interconnection cables; and
- Up to three 345-kV onshore interconnection cable circuits, each with three single-core HVAC onshore interconnection cables, buried underground within an approximately 1.7-mi (2.8-km)-long interconnection cable corridor from the onshore substation to the POI.

The NY Project proposes to interconnect in Oceanside, New York, where the renewable electricity generated will be transmitted to the electric grid. The transition from submarine export cables to the onshore export cables will occur at the export cable landfall. One onshore substation location is proposed in the Article VII Application at 15 Railroad Place in Island Park, New York. The location of the onshore facilities is shown in **Figure J-2**.

Construction of the onshore substation will be predominantly located within the 5.2-ac (2.1-ha) onshore substation site. However, an additional temporary work area adjacent to the onshore substation site will be required during installation of the onshore export cables underneath Reynolds Channel via horizontal directional drill (HDD), which terminate within the onshore substation site. The total construction work area for the onshore substation, including the space required for the HDD, will be 5.4 ac (2.2 hectares [ha]). This temporary construction work area outside of the perimeter fence line of the onshore substation will be restored to pre-construction conditions, to the extent practicable, following construction activities.

The onshore substation site will be contained within a perimeter fence that will be up to 10 feet (ft) (3-meter [m]) high, constructed of chain link, welded wire, or similar material, with an up to 2-ft (0.6-m)-tall, barbed wire extension. The onshore substation site will be elevated to protect facilities from potential flooding. Elevated portions of the site will be located behind a proposed retaining wall within the perimeter fence line. The maximum height of the proposed facilities, including the site elevation and maximum building height, will be no more than 60 ft (18 m). Conceptual layouts of the onshore substation are provided in **Attachment J-1**. Conceptual elevation drawings of the onshore substation are provided in **Attachment J-2**.

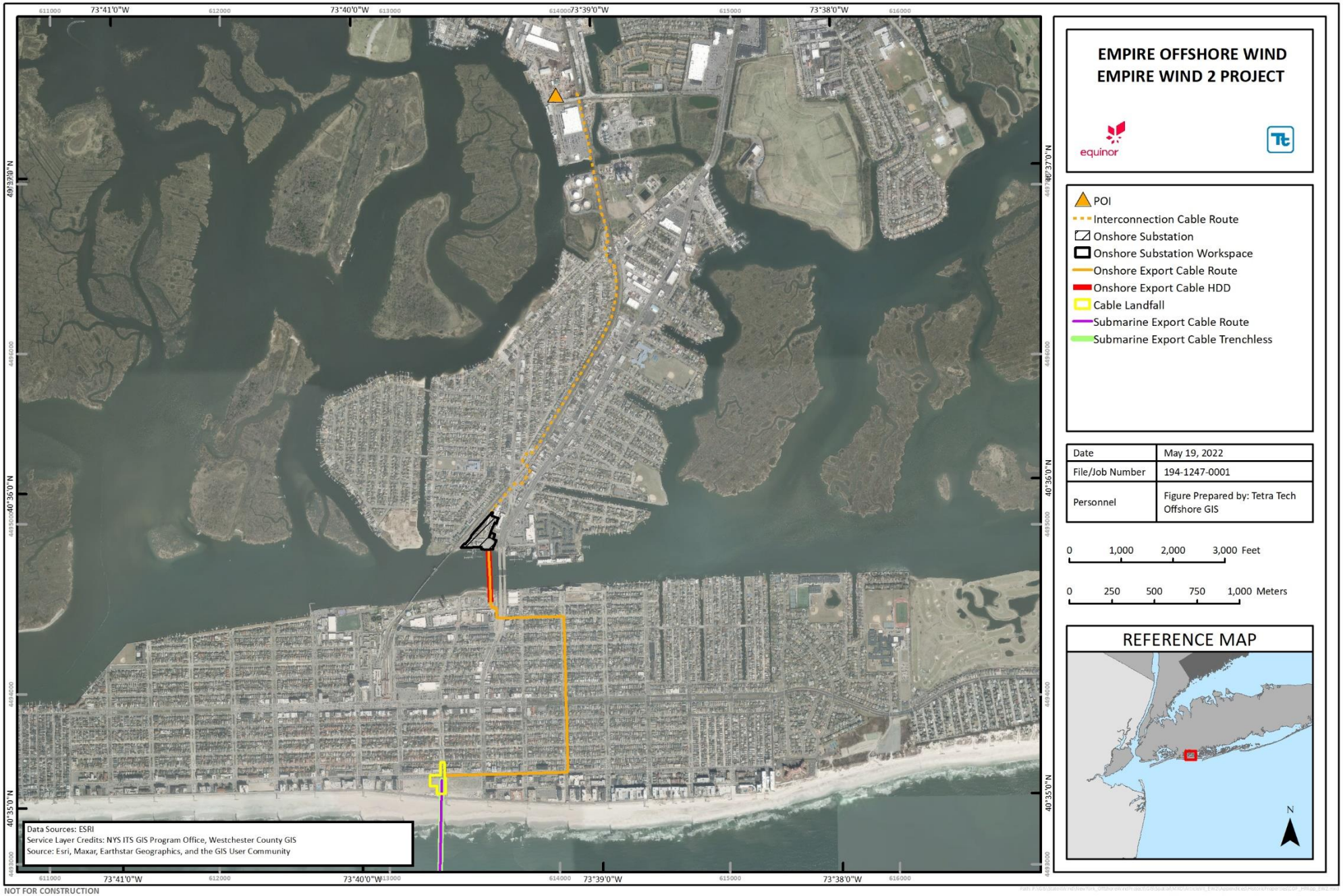

Figure J-2 Onshore Substation Site and Onshore Export and Interconnection Cable Routes

From the cable landfall, the onshore export cables will traverse Long Beach to the onshore substation. The onshore interconnection cables will originate at the new onshore substation and terminate at the POI. The interconnection cable route includes an inland waterway crossing (Barnums Channel) between the Village of Island Park and Oceanside, New York, which will utilize an above-water cable bridge. The crossing will be located adjacent to the existing Long Island Rail Road (LIRR) railway bridge. This crossing will use up to four support columns (pile caps) located within the waterway to support the truss system, which will hold the cables above the water. The supports will include up to three 1.5-ft (0.5-m)-diameter steel pipe piles per pile cap, for a total of 12 steel pipe piles within the waterway. The cable bridge will be constructed from a prefabricated steel truss system assembled offsite and set in place, and the structure will measure up to 25 ft (7.6 m) wide and 8 ft (2.4 m) tall and span a length of approximately 300 ft (91 m). The structure is anticipated to have a total height of up to 15 ft (4.6 m) above mean sea level, with a maximum total height of 30 ft (9.1 m).

As these onshore export and interconnection cables will be located underground, with the exception the Barnums Channel crossing, and will not be visible once installed, (see **Appendix I**), the onshore export and interconnection cables are not discussed in detail in this document.

J.3 Environmental and Historical Context

J.3.1 Environmental Setting

The AVEHAP Study Area is defined as the area of maximum theoretical visibility of the onshore substation extending to a 4-mi (6.4-km) radius, including portions of the Long Beach barrier island, Barnum Island, and the Town of Hempstead, all within Nassau County, New York (see Section J.4.1.2). The AVEHAP Study Area is situated at the northernmost extent of the Atlantic Coastal Plain physiographic province, a region of low relief and diverse ecological habitats. In general, the coarse-textured soils of the coastal plain are derived from Cretaceous period marine sediments and a mantle of Pleistocene period glacial till and outwash. The southern shore of Long Island is characterized by barrier islands, bayside salt marsh lagoons, and sand beaches.

J.3.2 Historical Context

The historical record of the 400-year European-American presence in the NY Project vicinity can be viewed as three eras of broad social transformations. These eras represent the Colonial Period (1600-1776), which entailed the arrival of Europeans and the demise of pre-contact Native American lifeways; American Independence and Internal Development (1776-1860), representing the transfer of sovereignty from George III to American rule as well as the rise of canals and railroads, and expansion of agricultural production; and, Urban Expansion and Rural Decline (1860-1960), which designated New York City as the financial and manufacturing capital of the world and the transformation of its Long Island and New Jersey vicinities from agrarian societies to an urban mass culture. Additional detail on these three eras is provided in the Empire Offshore Wind: Empire Wind Project (EW 1 and EW 2) AVEHAP, which was filed as Appendix Z of the COP submitted to BOEM.

J.4 Architectural Property Survey Methodology

Coastal New York is an area with extensive historical value and a tradition of historical commemoration resulting in numerous cultural resources that are listed in or determined to be eligible for the NRHP (i.e., historic properties), some within the recommended Onshore PAPE. For the purposes of this assessment, the evaluated project impact area described by the New York State Historic Preservation Act of 1980, Section 14.09 is the APE as defined by 36 Code of Federal Regulations § 800.16(d), or "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Under Section 106, BOEM will determine the extent of and define the Onshore APE for the EW 2 Project. The AVEHAP focuses on historic properties and architectural properties within

the Onshore AVEHAP PAPE that may be affected by construction and operation of the NY Project. The Onshore AVEHAP PAPE is defined as the area in which there may be visibility of the onshore NY Project.

The National Park Service maintains the NRHP and defines four criteria for evaluating a cultural resource to be eligible to the NRHP (NPS 1997:2). A cultural resource must meet at least one of the following criteria for NRHP eligibility.

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history;
> B. That are associated with the lives of persons significant in our past;
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and
> D. That have yielded, or may be likely to yield, information important in prehistory or history (NPS 1997:2).

In addition to meeting at least one of the criteria, properties must also retain sufficient integrity to convey their significance. Integrity is assessed on the following aspects: location, design, setting, materials, workmanship, feeling, and association (NPS 1997:44).

Designated State Register properties and National Register properties overlap and are not distinguished in the New York Cultural Resource Information System within the NY Project's Onshore AVEHAP PAPE. Therefore, the focus on historic properties covers both state and federally recognized properties.

This section is organized to highlight the step-by-step approach taken to define the Onshore AVEHAP PAPE. The Onshore AVEHAP PAPE is described, as are the steps taken to identify and assess the historic properties and potential historic properties that occur within it.

J.4.1 Defining the Onshore AVEHAP PAPE

The Onshore AVEHAP PAPE is the area, on land or sea, where views of the NY Project's components may be visible. The process of defining the Onshore AVEHAP PAPE involved establishing a study area and models of preliminary viewsheds. The Onshore AVEHAP PAPE, in turn, was refined to resolve NY Project visibility to a more fine-grained and realistic degree, resulting in a more acute computer-generated viewshed model through observation of real conditions in the field (i.e., ground-truthing). This refinement resulted in development of the PAPE. Under Section 106, BOEM will then determine the extent of and define the Onshore AVEHAP APE for this NY Project.

J.4.1.1 Onshore Facilities

The NY Project proposes to develop one onshore substation in the incorporated Village of Island Park, Town of Hempstead, New York. The transition from submarine export cables to onshore export cables will occur at the export cable landfall; however, there will be no permanent above-ground structures at the export cable landfall location. The onshore export and interconnection cables will be located underground, and will not be visible once installed, with the exception of a cable bridge crossing of Barnums Channel; therefore, these

facilities were not discussed in detail in this document. Locations for the onshore facilities are shown in **Figure J-2**.

Short-term visual effects to historic properties would occur during construction of the onshore substation and would result from construction activities and the presence of construction equipment and work crews. Construction activities associated with the construction and installation of the onshore substation will include surveying, clearing and grubbing the construction site, stockpiling topsoil, grading, forming and construction of substation equipment foundations, placement and erection of buildings and electrical equipment, placement of perimeter security fencing, and restoration and landscaping installation (if required).

It is anticipated that contrast would be introduced during NY Project construction of the onshore substation primarily for viewers associated with residential areas in proximity to the onshore substation where the presence of construction equipment, materials, and crews would be dominant in the foreground. However, these visual effects will be short-term because construction equipment and crews would be removed once construction is complete. Views of NY Project construction from areas not immediately adjacent to the onshore substation site would be mostly screened by residential, commercial or industrial buildings, vegetation and/or topography. Visual effects to these viewers will be mostly limited to seeing construction traffic on local roads. Visual simulations of the onshore substation are provided in **Attachment J-3**.

Other onshore NY Project components, namely onshore export and interconnection cable trenches and laydown yards, will occur at-grade (with the exception of the cable bridge across Barnums Channel) and will offer temporary views of construction equipment only to areas immediately adjacent to the construction.

It is anticipated that proposed lighting associated with the onshore NY Project components (i.e., onshore substation) will include emergency and exterior lighting. Emergency lighting would most likely include lighting installed on the static masts and/or buildings and would be directed downward toward outdoor electrical equipment. Emergency lights would only be turned on during emergency repairs. Exterior lighting would consist of security lighting at building entrances and access gates. The lights would be directed downward and will be motion sensor activated. Potential impacts associated with nighttime lighting for onshore NY Project components are discussed in the Visual Impact Assessment.

J.4.1.2 AVEHAP Onshore Study Area

The area encompassed by a computer-generated viewshed indicated that the onshore substation would have a maximum theoretical visibility up to 4 mi (6.4 km) away, including portions of the Long Beach barrier island, Barnum Island, and the Town of Hempstead, all within Nassau County, New York. The 4-mi (6.4-km) radius from the onshore substation was designated as the AVEHAP Onshore Study Area (see **Figure J-3**). The AVEHAP Onshore Study Area contains 13 NRHP-listed properties, 523 NRHP-eligible properties, and 1,413 unevaluated architectural properties (CRIS 2021; COP Appendix Z, Section Z.4.4.3). A more realistic viewshed consisting of a 2-mi (3.2-km) radius around the onshore substation would contain 128 historic properties (7 NRHP listed, 121 NRHP eligible) and 837 unevaluated architectural properties.

J.4.1.3 Onshore AVEHAP PAPE

The Onshore AVEHAP PAPE was defined as the zone within the AVEHAP Onshore Study Area that has theoretical views of the proposed substation (**Figure J-3**). Viewshed analyses were conducted on all 128 NRHP-eligible and 7 NRHP-listed historic properties occurring on the Long Beach barrier island, resulting in 85 properties with potential views of the onshore substation. Barnum Island contains no NRHP-listed or eligible resources. Photo documentation of 31 selected historic properties within Onshore AVEHAP PAPE is presented in **Attachment J-4**.

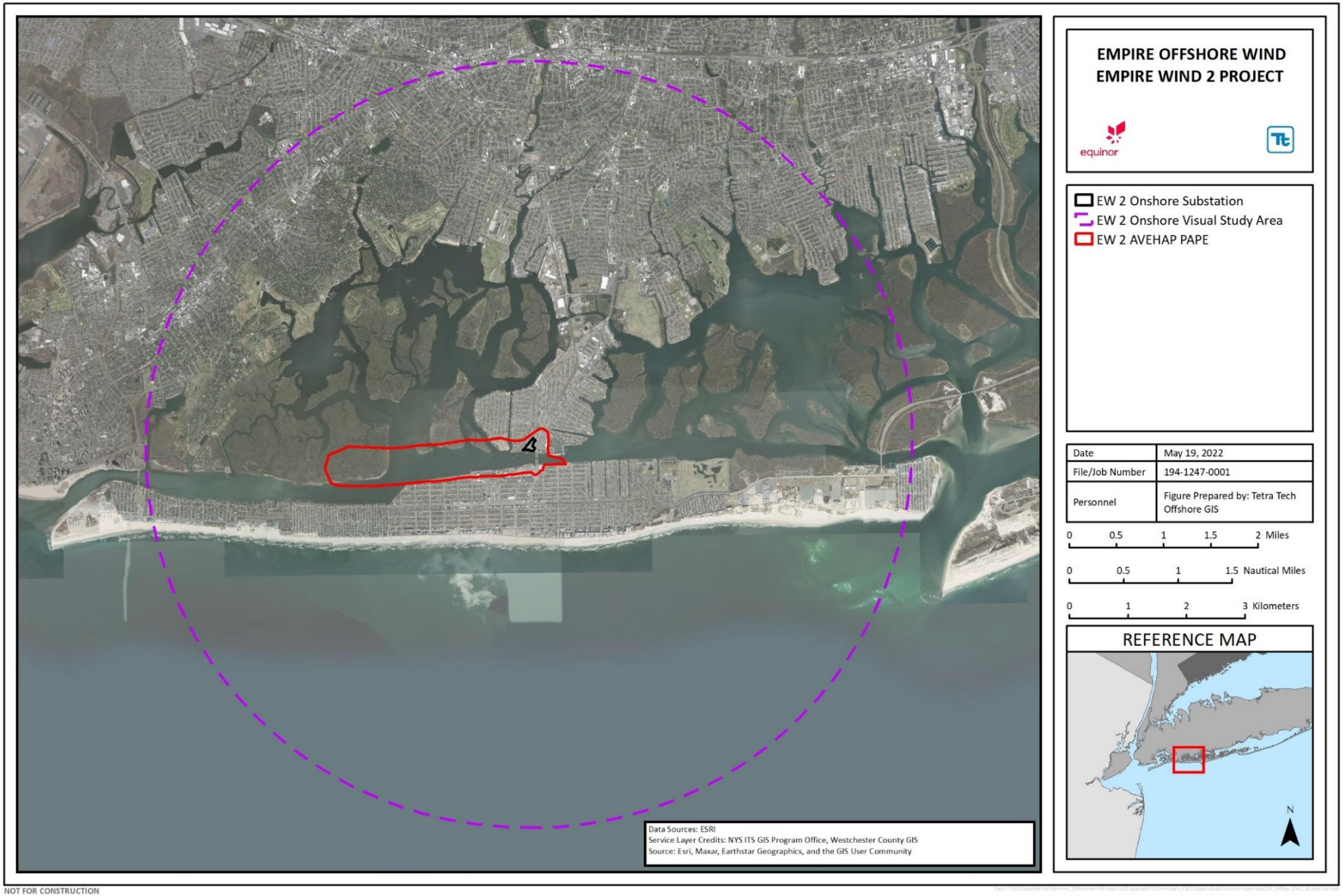

Figure J-3 Onshore AVEHAP Study Area and PAPE

The City of Long Beach elevated water tower (USN 05946.001723), located between Water Street and Park Place, reaches a height of approximately 160 ft (49 m) or more than twice the height of the proposed substation. Its position on the south shore of Reynolds Channel, opposite the site of the proposed onshore substation, makes the tower a useful visual reference point vis-à-vis historic properties across the PAPE. An assessment of street-level views toward the tower's midpoint resulted in an onshore zone of visual impact extending not beyond approximately 0.25 mi (0.40 km) from the tower, encompassing an area around 125 ac (51 ha). Beyond approximately 0.25 mi (0.40 km) ground-level views of the tower are obscured by the built environment of the surrounding neighborhoods.

The onshore substation's location on the north shore of Reynolds Channel allows potential views largely limited to the channel shorelines. The street-level analysis identified one historic resource with a potential view of the proposed onshore substation, the Cobble Villa house (NR No. 14001214) located at 657 Laurelton Boulevard on the south shore of Reynolds Channel.

Cobble Villa is a two-story house that is NRHP listed under Criterion A for its association with town planning and the development of Long Beach as a resort community during the early twentieth century, and under Criterion C for its Mediterranean Revival style. The "cobble" in its name refers to the use of cobble stone as a decorative element on the front façade. Observations made by the NY Project team in 2019 indicate that Cobble Villa currently retains its significance and integrity.

The assessment of effects to Cobble Villa is described in **Table J-1**. The onshore substation will be visible from Cobble Villa, approximately 0.8 mi (1.3 km) northeast of the historic property. The industrial character of the Reynolds Channel shorelines and its environs are consistent with the massing and appearance of the proposed onshore substation. Cobble Villa's significance and NRHP listing is not associated with unobstructed vistas or pristine natural settings. Tetra Tech's assessment is that the NY Project will have no adverse effect on the significance of Cobble Villa.

Table J-1 Assessment of Effects of Historic Properties within the Onshore AVEHAP PAPE

Resources	NRIS No./ CRIS No.	Status	NR Criteria	Tetra Tech Assessment of Effect
Cobble Villa	14001214	NR listed	A, C	No Adverse Effect

At a maximum height of approximately 30 ft (9 m) above mean sea level, the cable bridge at Barnums Channel is screened by the local built environment at distances ranging from approximately 280 ft (85 m) to 660 ft (200 m). To the north the view is screened by the Costco Wholesale building at 3705 Hampton Road, Oceanside, New York; to the east and northeast the view is screened by the E.F. Barrett Power Station and its substation; and, to the southwest, fuel storage tanks obstruct views of the proposed cable bridge. A narrow corridor of visibility to the west takes in undeveloped salt marsh. It is concluded that the proposed cable bridge crossing between Village of Island Park and Oceanside, New York, will not introduce new visual effects on NRHP historic properties or potentially eligible architectural properties.

J.5 Summary and Conclusions

Tetra Tech defined a Study Area that encompassed the maximum theoretical extent of NY Project visibility, extending in a 4-mi (6.3-km) radius from the onshore substation. The AVEHAP Onshore Study Area contains 13 NRHP-listed properties, 523 NRHP-eligible properties, and 1,413 unevaluated architectural properties, with 85 historic properties having a potential NY Project view based on modeled viewshed analysis. The geographic extent of this potential visibility was defined as the Onshore AVEHAP PAPE. A refined analysis of the

Onshore AVEHAP PAPE, utilizing a site visit and Google Earth street views, resulted in the identification of 128 of these historic properties located within 2 mi (3.2 km) of the onshore substation. A refined analysis further identified only one historic property with an actual NY Project view, Cobble Villa, which is assessed as not adversely affected.

Onshore, the burial of the onshore export and interconnection cables will result in the avoidance of the potential visual effects of the NY Project that would otherwise occur. For the onshore aboveground NY Project components, the following measures are proposed to minimize visual contrast:

- Construction Phase:
  - A Fugitive Dust Control Plan will be implemented to minimize dust (visual pollution);
  - The onshore NY Project Area will be maintained free of debris, trash, and waste to the extent possible during construction; and
  - Areas temporarily disturbed during construction will be restored to the conditions required by state and/or local permits.
- Operations Phase:
  - Minimal presence of crews and equipment conducting maintenance activities;
  - Lighting at the onshore substation will be designed to reduce light pollution where feasible (e.g., downward lighting, motion-detecting sensors); and
  - In coordination with state and local permitting entities and as site design progresses, mitigation measures to reduce visual contrast will be considered such as repetition of form, line, color, and texture based on other existing elements around the site.

Tetra Tech has researched the effects of the NY Project on those historic and architectural properties with actual NY Project views. The Onshore AVEHAP PAPE occurs within a dense suburban setting that has witnessed multiple episodes of construction and demolition, creating a complex mosaic of property use, architectural styles, and building massing. Tetra Tech concludes that the character-defining qualities that qualify each historic and architectural property to be NRHP listed or eligible, will not be adversely affected by the introduction of the NY Project.

J.6 References

BOEM. 2016. *Programmatic Agreement Among The U.S. Department of the Interior, Bureau of Ocean Energy Management, The State Historic Preservation Officers of New Jersey and New York, The Shinnecock Indian Nation, and the Advisory Council on Historic Preservation, Regarding Review of Outer Continental Shelf Renewable Energy Activities Offshore New Jersey and New York, Under Section 106 of the National Historic Preservation Act.* Available online at: https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/HP/NY-NJ-Programmatic-Agreement-Executed.pdf. Accessed Nov. 7, 2019.

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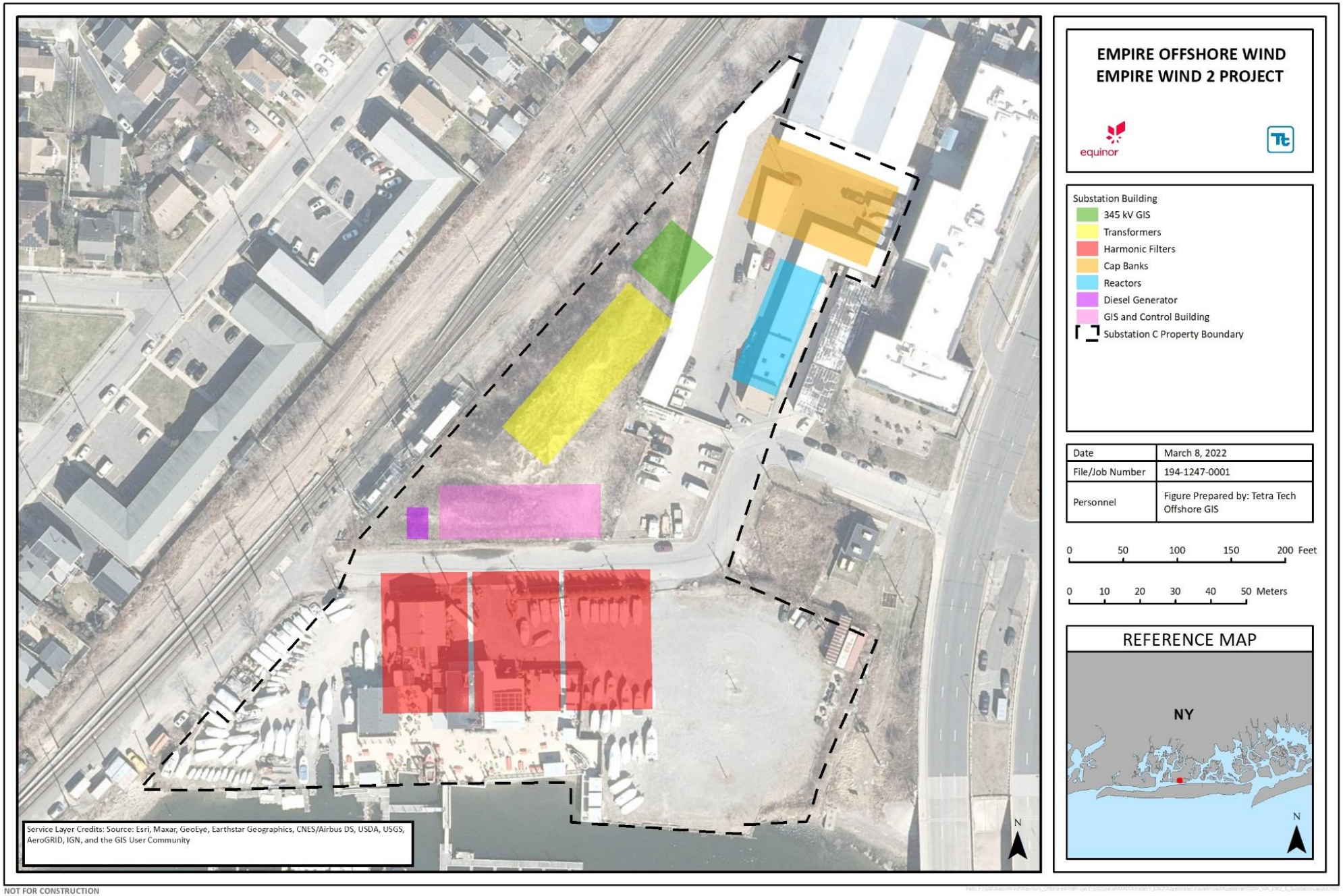
NPS (National Park Service). 1997. How to Apply the National Register Criteria for Evaluation. *National Register Bulletin*. Washington, D.C.

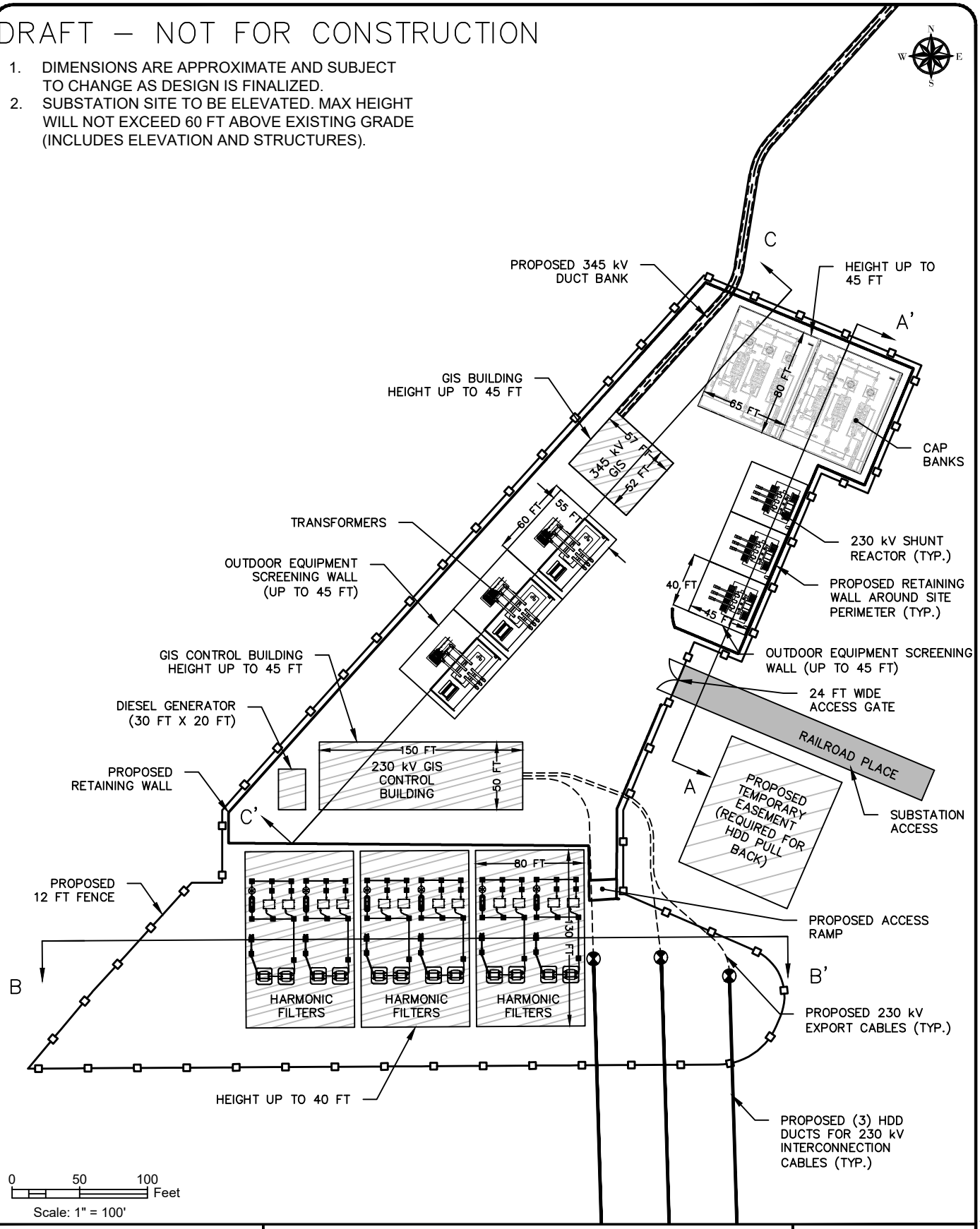
ATTACHMENT J-1 CONCEPTUAL ONSHORE SUBSTATION LAYOUT


EMPIRE OFFSHORE WIND
EMPIRE WIND 2 PROJECT
equinor
Substation Building
345 kV GIS
Transformers
Harmonic Filters
Cap Banks
Reactors
Diesel Generator
GIS and Control Building
Substation C Property Boundary
Date
March 8, 2022
File/Job Number
194-1247-0001
Personnel
Figure Prepared by: Tetra Tech Offshore GIS
0 50 100 150 200 Feet
0 10 20 30 40 50 Meters
REFERENCE MAP
NY
N
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
N
NOT FOR CONSTRUCTION

ATTACHMENT J-2
CONCEPTUAL ONSHORE SUBSTATION ELEVATION

DRAFT – NOT FOR CONSTRUCTION

1. DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE AS DESIGN IS FINALIZED.
2. SUBSTATION SITE TO BE ELEVATED. MAX HEIGHT WILL NOT EXCEED 60 FT ABOVE EXISTING GRADE (INCLUDES ELEVATION AND STRUCTURES).



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10 Post Office Square, 11th Floor
Boston, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

Empire Offshore Wind LLC

Empire Wind 2 Project
Substation Layout

NOTE: DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE AS DESIGN IS FINALIZED.

PROJ:	194-1247-0001
DATE:	02/14/2022
DESN:	S. Goyette

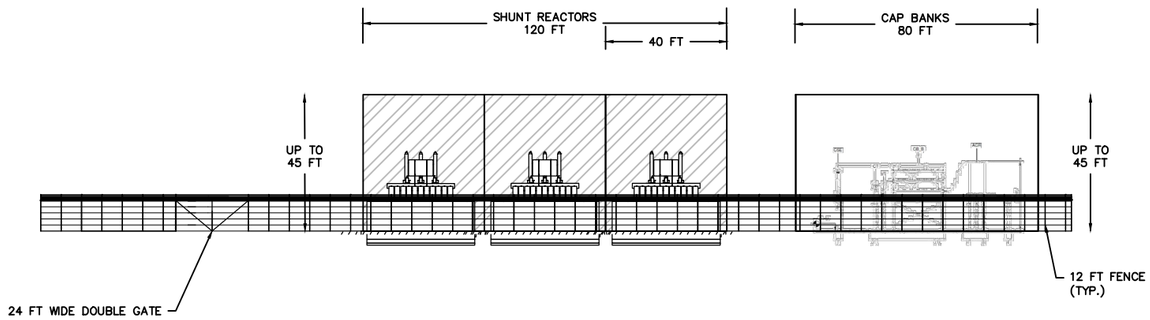
Figure
1

DRAFT – NOT FOR CONSTRUCTION

VIEW FROM EAST

A

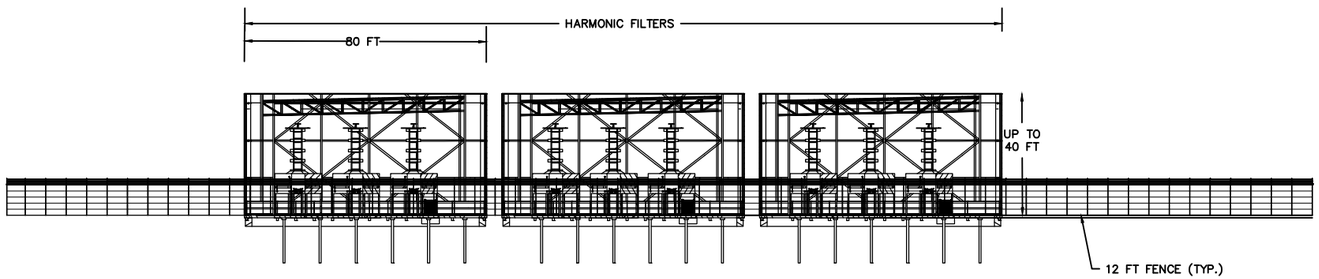
A'



VIEW FROM WATERFRONT

B

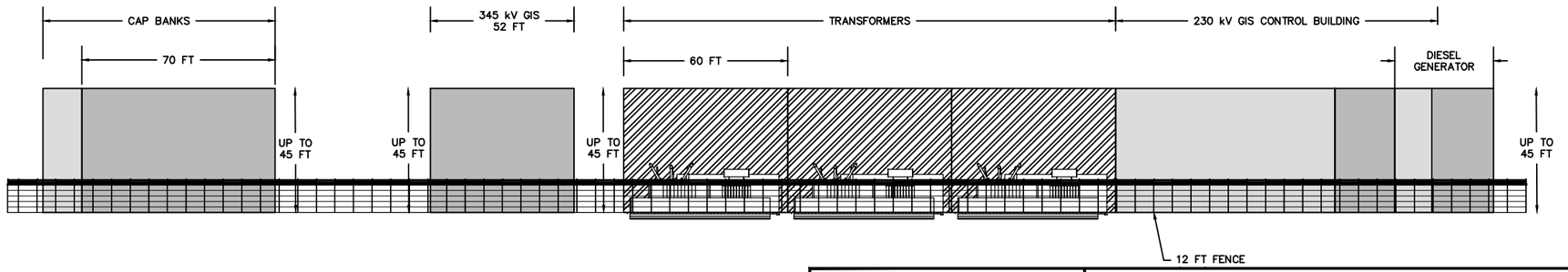
B'



C

VIEW FROM NORTHWEST

C'



0 50 100 Feet

Scale: 1" = 50'

1. DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE AS DESIGN IS FINALIZED.
2. SUBSTATION SITE TO BE ELEVATED. MAX HEIGHT WILL NOT EXCEED 60 FT ABOVE EXISTING GRADE (INCLUDES ELEVATION AND STRUCTURES).

TETRA TECH
www.tetratech.com
10 Post Office Square, 11th Floor
Boston, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

Empire Offshore Wind LLC

Empire Wind 2 Project
Substation Layout

PROJ:	194-1247-0001
DATE:	02/14/2022
DESN:	S. Goyette

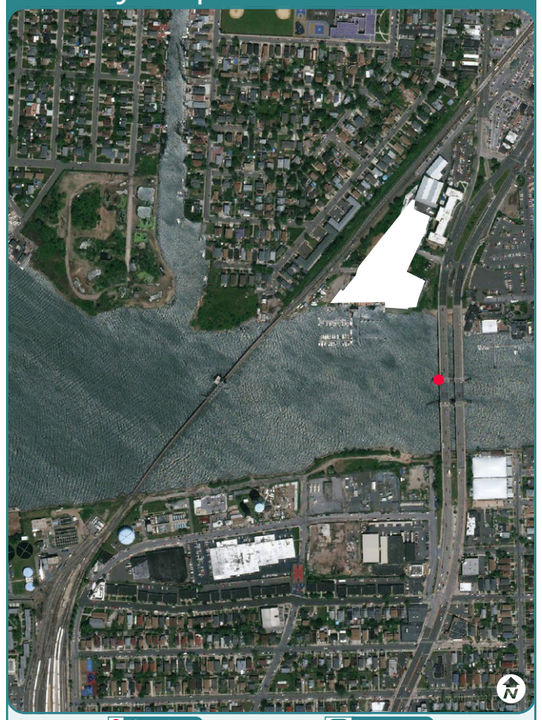
Figure
2

Bar Measures 1 inch

ATTACHMENT J-3
VISUAL SIMULATIONS

Panoramic Photograph

Vicinity Map



Photograph Information

Viewpoint Location:	Long Beach Road
Date of Photograph:	September 1, 2021
Time of Photograph:	12:45 PM (EDT)
Weather Condition:	Overcast
Latitude:	40.595684° N
Longitude:	-73.656966° W
Viewing Direction:	Northwest
Ground Elevation + Tripod Height:	30 feet

Viewing Instructions

The single-frame simulations on the following pages should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches).

If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Preliminary Substation Design

This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

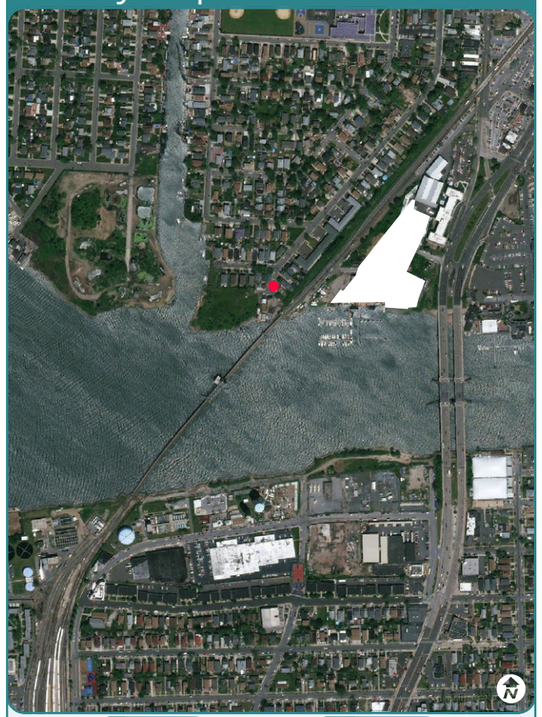
EmpireO shore Wind: Empire Wind 2 Project (EW 2)

EW 2 Onshore Substation | Long Beach Road

equinor

Panoramic Photograph

Vicinity Map



Photograph Information

Viewpoint Location:	Quebec Road
Date of Photograph:	September 1, 2021
Time of Photograph:	2:55 PM (EDT)
Weather Condition:	Overcast
Latitude:	40.597048° N
Longitude:	-73.660342° W
Viewing Direction:	Northeast
Ground Elevation + Tripod Height:	10 feet

Viewing Instructions

The single-frame simulations on the following pages should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches).

If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Preliminary Substation Design

This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

The view of the Onshore Substation is blocked by the existing buildings and vegetation

EmpireO shore Wind: Empire Wind 2 Project (EW 2)

EW 2 Onshore Substation | Quebec Road

equinor

Panoramic Photograph

Vicinity Map

Photograph Information

Viewpoint Location:	Long Beach Park
Date of Photograph:	September 1, 2021
Time of Photograph:	2:10 PM (EDT)
Weather Condition:	Overcast
Latitude:	40.593714° N
Longitude:	-73.666350° W
Viewing Direction:	Northeast
Ground Elevation + Tripod Height:	8 feet

Viewing Instructions

The single-frame simulations on the following pages should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches).

If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Preliminary Substation Design

This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

EmpireO shore Wind: Empire Wind 2 Project (EW 2)
EW 2 Onshore Substation | Long Beach Park

equinor

Panoramic Photograph

Vicinity Map

Photograph Information

Viewpoint Location:	Island Park Station
Date of Photograph:	September 1, 2021
Time of Photograph:	12:30 PM (EDT)
Weather Condition:	Overcast
Latitude:	40.600392° N
Longitude:	-73.655512° W
Viewing Direction:	Southwest
Ground Elevation + Tripod Height:	12 feet

Viewing Instructions

The single-frame simulations on the following pages should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches).

If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

Preliminary Substation Design

This sheet should be printed at 11 by 17 inches; full size with no scaling; and viewed at arm's length (24 inches). If viewed on a computer monitor, the document should be scaled to 100 percent and viewed at arm's length (24 inches).

EmpireO shore Wind: Empire Wind 2 Project (EW 2)

EW 2 Onshore Substation | Island Park Station

equinor

ATTACHMENT J-4
PHOTO DOCUMENTATION OF HISTORIC AND ARCHITECTURAL PROPERTIES WITHIN THE AVEHAP ONSHORE STUDY AREA

Historic Architecture Property Form – Barkin House, 84 East Olive Street, Long Beach, New York

CRIS USN: 05946.000211

County: Nassau

Build Date: 1946-7

Modeled View of Substation: No view

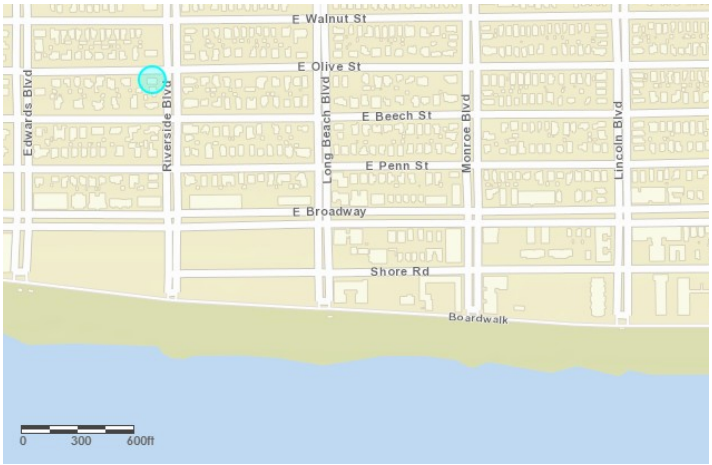
Actual View: No view

NRHP Status: Listed (NRIS # 15000234)

NRHP Criterion: C

Project Effects: No adverse effects

View southwest (CRIS).



View northeast toward project (Google Earth).

Historic Architecture Property Form – Cobble Villa, 657 Laurelton Boulevard, Long Beach, New York

View east (CRIS).

CRIS USN: 05946.000106

County: Nassau

Build Date: 1912

Modeled View of Substation: Potential view

Actual View: Potential view

NRHP Status: Listed (NRIS # 14001214)

NRHP Criterion: A, C

Project Effects: No adverse effects

View northeast toward project (Google Earth).

Historic Architecture Property Form – 18 East Beech Street, Long Beach, New York

View southeast (CRIS).

CRIS USN: 05946.000015

County: Nassau

Build Date: 1911

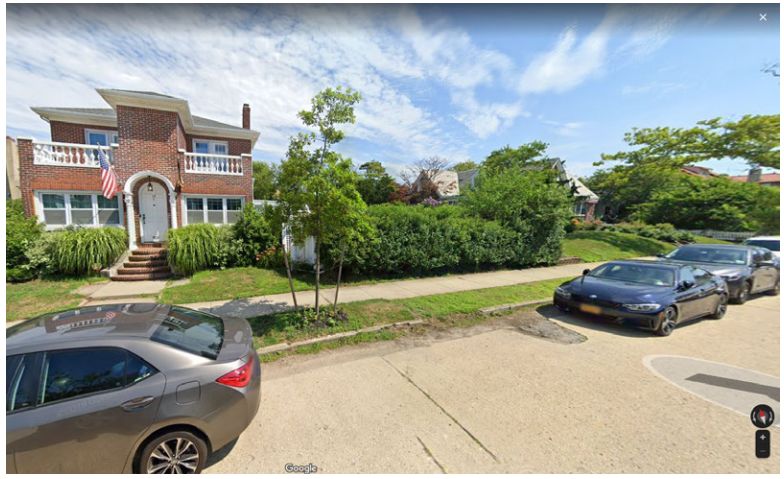
Modeled View of Substation: Potential view

Actual View: No view

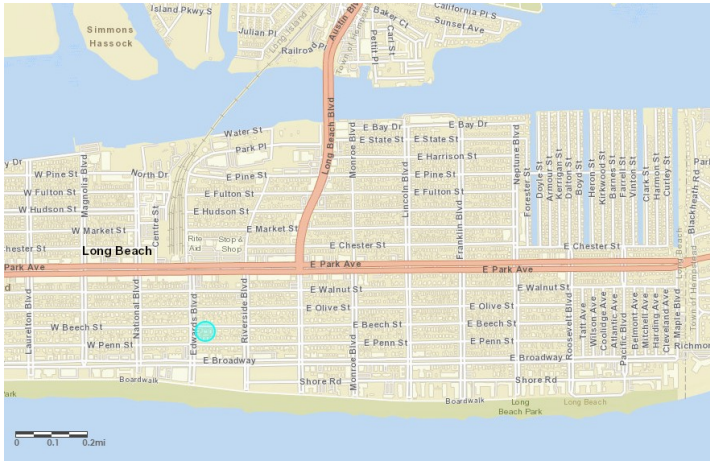
NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

Project Effects: No adverse effects



View northeast to Project (Google Earth).



Historic Architecture Property Form – 128 East Beech Street, Long Beach, New York

View southwest (Google Earth).

CRIS USN: 05946.000290

County: Nassau

Build Date: 1930

Modeled View of Substation: Potential view

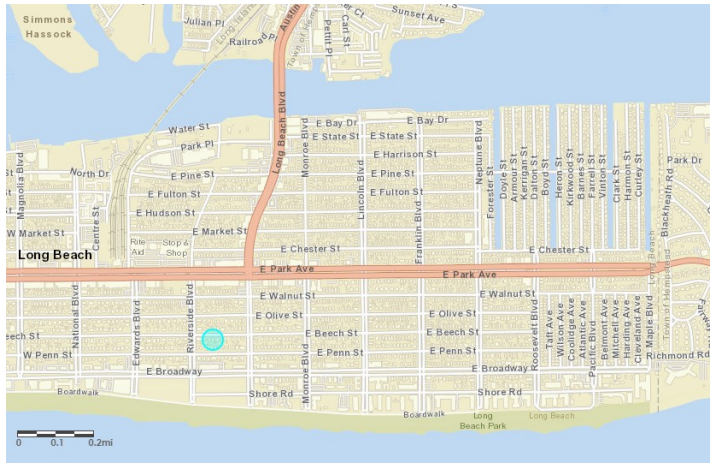
Actual View: No view

NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – 266 East Beech Street, Long Beach, New York

CRIS USN: 05946.001661

County: Nassau

Build Date: 1920

Modeled View of Substation: Potential view

Actual View: No view

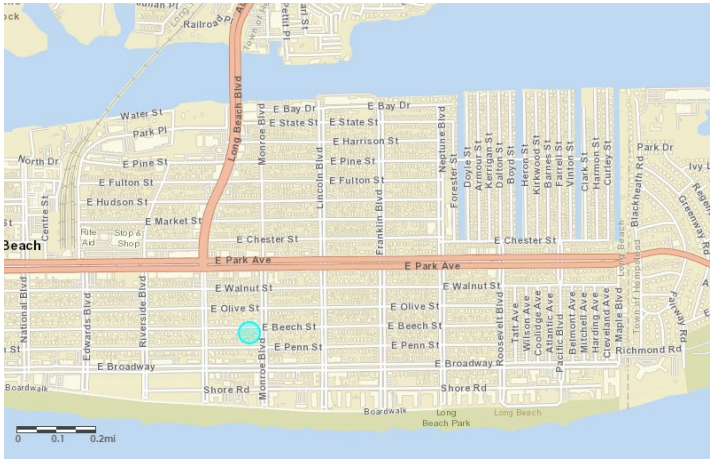
NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southwest (CRIS).

View north to Project (Google Earth).



Historic Architecture Property Form – 355 East Chester Street, Long Beach, New York

CRIS USN: 05946.000210

County: Nassau

Build Date: 1938

Modeled View of Substation: Potential view

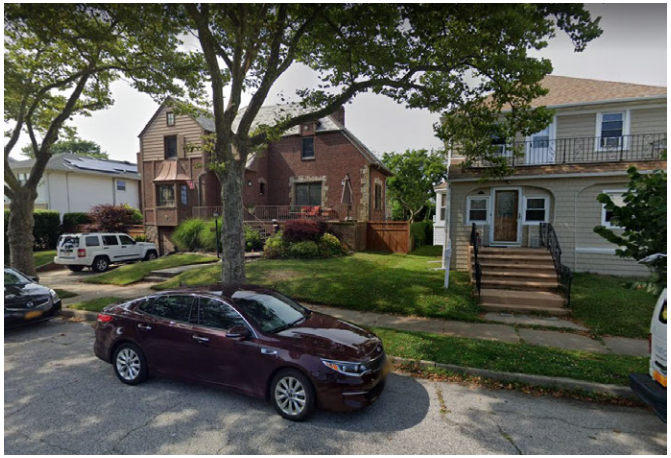
Actual View: No view

NRHP Status: Eligible

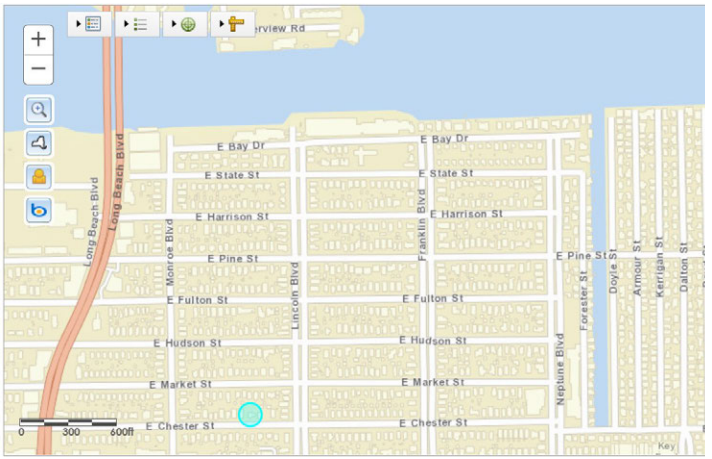
NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northwest (CRIS).



View northwest to Project (Google Earth).



Historic Architecture Property Form – 114 East Olive Street, Long Beach, New York

CRIS USN: 05946.001590

County: Nassau

Build Date: 1922

Modeled View of Substation EW: Potential view

Actual View: No view

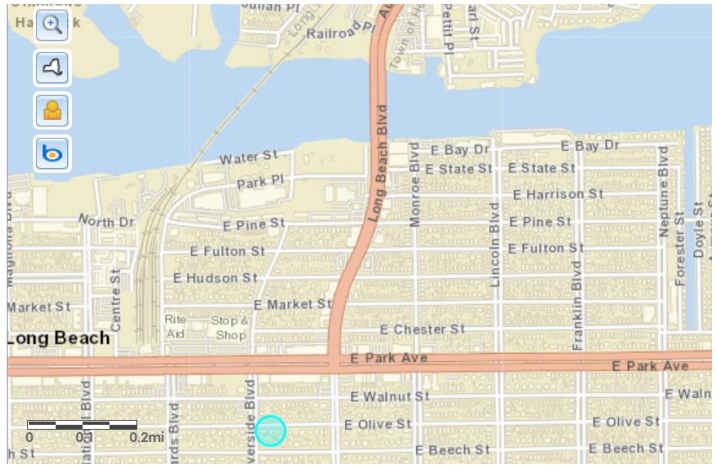
NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southeast (CRIS).

View north to Project (Google Earth).



Historic Architecture Property Form – 150 East Olive Street, Long Beach, New York

CRIS USN: 05946.001588

County: Nassau

Build Date: 1913

Modeled View of Substation: Potential view

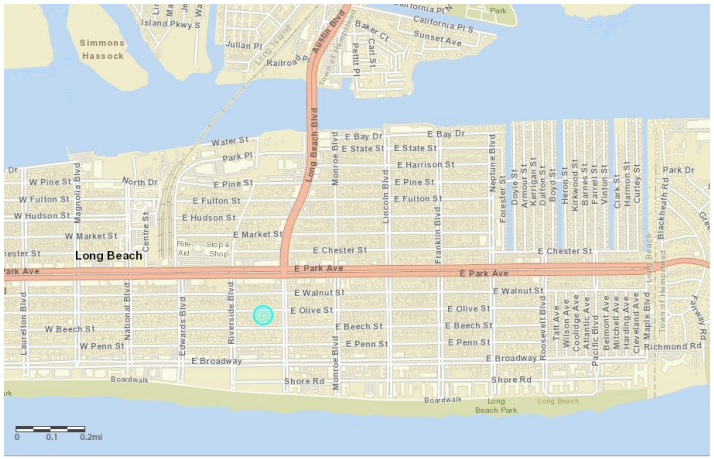
Actual View: No view

NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southwest (CRIS).



View north to Project (Google Earth).

Historic Architecture Property Form – 517 East Olive Street, Long Beach, New York

View southwest (Google Earth).

CRIS USN: 05946.000200

County: Nassau

Build Date: circa 1935

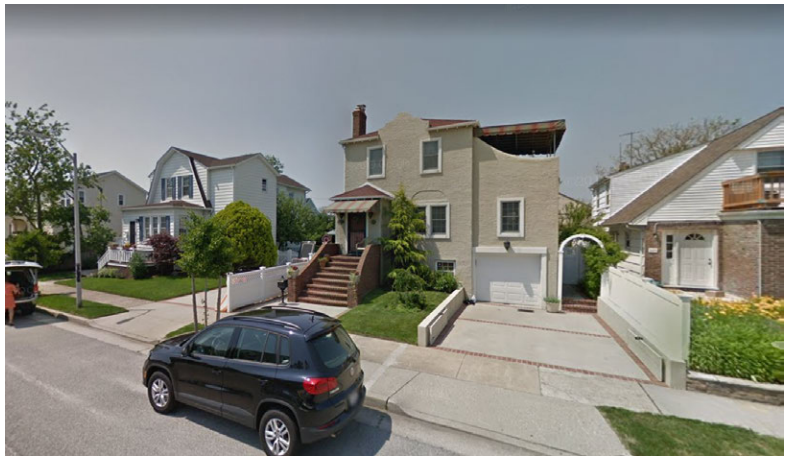
Modeled View of Substation: Potential view

Actual View: No view

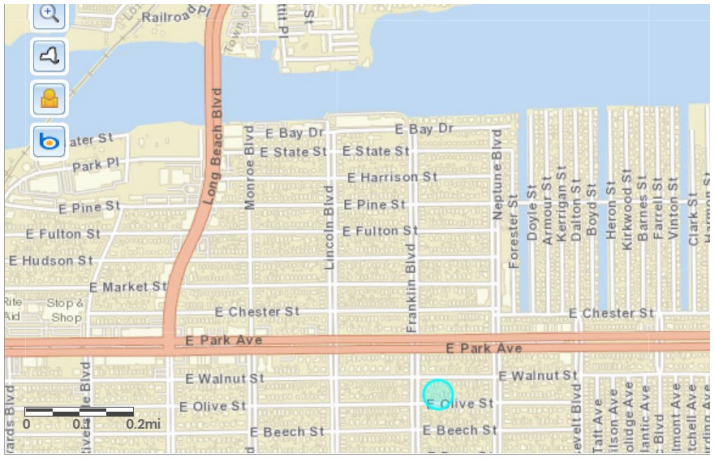
NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects



View northwest to Project (Google Earth).



Historic Architecture Property Form – 47 East Penn Street, Long Beach, New York

CRIS USN: 05946.001586

County: Nassau

Build Date: circa 1930

Modeled View of Substation: Potential view

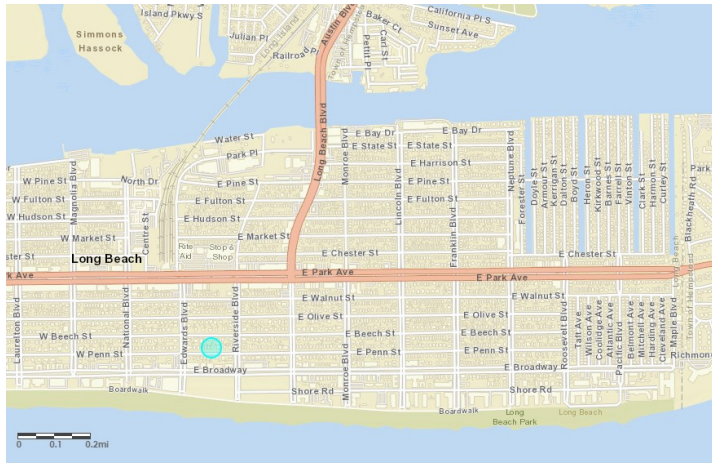
Actual View: No view

NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

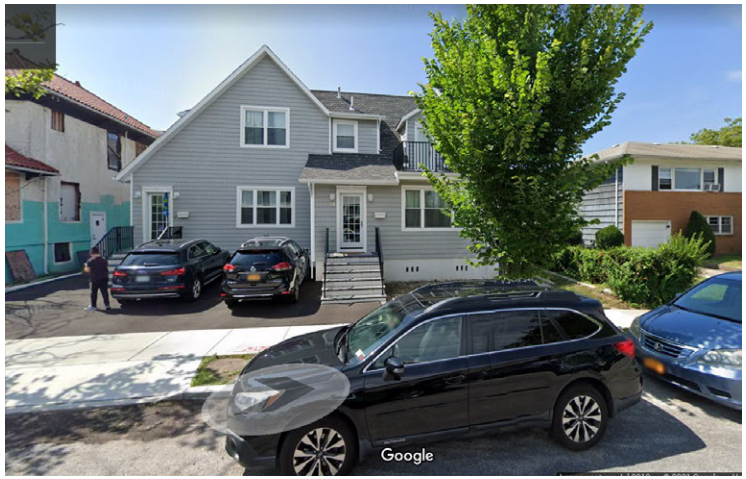
Project Effects: No adverse effects

View northeast (CRIS).



View northeast to Project (Google Earth).

Historic Architecture Property Form – 14 East Walnut Street, Long Beach, New York



View southeast (Google Earth).

CRIS USN: 05946.000057

County: Nassau

Build Date: circa 1915

Modeled View of Substation: Potential view

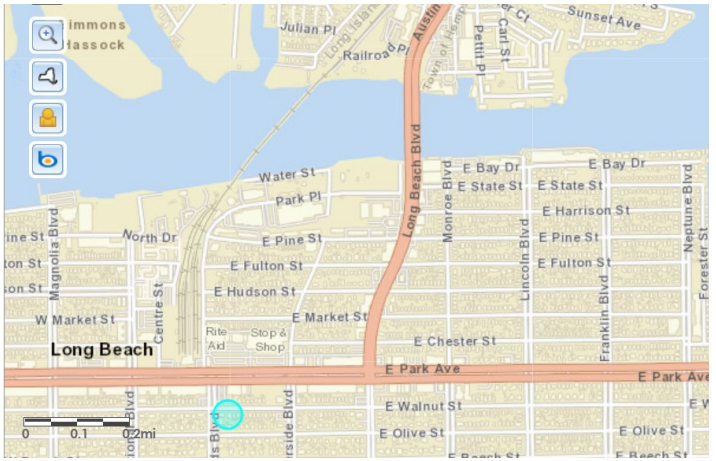
Actual View: No view

NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Not eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – Granada Towers, 310 Riverside Boulevard, Long Beach, New York

CRIS USN: 05946.000003

County: Nassau

Build Date: 1929

Modeled View of Substation: Potential view

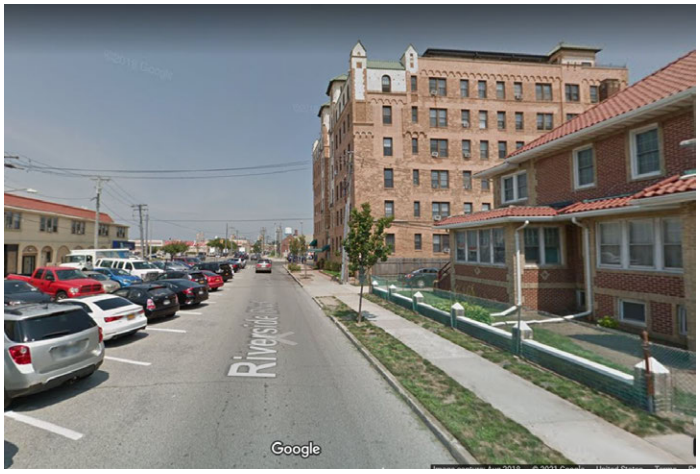
Actual View: No view

NRHP Status: Listed (NRIS # 84002750)

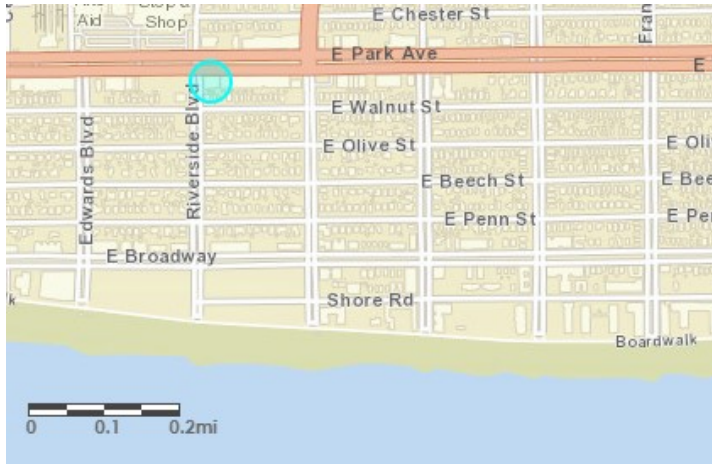
NRHP Criterion: A, C

Project Effects: No adverse effects

View southeast (CRIS).



View north to project (Google Earth).



Historic Architecture Property Form – 149 Hazzard Street, Lido Beach, New York

View northwest (Google Earth).

CRIS USN: 05901.002654

County: Nassau

Build Date: circa 1926

Modeled View of Substation: Potential view

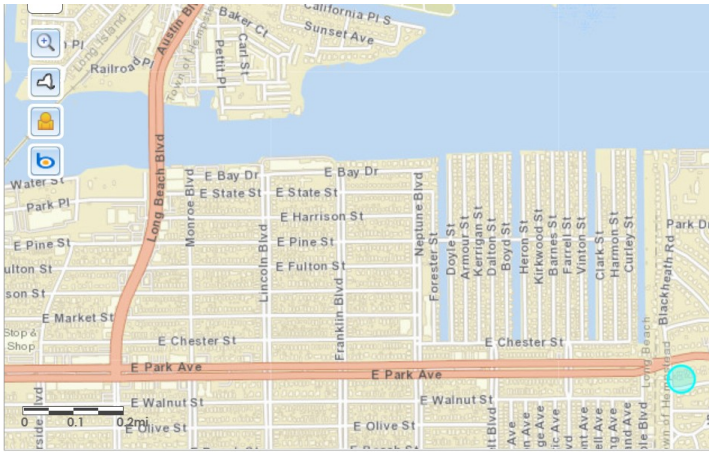
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northwest to Project (Google Earth).



Historic Architecture Property Form – Jones Beach State Park, Causeway & Parkway System, Hempstead/Oyster Bay, New York

CRIS USN: 05903.001165

County: Nassau

Build Date: 1925-1955

Modeled View of Substation: No view

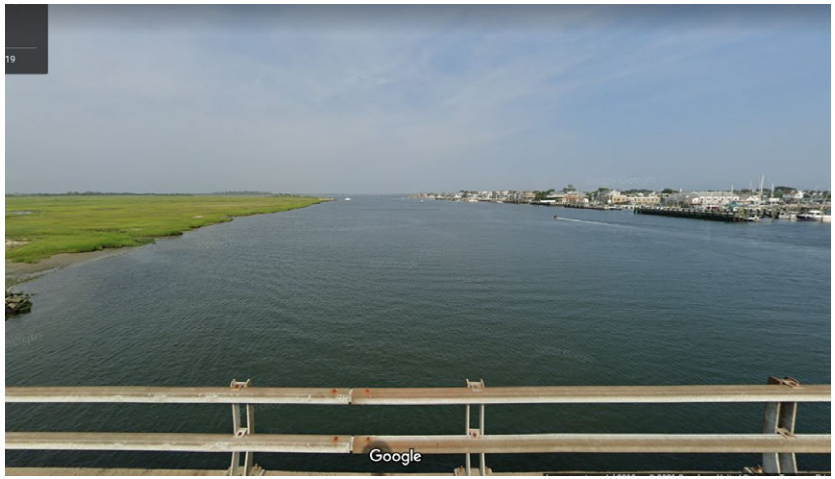
Actual View: no view

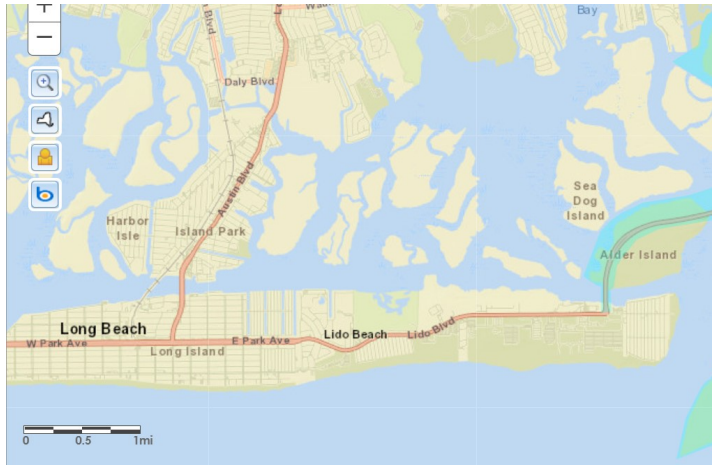
NRHP Status: Listed (NRIS # 05000358)

NRHP Criterion: A, C

Project Effects: No adverse effects

View southeast (NYS OPRHP).





View west to project from Loop Parkway (Google Earth).

Historic Architecture Property Form – 605 Laurelton Boulevard, Long Beach, New York

View west (Google Earth).

CRIS USN: 05946.000009

County: Nassau

Build Date: 1925

Modeled View of Substation: Potential view

Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).

Historic Architecture Property Form – 138 Lido Boulevard, Lido Beach, New York

CRIS USN: 05901.002655

County: Nassau

Build Date: circa 1926

Modeled View of Substation: Potential view

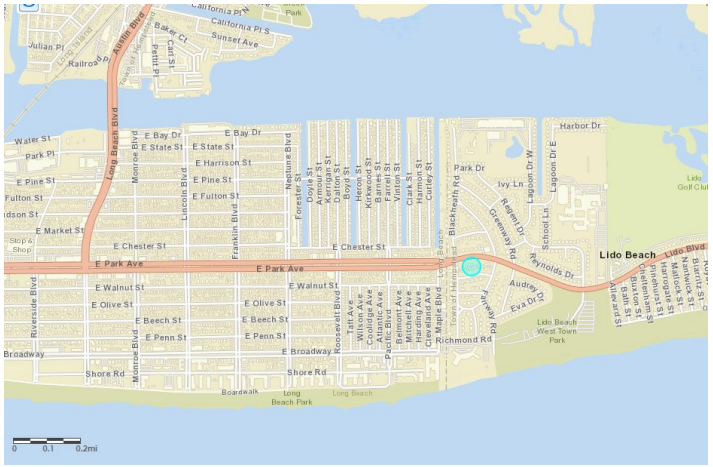
Actual View: No view

NRHP Status: Eligible (Lido Guest Houses Historic District)

NRHP Recommendation: Eligible

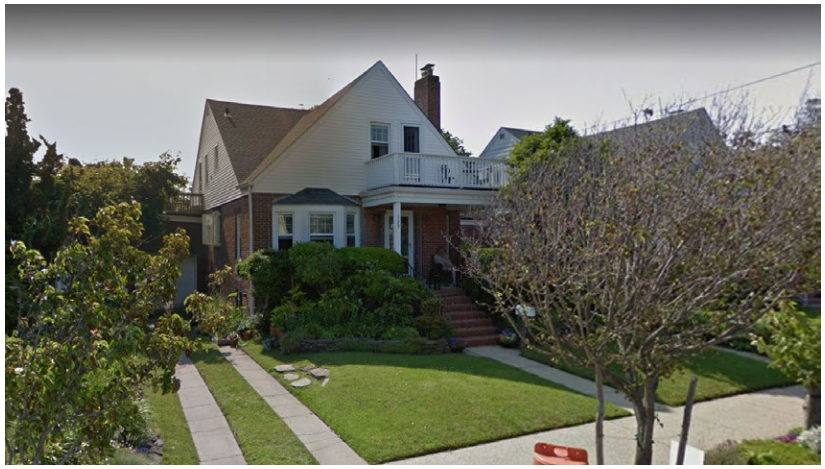
Project Effects: No adverse effects

View south (CRIS).



View northwest to Project (Google Earth).

Historic Architecture Property Form – 159 Lindell Boulevard, Long Beach, New York



View west (Google Earth).

CRIS USN: 05946.001507

County: Nassau

Build Date: 1946

Modeled View of Substation: Potential view

Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).

Historic Architecture Property Form – 50 Montgomery Boulevard, Atlantic Beach, New York

CRIS USN: 05904.000063

County: Nassau

Build Date: 1930

Modeled View of Substation: Potential view

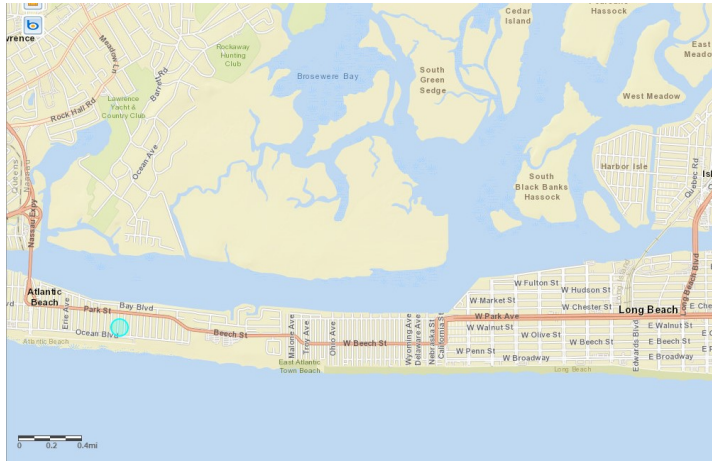
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southeast (CRIS).



View east-northeast to Project (Google Earth).

Historic Architecture Property Form – Pauline Felix House, 151 West Penn Street, Long Beach, New York

View north (Google Earth).

CRIS USN: 05946.000081

County: Nassau

Build Date: 1909

Modeled View of Substation: No view

Actual View: No view

NRHP Status: Listed (NRIS # 05000090)

NRHP Criterion: A, C

Project Effects: No adverse effects

View northeast to project (Google Earth).

Historic Architecture Property Form – U.S. Post Office, 101 East Park Avenue, Long Beach, New York

View northeast (CRIS).

CRIS USN: 05946.000002

County: Nassau

Build Date: 1936

Modeled View of Substation: Potential view

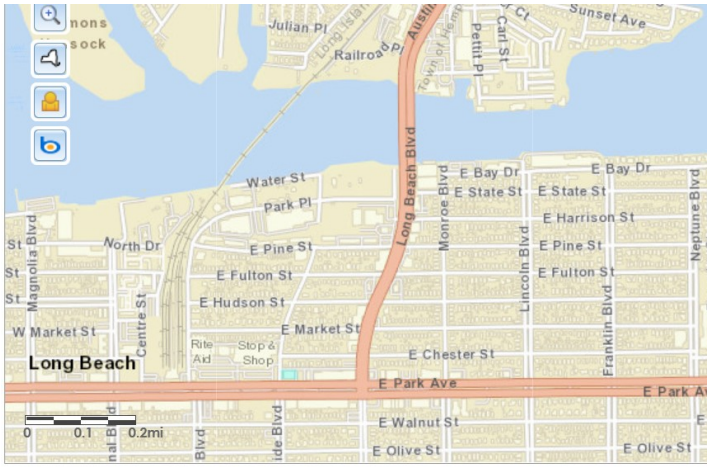
Actual View: No view

NRHP Status: Listed (NRIS # 88002347)

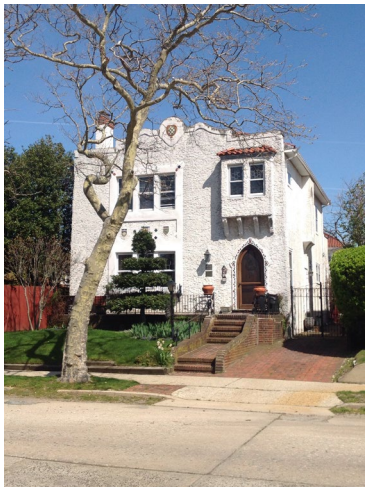
NRHP Criterion: A

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – Samuel Vaisberg House, 257 West Olive Street, Long Beach, New York



CRIS USN: 05946.0000082

County: Nassau

Build Date: 1927

Modeled View of Substation: Potential view

Actual View: No view

NRHP Status: Listed (NRIS # 05001137)

NRHP Criterion: A and C

Project Effects: No adverse effects

View northwest (CRIS).

View north toward project (Google Earth).

Historic Architecture Property Form – 40 West Beech Street, Long Beach, New York

CRIS USN: 05946.001688

County: Nassau

Build Date: 1909

Modeled View of Substation: Potential view

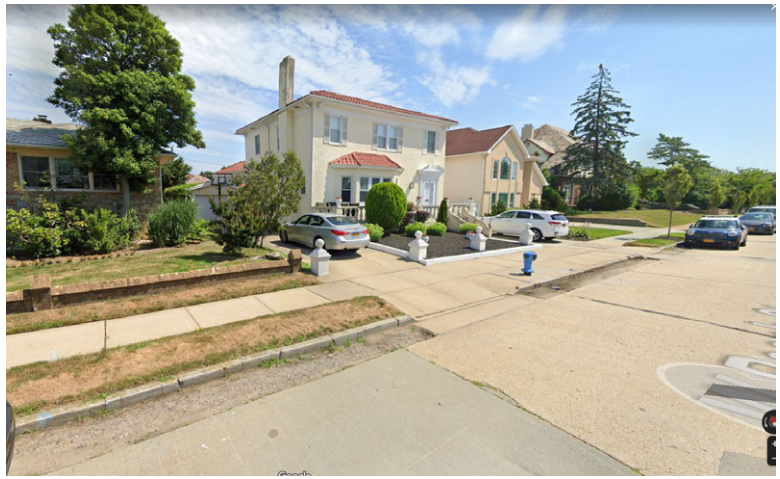
Actual View: No view

NRHP Status: Eligible

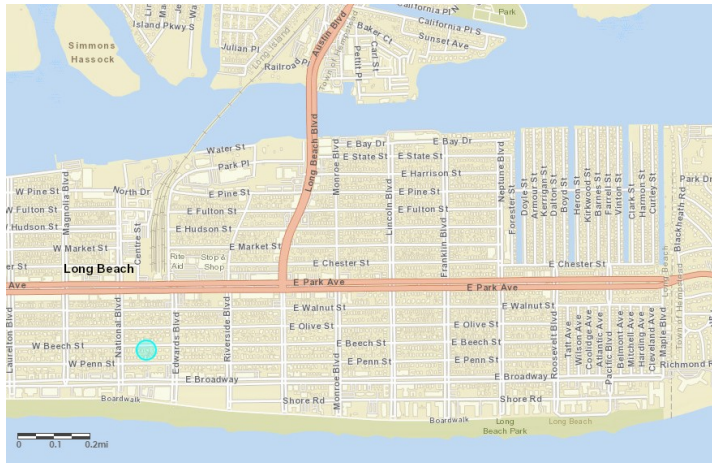
NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southeast (CRIS).



View northeast to Project (Google Earth).



Historic Architecture Property Form – 275 West Beech Street, Long Beach, New York

View east (Google Earth).

CRIS USN: 05946.000025

County: Nassau

Build Date: 1936

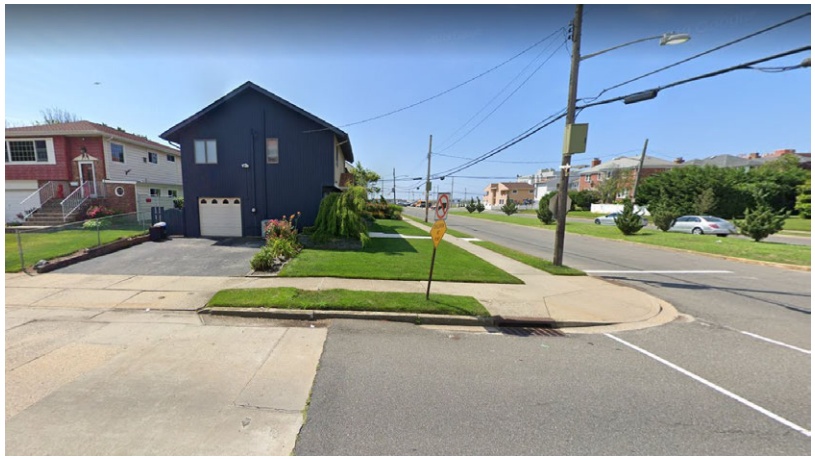
Modeled View of Substation: Potential view

Actual View: No view

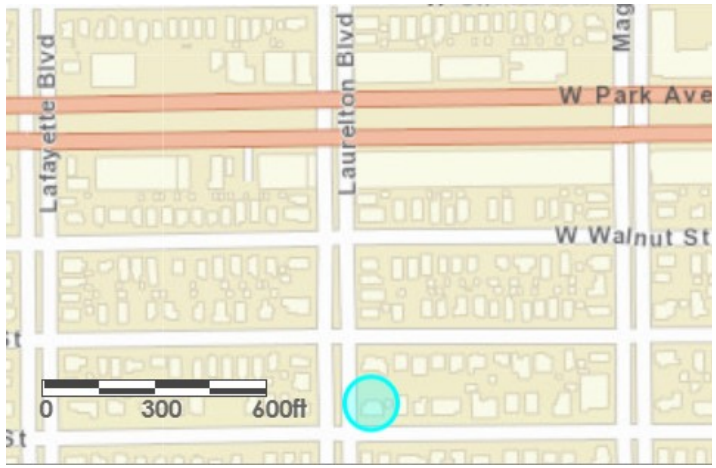
NRHP Status: Eligible

NRHP Recommendation: Eligible

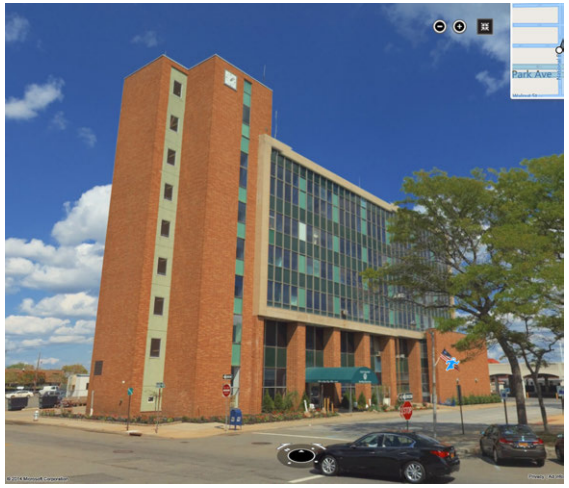
Project Effects: No adverse effects



View south to Project (Google Earth).



Historic Architecture Property Form – Long Beach Municipal Building, 1 West Chester Street, Long Beach, New York



CRIS USN: 05946.000209

County: Nassau

Build Date: 1964

Modeled View of Substation: Potential view

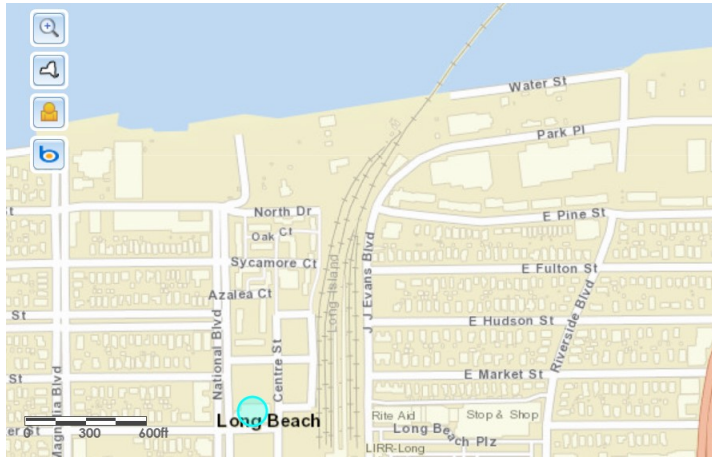
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast (CRIS).



View northeast to Project (Google Earth).

Historic Architecture Property Form – 28 West Olive Street, Long Beach, New York

View south (CRIS).

CRIS USN: 05946.001576

County: Nassau

Build Date: circa 1915

Modeled View of Substation: Potential view

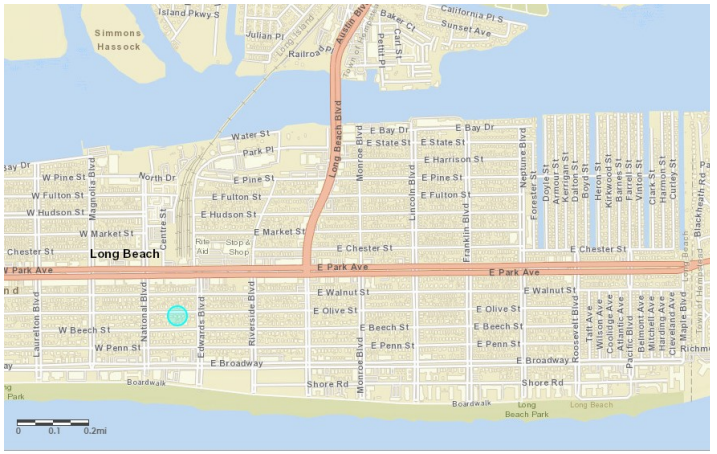
Actual View: No view

NRHP Status: Eligible (Estates of Long Beach Hist. Dist.)

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – 135 West Penn Street, Long Beach, New York

View northeast (Google Earth).

CRIS USN: 05946.000118

County: Nassau

Build Date: circa 1930

Modeled View of Substation: Potential view

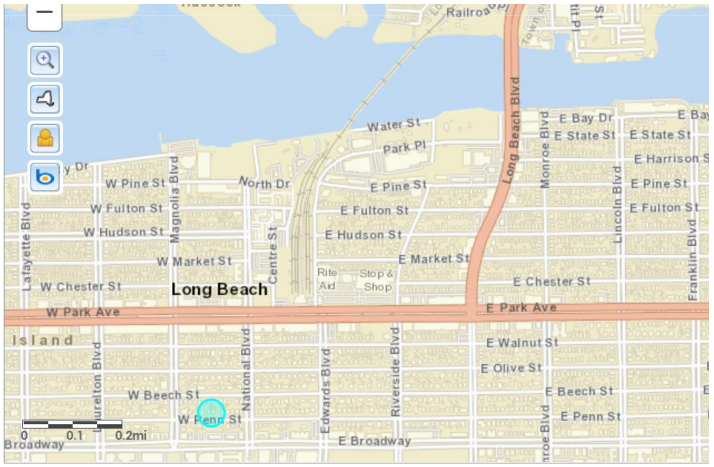
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – Long Beach Historical Museum, 226 West Penn Street, Long Beach, New York

CRIS USN: 05946.000075

County: Nassau

Build Date: 1908

Modeled View of Substation: No view

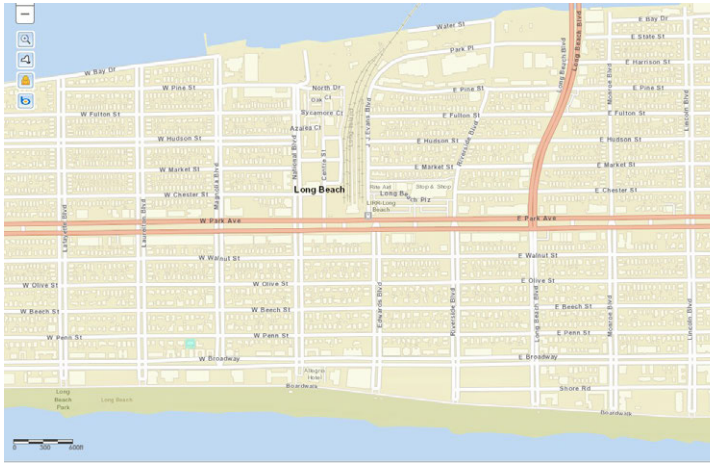
Actual View: No view

NRHP Status: Listed (NRIS # 08000932)

NRHP Criterion: A, C

Project Effects: No adverse effects

View southeast (CRIS).



View northeast to Project (Google Earth).

Historic Architecture Property Form – 262 West Penn Street, Long Beach, New York

View south (CRIS).

CRIS USN: 05946.000064

County: Nassau

Build Date: circa 1915

Modeled View of Substation: Potential view

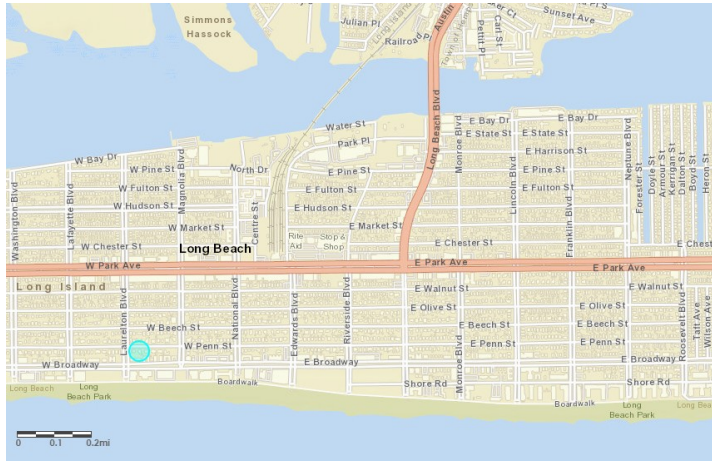
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – 468 West Penn Street, Long Beach, New York

CRIS USN: 05946.000915

County: Nassau

Build Date: 1938

Modeled View of Substation: Potential view

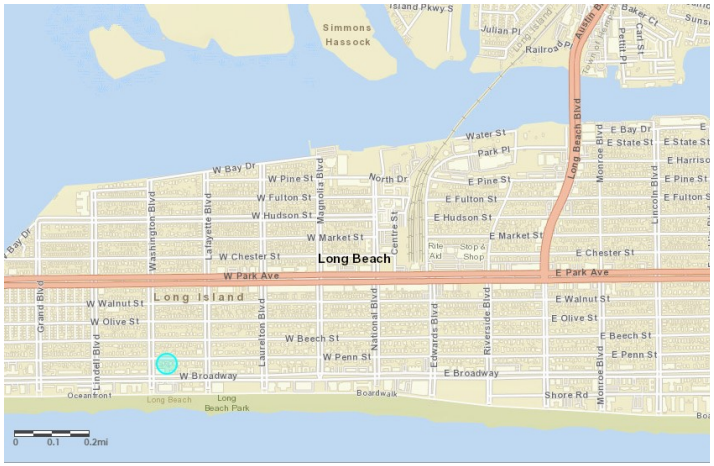
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southwest (CRIS).



View northeast to Project (Google Earth).

Historic Architecture Property Form – 166 West Walnut Street, Long Beach, New York

View south (CRIS).

CRIS USN: 05946.001680

County: Nassau

Build Date: circa 1925

Modeled View of Substation: Potential view

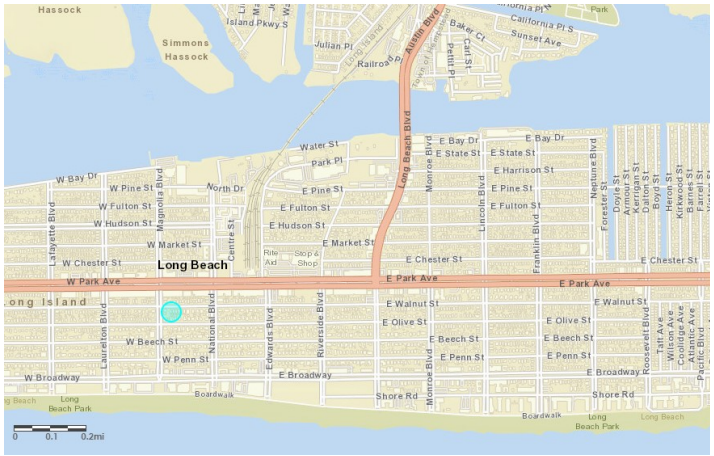
Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View northeast to Project (Google Earth).



Historic Architecture Property Form – 122 West Walnut Street, Long Beach, New York

CRIS USN: 05946.000327

County: Nassau

Build Date: 1938

Modeled View of Substation: Potential view

Actual View: No view

NRHP Status: Eligible

NRHP Recommendation: Eligible

Project Effects: No adverse effects

View southwest (CRIS).

View northeast to Project (Google Earth).