

June 2023

**BEACON WIND PROJECT:  
BEACON WIND 1 AND BEACON WIND 2**

# **CONSTRUCTION AND OPERATIONS PLAN**

**VOLUME 2D: VISUAL RESOURCES**

Prepared for

**Beacon Wind LLC**

Submitted to  
Bureau of  
Ocean Energy  
Management

Prepared by

**AECOM**

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## 7.0 Visual Resources

This section discusses visual resources within and surrounding the Project Area (see **Figure 7.1-1**). Potential impacts to visual resources resulting from construction, operations, and decommissioning of the Project are discussed. Proposed Project-specific measures adopted by Beacon Wind are also described; these measures are intended to avoid, minimize, and/or mitigate potential impacts on visual resources.

Other resources and assessments detailed within this COP that are related to visual resources include:

- Historic Properties (**Section 6.3**);
- Recreation and Tourism (**Section 8.3**);
- Historic Resources Visual Effects Assessment (**HRVEA; Appendix W**); and
- Seascape, Landscape, and Visual Impact Assessment (**SLVIA, Appendix X**).

Beacon Wind proposes to develop the entire Lease Area with up to two individual wind farms for BW1 and BW2, with a submarine export cable route for BW1 to Queens, New York and a submarine export cable route for BW2 to either Queens, New York or to Waterford, Connecticut. Two locations are under consideration in Queens, New York (NYPA and AGRE [which includes the AGRE East and AGRE West sites]) for the single proposed BW1 landfall and onshore facility. The Queens, New York onshore substation facility sites that are not used (NYPA, AGRE East, or AGRE West) for BW1 will remain under consideration, in addition to the Waterford, Connecticut site, for the single proposed BW2 onshore substation facility.

### Data Relied Upon and Studies Completed

The analysis presented in this section has been performed in general conformance with the BOEM SLVIA methodology as detailed in the *“Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States,”* (BOEM 2021), hereafter referred to as the “BOEM SLVIA Methodology”.

SLVIA is an impact assessment tool for identifying and evaluating the likely significance of the effects of change resulting from development on both seascapes and landscapes as environmental resources in their own right, and on the people who experience particular views that they value. The BOEM SLVIA Methodology requires both a seascape and landscape impact assessment (SLIA) and a visual impact assessment (VIA) and that division is reflected in this section.

Seascape and landscape as “resources in their own right” refers primarily to seascape and landscape character. As noted in GLVIA3 (LI and IEMA 2013), “landscape results from the interplay of the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create the distinctive character of landscapes in different places, allowing different landscapes to be mapped, analyzed and described. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of the landscape that make different places distinctive.” Assessing seascape and landscape impacts thus means assessing impacts on seascape and landscape character, including both the physical elements and features that make up a landscape or seascape area as well

as the aesthetic, perceptual, and experiential aspects of the landscape or seascape area that make it distinctive.

VIA assesses the impacts of the Project on people who would see the Project from particular viewpoints. VIA evaluates how the addition of the visible elements of the Project to the view (or the associated removal or change to existing visual elements) would change the composition of the views, and how those changes would affect people's experience of the view.

The general sequence and approach of the SLVIA is as follows:

- Provides a detailed description of the project, including its location and the project components, any alternatives under consideration, and the Project Design Envelope (PDE). The project description and PDE identifies the possible sources of seascape/landscape and visual impacts of the Project and its alternatives.
- The geographic scopes of the SLIA and VIA are identified, that is, the areas within which seascape and landscape impacts and visual impacts will be assessed, based on the PDE and associated viewshed analyses.
- The descriptions of impact receptors and existing conditions for the SLIA and VIA are presented. The applicable regulatory context for both assessments is identified and described.
- The potential impacts of the Project are identified and described. Potential seascape and landscape impacts are identified separately from visual impacts. After the nature and extent of the potential impacts have been identified, determinations of the corresponding impact levels are made. Impact level refers to the importance of the impact: negligible, minor, moderate, or major. Impacts are evaluated for each impact receptor.
- In light of the impact level findings, mitigation measures that could further reduce project impacts are identified.

The geographic scope of impacts and study area for the SLVIA are based on the potential visibility of Project components which is determined via Geographical Information System (GIS) viewshed analysis. Given an elevation data set for the area of the analysis, a set target height and location, and a set viewer height and location, the viewshed analysis determines whether a line of sight exists between the viewer and target, taking into consideration topography and other obstructions, such as buildings and vegetation, if they are included in the elevation data. Multiple viewshed analyses were run as part of the SLVIA to determine the locations that might have visibility of all or part of the Project.

Based on the maximum project parameters defined in the PDE including maximum wind turbine hub and nacelle heights, wind turbine blade tip heights, and maximum structure heights (substation structures and overhead interconnection poles) associated with the onshore substation facilities, viewshed analyses were conducted to identify the areas from which Project components could theoretically be visible. The viewshed analysis for onshore components (e.g., onshore substation structures and overhead interconnection poles associated with the project) was run separately from the viewshed analysis for the offshore components (wind turbines and electrical service platforms). Viewsheds for the onshore substation facilities treated the structures as polygons rather than points. Separate viewsheds for the offshore components were run for wind turbine nacelle height and maximum blade tip height.

There are shortcomings to computer-based viewshed analysis and viewshed analyses are not perfectly accurate for a variety of reasons (especially because of limitations in elevation data accuracy). Viewshed analysis does also not account for the impacts of weather or other meteorological and oceanic conditions. The viewshed analysis can be used as a predictive screening tool to: determine the geographic extent of Project visibility and needed field reconnaissance; identify affected SLCAs, visually sensitive resources, and key observation points (KOPs); and to aid in the selection of views for simulations and visual impact analysis.

#### *Offshore Study Area*

In accordance with the BOEM SLVIA Methodology, given that the closest turbine is located less than 43 km (23 nm) from shore, the outer limit of impact analysis for the VIA for daytime impacts was determined by running a viewshed that results from ignoring all screening elements except topography. This “bare earth” or digital elevation model (DEM) based viewshed is run from the top of blade (TOB) tip height of the proposed project turbines until intercepted by terrain (adjusted for viewer height and elevation) or limited by the curvature of the earth. In accordance with the BOEM SLVIA Methodology, TOB viewsheds shall not exceed 74 km (40 nm, 46 mi), so the Offshore Study Area (also referred to as the zone of theoretical visibility [ZTV]) was limited to a maximum of 46 mi from the edge of the Lease Area. DEM-based offshore viewshed figures are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

A second viewshed model was created for both TOB and nacelle, using high-resolution Light Detection Ranging (LIDAR) point cloud data obtained from the USGS National Map [2013-2014 USGS CMGP LiDAR: Post Sandy (MA, NH, RI)] to create a digital surface model (DSM) based viewshed that accounted for aboveground features that would obstruct visibility including vegetation and structures. The output of this refined DSM viewshed is referred to hereafter as the Area of Potential Seascape/Landscape and Visual Impact (APSLVI) which was utilized for the VIA and SLIA impacts analysis. The Offshore APSLVI maps are presented in **Figure 7.1-2, Figure 7.1-3, Figure 7.1-4, Figure 7.1-5, and Figure 7.1-6**.

#### *Onshore Study Area*

The BOEM SLVIA Methodology does not specify a geographic limit for the evaluation of onshore facilities. The Onshore Study Area was extended 4 mi (6.4 km) in each direction from aboveground Project components under consideration. Sullivan, et. Al. (2013) indicates that 3.5 mi (5.6 km) is an appropriate study area for the viewshed of transmission towers. Therefore, the Onshore Study Area of 4 mi (5.6 km) is a reasonable distance to consider for impacts from the onshore substation and interconnection facilities. DEM-based onshore viewshed figures are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

The Onshore APSLVI was established via DSM viewshed model that accounted for aboveground features that would obstruct visibility including vegetation and structures. The output of the DSM viewshed is referred to hereafter as the New York and Connecticut Onshore APSLVI which was utilized for the VIA and SLIA impacts analysis. The Onshore APSLVI maps are presented in **Figure 7.1-7, Figure 7.1-8, and Figure 7.1-9**.

FIGURE 7.1-1. PROJECT OVERVIEW

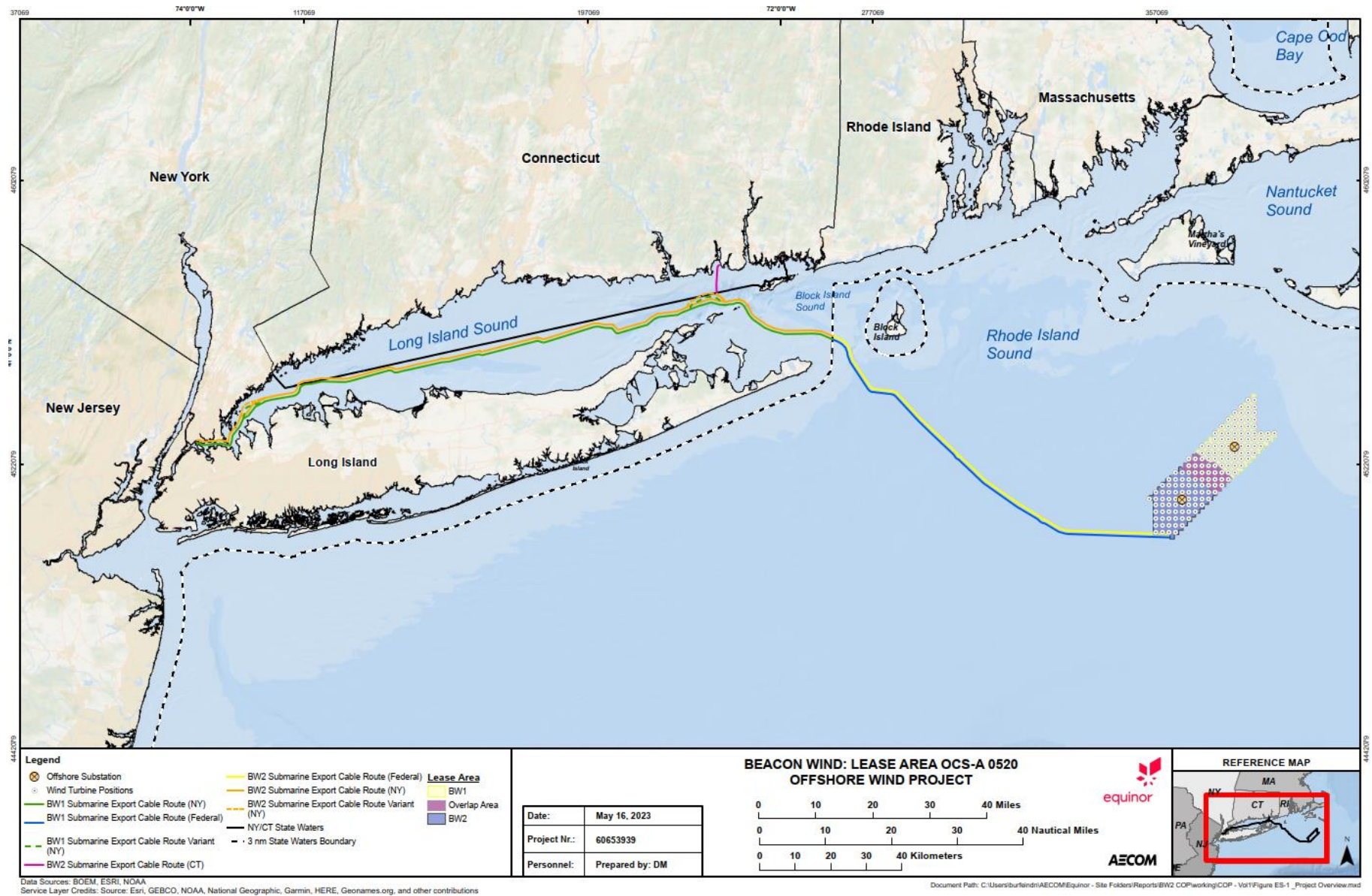


FIGURE 7.1-2. OFFSHORE APSLVI (DSM-BASED VIEWSHED)

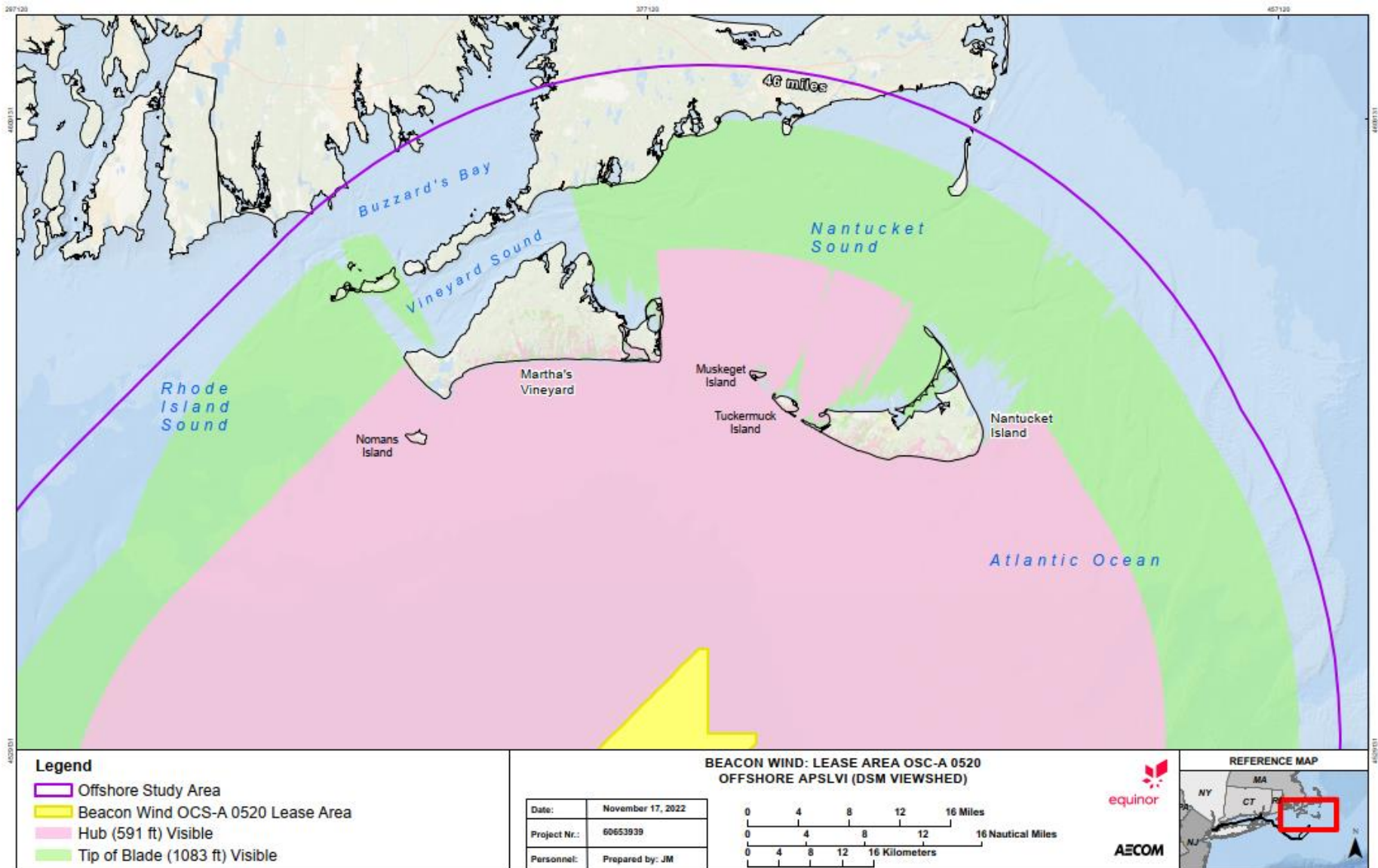




FIGURE 7.1-3. OFFSHORE DSM VIEWSHED – MARTHA’S VINEYARD

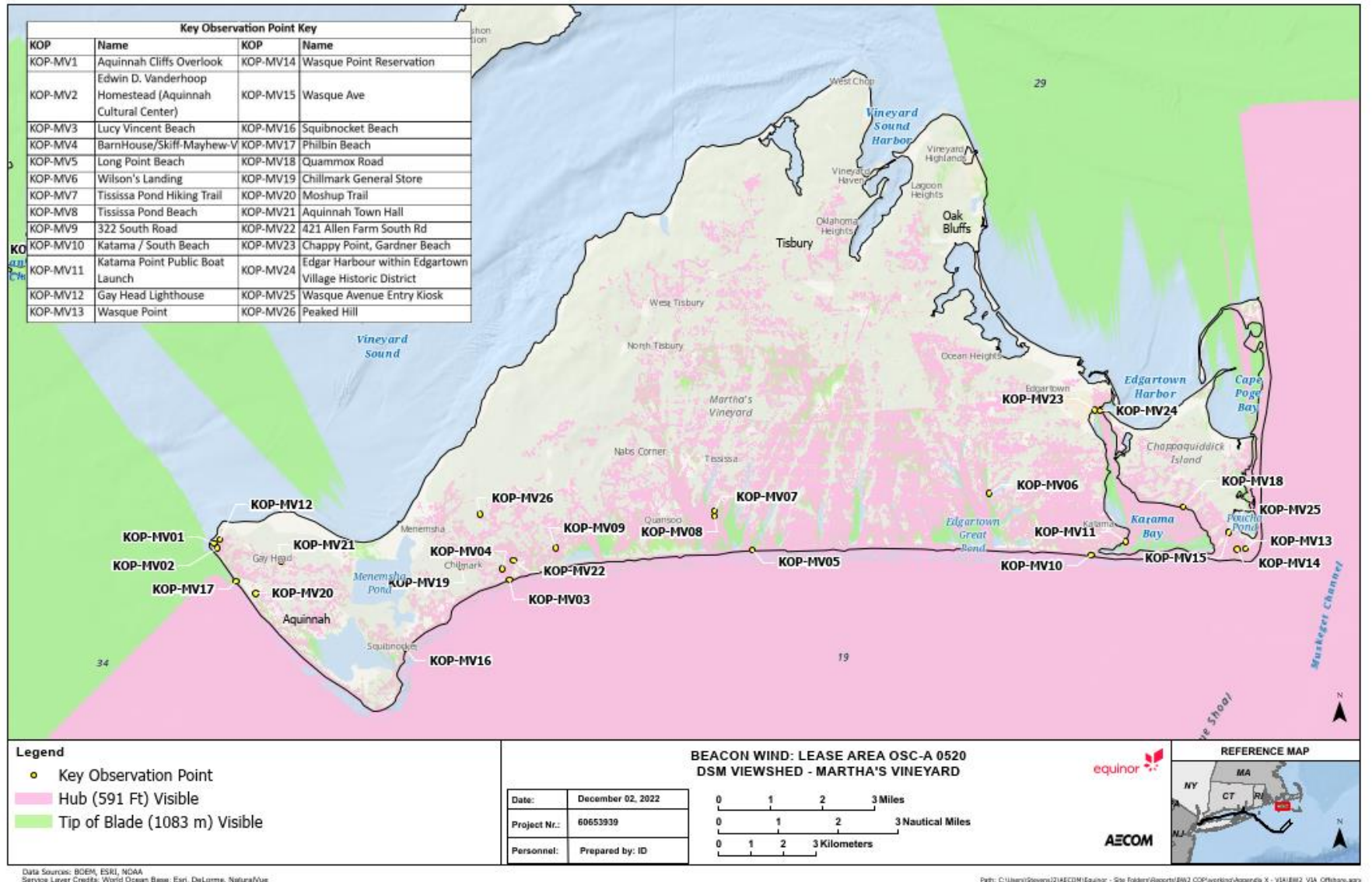
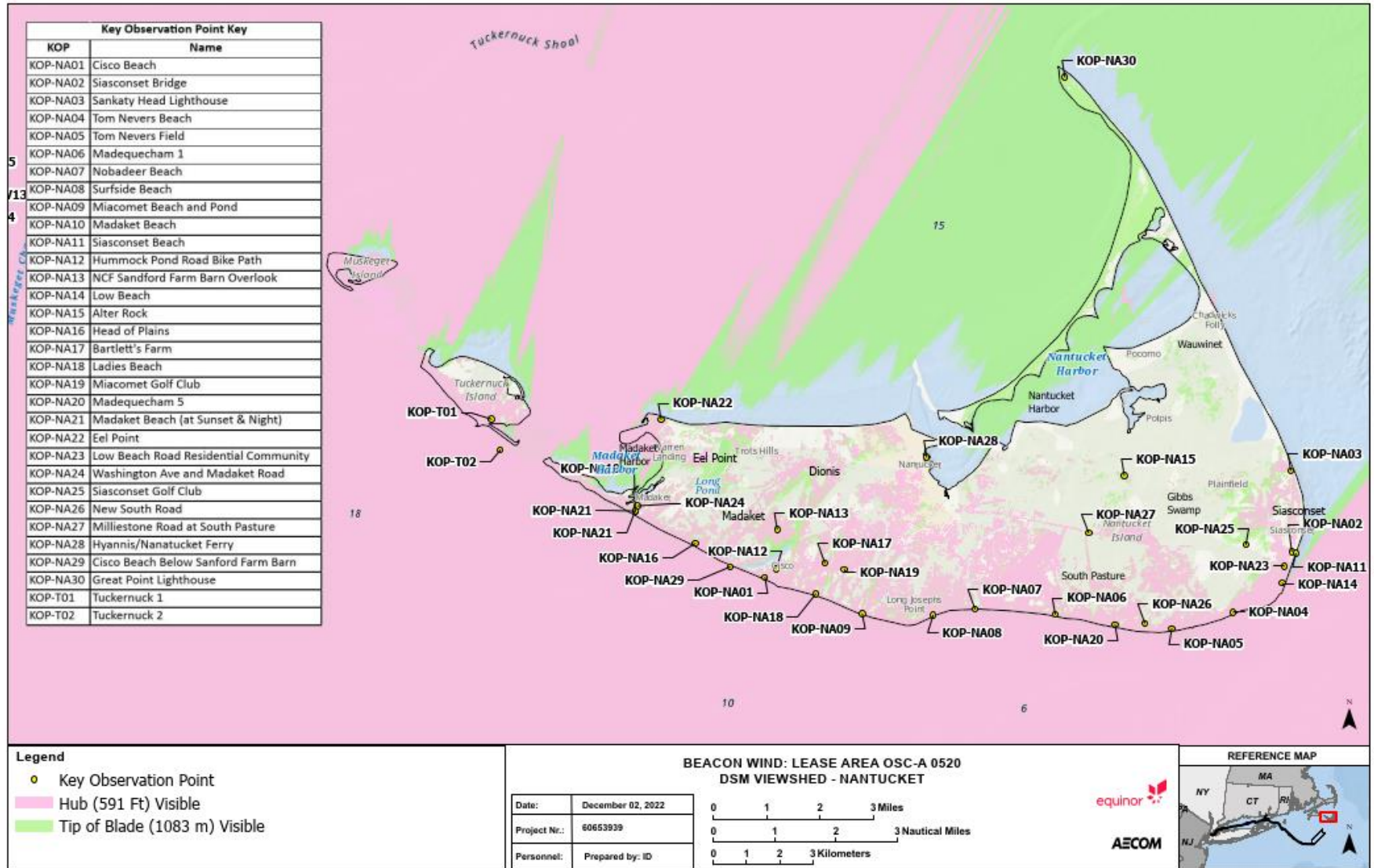


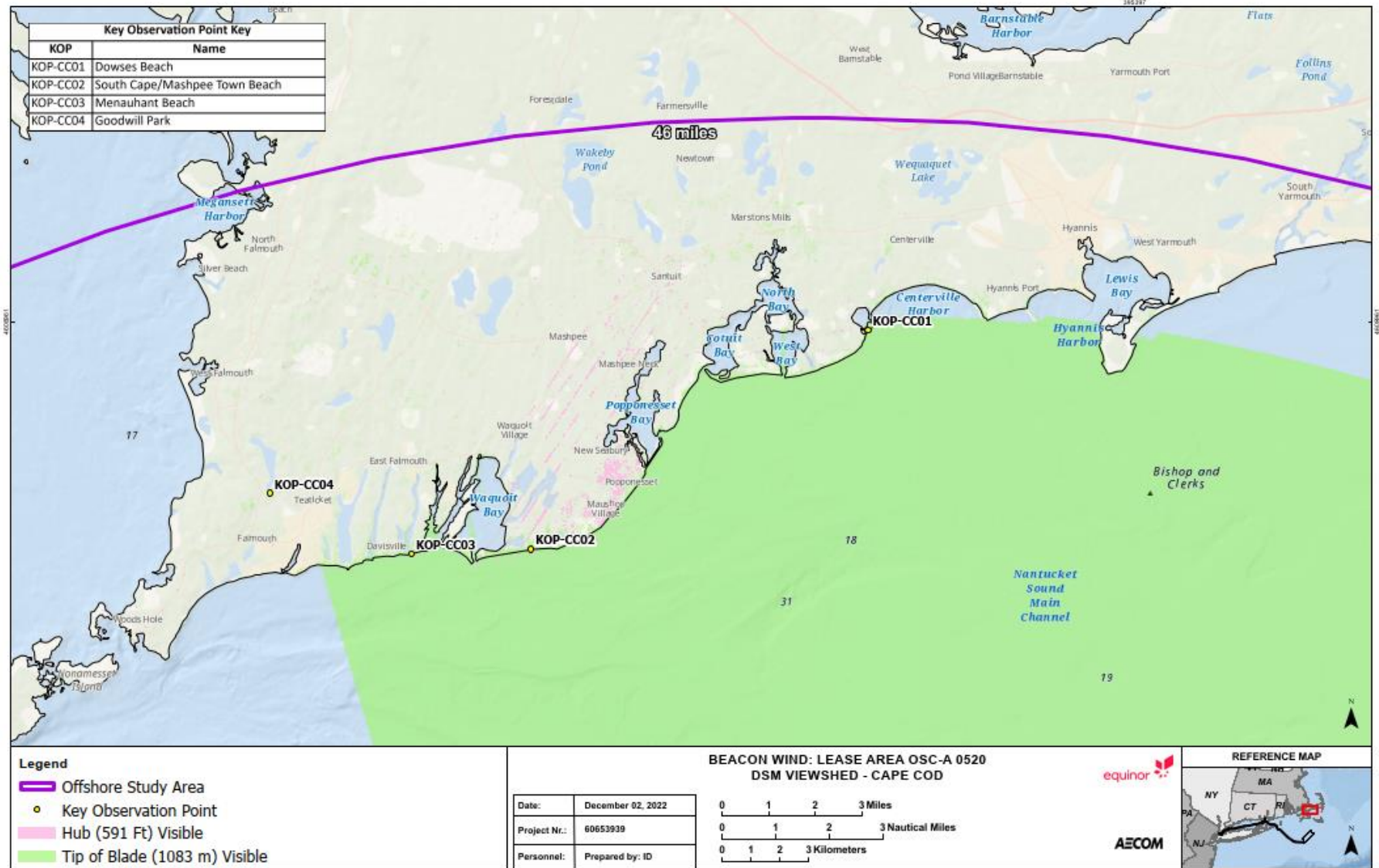
FIGURE 7.1-4. OFFSHORE DSM VIEWSHED – NANTUCKET



Data Source: BOEM, ESRI, NOAA  
Service Layer Credits: World Ocean Base: Esri, DeLorme, NaturalVue

Path: C:\Users\lthorne\Documents\Equinor - Site Model\Beacon Wind DSM Viewshed\Appendix E - DSM Viewshed - Offshore Area

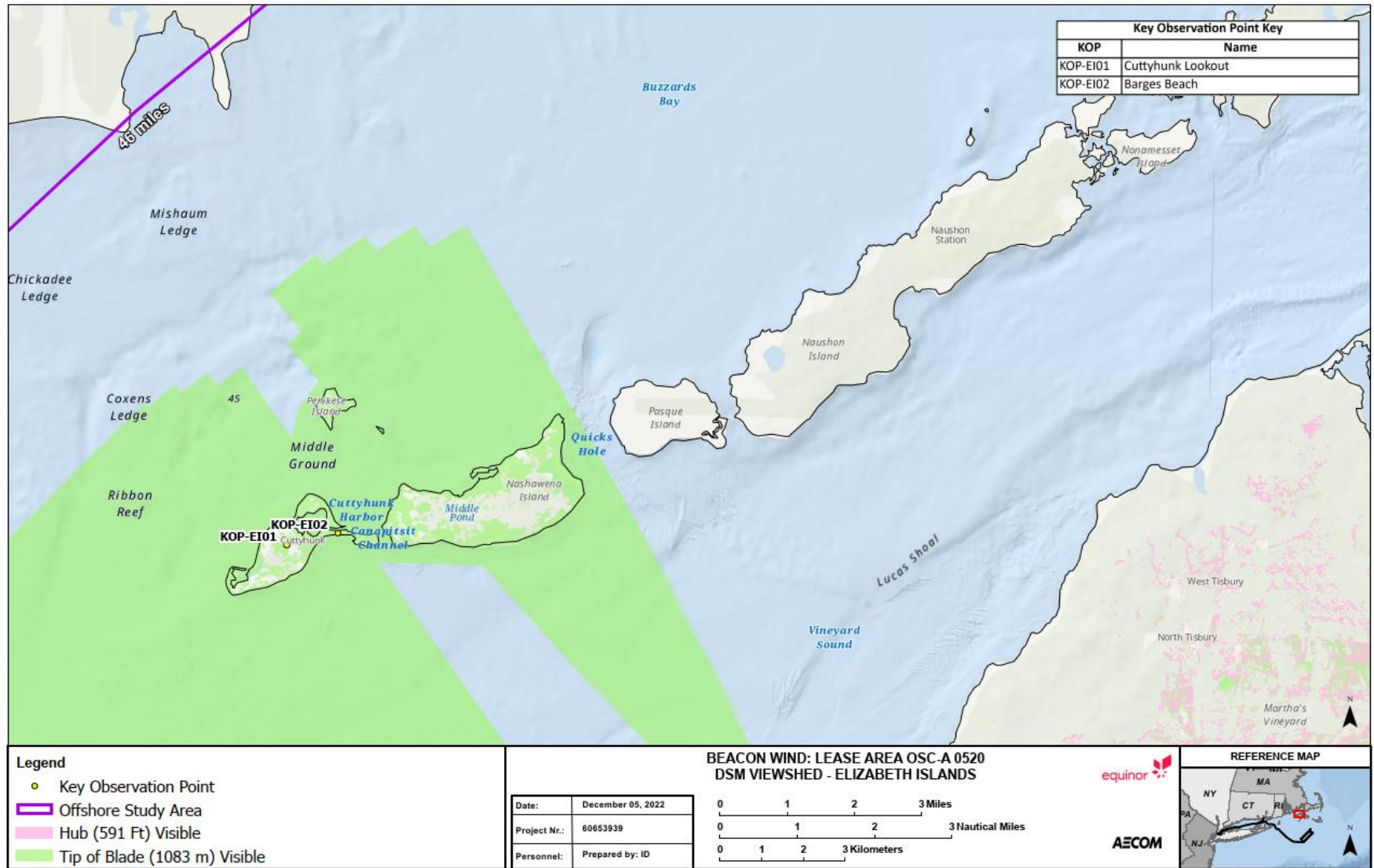
FIGURE 7.1-5. OFFSHORE DSM VIEWSHED – CAPE COD



Data Sources: BOEM, ESRI, NOAA  
Service Layer Credits: World Ocean Base: Esri, DeLorme, NaturaViva

Path: C:\Users\Browne\OneDrive\Documents\Beacon Wind\Beacon Wind\DSM Viewshed\Appendix 5 - DSM Viewshed - Cape Cod.aprx

FIGURE 7.1-6. OFFSHORE DSM VIEWSHED – ELIZABETH ISLANDS



Data Sources: BOEM, ESRI, NOAA  
 Service Layer Credits: World Ocean Base: Esri, DeLorme, NaturalVue

Path: C:\jerry\pawawan\work\60653939\Equinox - Site Tables\Reports\BW2\_COP\working\Appendix X - 114\BW2\_114\_Offshore.aprx

FIGURE 7.1-7. BW1 AND BW2 ONSHORE APSLVI (DSM VIEWSHED) – AGRE

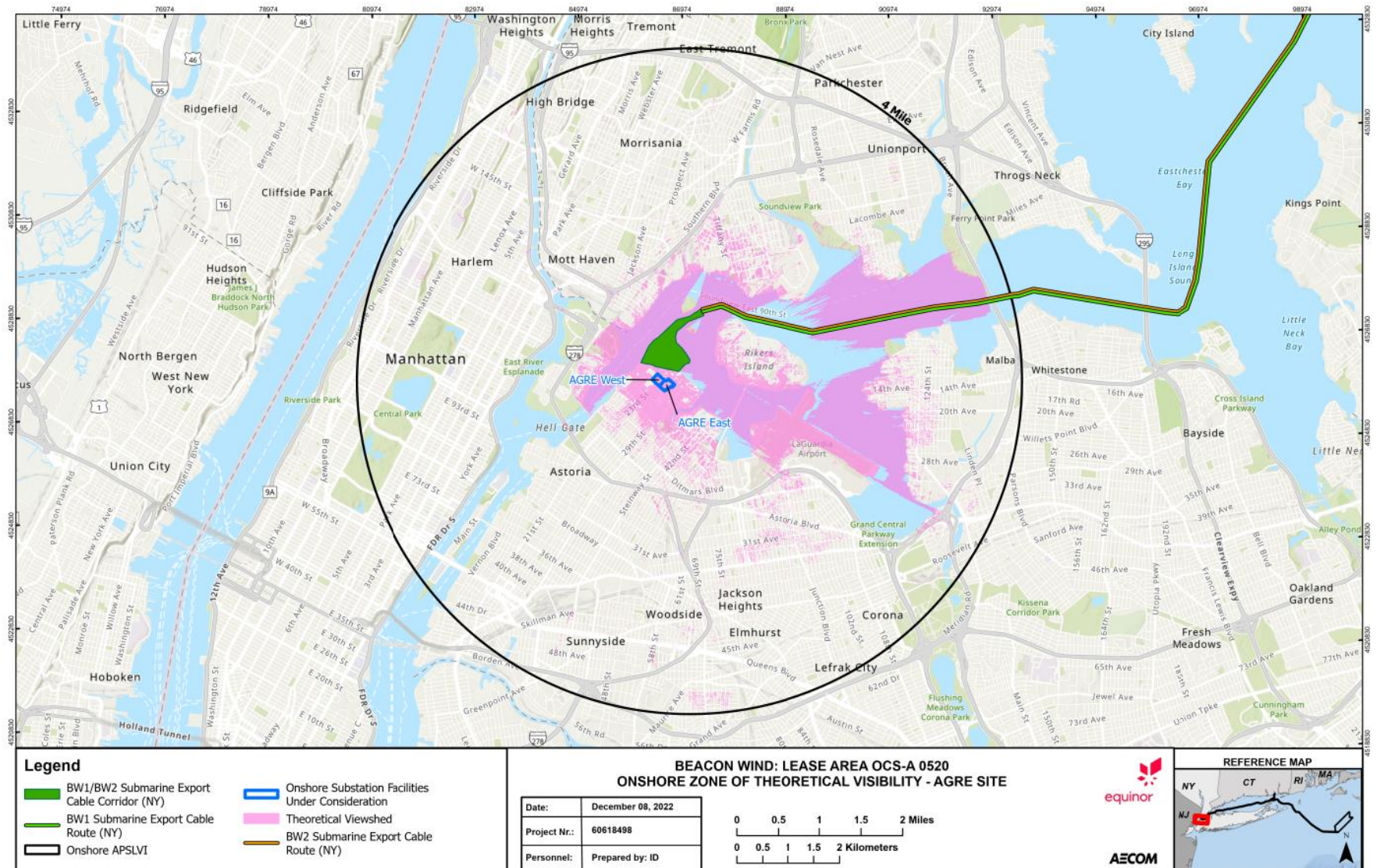
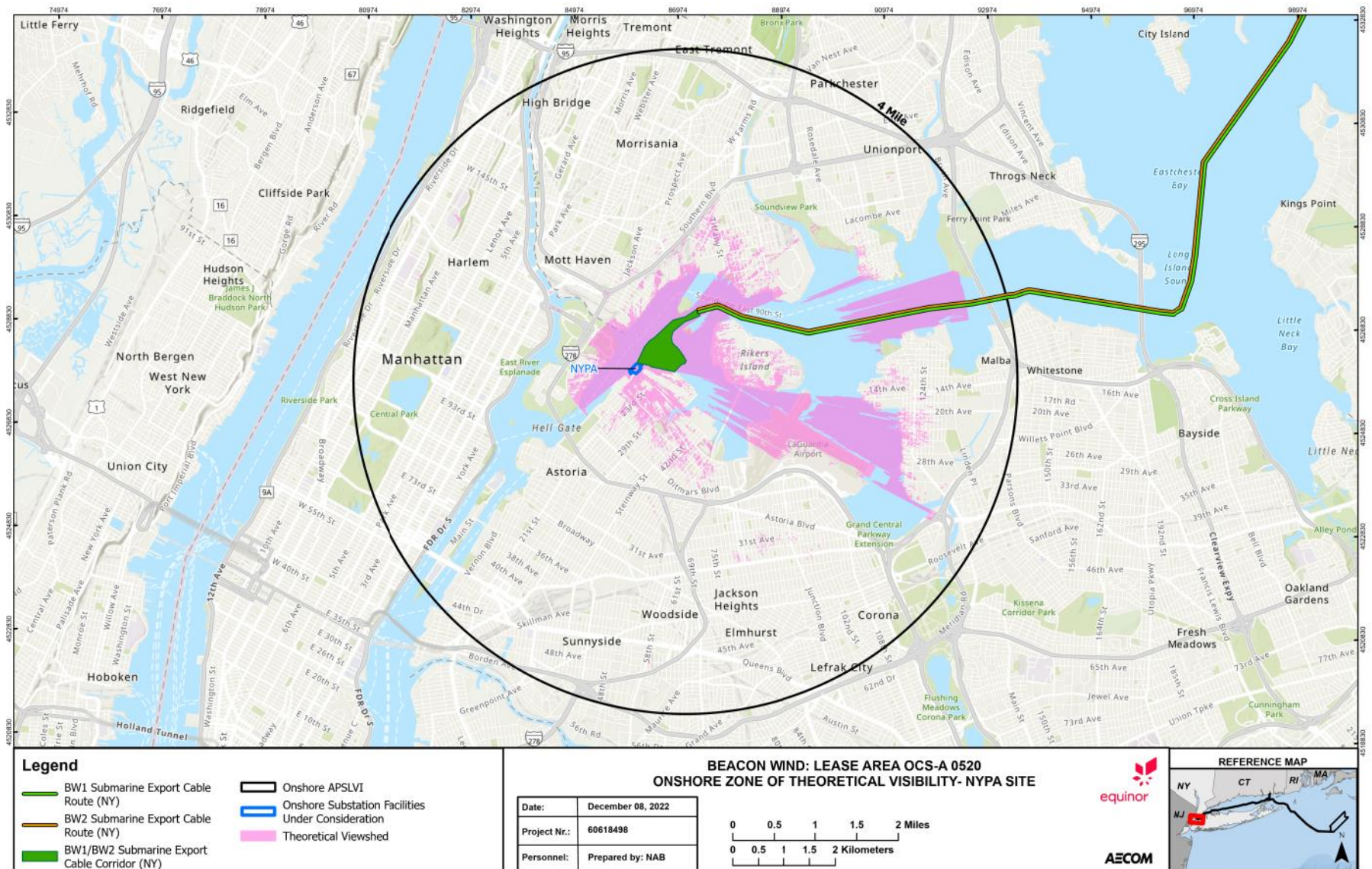


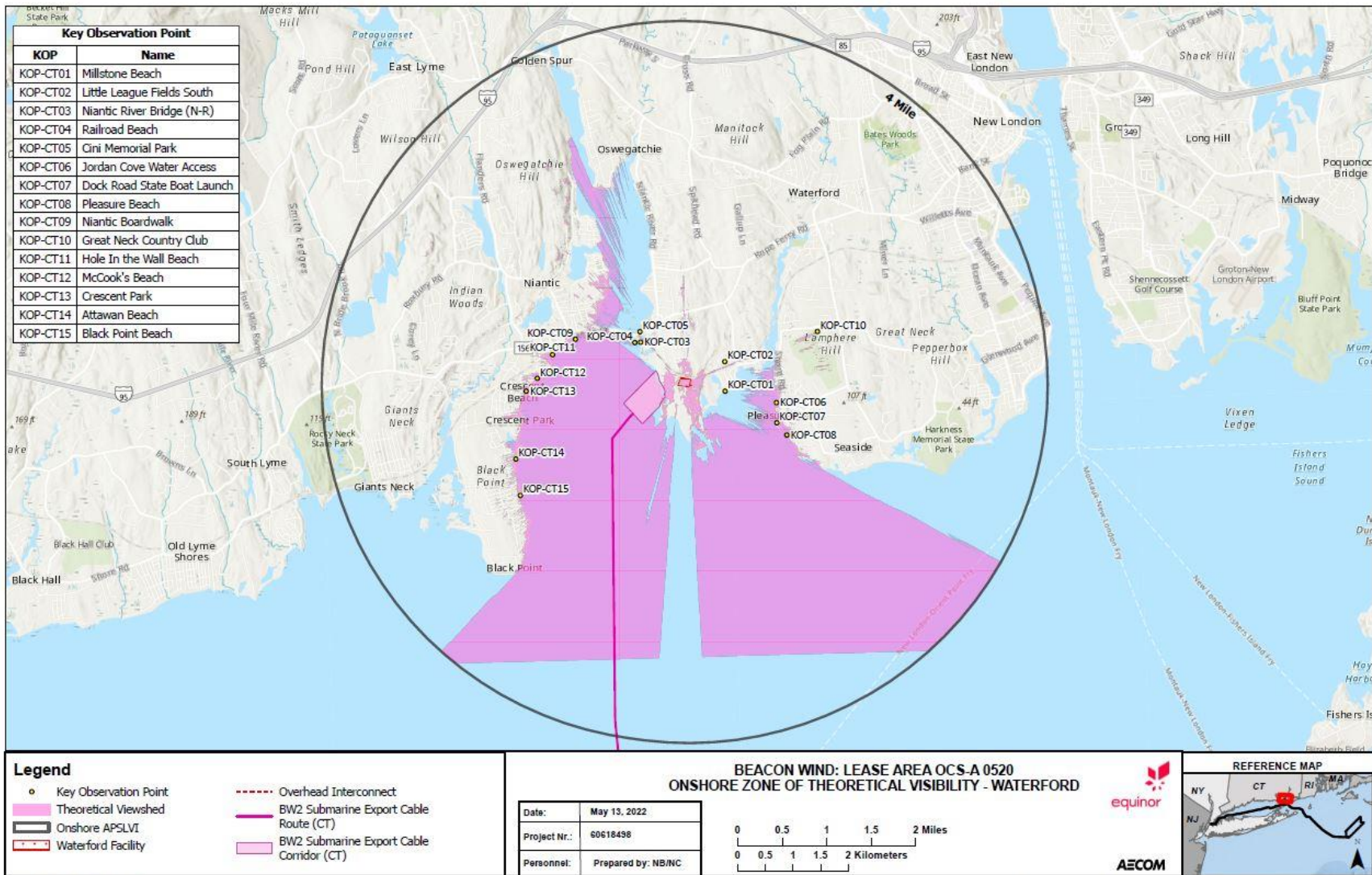
FIGURE 7.1-8. BW1 AND BW2 ONSHORE APSLVI (DSM VIEWSHED) – NYPA



Data Sources: BOEM, ESRI, NOAA  
Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributions

Document Path: C:\Users\laurin@AECOM\Equinor - Site Factors\Report\BW2 COP\working\Appendix X - V\BW2\_VIA\_Astoria.aprx

FIGURE 7.1-9. BW2 ONSHORE APSLVI (DSM VIEWSHED) – CONNECTICUT



Data Sources: BOEM, EDR1, NOAA  
 Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributions

Document Path: C:\Users\burkley\AECOM\Equinox - Site Tools\Reports\BW2 COP\working\Appendix X - V\BW2\_VIA\_Waterford.aprx

## 7.1.1 Affected Environment

### 7.1.1.1 Offshore APSLVI

The Offshore APSLVI covers the open waters of the Atlantic Ocean, Nantucket Sound, Vineyard Sound, and Rhode Island Sound; the islands of Martha's Vineyard, Nantucket, and the Elizabeth Islands; and a very limited portion of the southern shores of upper and mid-Cape Cod. Martha's Vineyard is the largest of the islands, covering an area of approximately 61,018 ac (24,693 ha). Nantucket comprises four islands: Nantucket, the largest of the group, has an area of approximately 31,213 ac (12,631 ha). Three smaller islands (Esther Island, Tuckernuck Island, and Muskeget Island) extend the overall landmass west into the Nantucket Sound.

Both the south shore of Cape Cod and the islands within the APSLVI are highly valued for their scenic and historic attributes, have long been popular destinations for tourists, as well as communities for year-round and seasonal residents. The visual and other sensory linkages of land and water is a draw, along with a high degree of "naturalness" and compatible historic and more modern well-designed buildings and townscapes. Note that in the case of long-distance views, theoretical visibility typically exceeds actual visibility. In seascapes, atmospheric conditions reduce the practical viewing limit, sometimes significantly.

GIS calculations utilizing the Offshore APSLVI indicate that an approximately 12,019 ac (4,864 ha) portion of the 61,018 ac (24,693 ha) Martha's Vineyard land mass, or approximately 20 percent of the island, would have some visibility of the wind turbine TOB. GIS calculations utilizing the Offshore APSLVI indicate that an approximately 10,675 ac (4,320 ha) portion of the 31,213 ac (12,631 ha) Nantucket land mass, or approximately 34 percent of the island, would have some visibility of the wind turbine top of blade. Regarding visibility of the wind turbine hubs, approximately 7,308 ac (2,957 ha) of the island, or approximately 23 percent of the island, would have some visibility of the hubs. GIS calculations utilizing the Offshore APSLVI indicate that an approximately 2,406 ac (974 ha) portion of Cape Cod land mass within the 46 mi (74 km) Study Area would have some visibility of the wind turbine TOB. A limited area of the Cape Cod land mass within the APSLVI within the Town of Mashpee (128 ac [52 ha]) would have theoretical visibility of the wind turbine hubs. GIS calculations utilizing the Offshore APSLVI indicate that an approximately 1,459 ac (590 ha) area of the Elizabeth Islands land mass would have some visibility of the wind turbine TOB. No part of the Elizabeth Islands will have visibility of the wind turbine hubs.

#### 7.1.1.1.1 Offshore Seascape/Landscape Impact Receptor Identification

In order to identify the particular seascape and landscape impact receptors that may be affected by the Project, and to assess potential impacts on the receptors, baseline information regarding the seascape and landscape was gathered.

While seascape and landscape character is derived from a pattern of physical elements, it is equally defined by perceptual, experiential, and aesthetic qualities. As described within the BOEM SLVIA Methodology, there are perceptual attributes that contribute to the experience of seascapes/landscapes, including:

- Scenic quality: seascape/landscapes that are known to have broad appeal to aesthetic senses;
- Rarity: natural or cultural elements that are unique or in short supply;
- Recreation: places where recreational activities occur or are available;



- Experiential: wildness, tranquility, solitude; and
- Associations: places where historic figures or events occurred.

An important part of analyzing the seascape/landscape character is to describe how land-based environmental conditions relate to the attributes of the ocean seascape. The landscape/seascape character analysis describes the physical and perceptual attributes of the setting that intersect and create a relationship between terrestrial landscapes and the coastal and offshore environment. Physical factors along with perceptual qualities define the setting that intersects and creates a relationship between terrestrial landscapes and the coastal and offshore environment.

The physical attributes of the Offshore APSLVI including topography, landcover, and characteristics of the ecoregion as well as the influence of human settlement activity as expressed through land use and transportation infrastructure were evaluated. The overall character of the seascape/landscape within the APSLVI, including any distinctive areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each area distinctive, have been used to identify areas of homogenous character (SLCAs) which were defined and mapped.

The following 14 SLCAs have been categorized within the APSLVI which would be subject to theoretical visibility of the Project:

- Ocean (OCA);
- Marine Bay (SCA);
- Ocean Beach (SCA);
- Coastal Dunes (SCA);
- Coastal Bluffs (SCA);
- Salt Ponds/Tidal Marsh (LCA);
- Coastal Scrub (LCA);
- Forests/Woodlands (LCA);
- Fields/Meadows (LCA);
- Village/Town (LCA);
- Rural/Suburban Residential (LCA);
- Low Density Rural Settlement (LCA);
- Light Industrial Land (LCA); and
- Parks/Developed Recreation (LCA).

The largest single character area is the Ocean OCA, comprising 6,267,256 ac (2,536,271 ha) within the 46 mi (74 km) APSLVI. SCAs are areas of coastal landscape that have shared inter-visibility between land and sea. There are five SCAs defined within the APSLVI. The remainder of the character areas fall into the LCA category.

**Table 7.1-1** below shows the areas of each respective SLCAs that falls within the Offshore APSLVI. Out of the SLCA's, Open Ocean has the largest total area present in the 46 mi (74 km) APSLVI, and the highest percentage of area visible within the TOB viewshed at 85 percent. Out of the LCUs, Rural/Suburban Residential has the largest total area present in the 46 mi (74 km) APSLVI, followed by Low Density Rural Settlement, Salt Ponds/Tidal Marsh, and Forests/Woodlands. Coastal Bluffs have the lowest amount of area in the 46 mi (74 km) APSLVI, followed by Environmental Justice Communities and Agricultural/Open Fields. 74 percent of the total Agricultural/Open Fields LCU is

visible from the TOB viewshed, while only 10 percent of the total Forests/Woodlands, Rural/Suburban Residential, and Salt Ponds/Tidal Marshes are visible.

**TABLE 7.1-1. SLCAS WITHIN OFFSHORE APSLVI**

Character Area	Total Area a/ Viewshed b/	Total Area within TOB Viewshed b/	Percent within TOB Viewshe d	Total Area within Hub Viewshed	Percent within Hub Viewshed
Coastal Bluffs	148 ac (60 ha)	37 ac (15 ha)	25%	36 ac (15 ha)	24%
Coastal Scrub	22,484 ac (9,099 ha)	6,609 ac (2,675 ha)	29%	4,102 ac (1,660 ha)	18%
Coastal Dunes	797 ac (323 ha)	56 ac (23 ha)	7%	393 ac (159 ha)	49%
Fields/Meadows	701 ac (284 ha)	508 ac (206 ha)	72%	245 ac (99 ha)	35%
Forests/Woodland s	42,742 ac (17,297 ha)	2,446 ac (990 ha)	6%	794 ac (321 ha)	2%
Light Industrial	7,167 ac (2,900 ha)	1,020 ac (413 ha)	14%	800 ac (324 ha)	11%
Low Density Rural Settlement	45,063 ac (18,236 ha)	7,176 ac (2,904 ha)	16%	5,937 ac (2,403 ha)	13%
Ocean Beach	2,424 ac (981 ha)	1,481 ac (599 ha)	61%	813 ac (329 ha)	34%
Marine Bay	21,066 ac (8,524 ha)	0 ac (0 ha)	0%	1,416 ac (573 ha)	13%
Ocean	8,649,929 ac (3,500,502 ha)	5,082,752 ac (2,154,664 ha)	59%	3,485,342 ac (1,410,468 ha)	40%
Parks/Developed Recreation	6,195 ac (2,507 ha)	762 ac (308 ha)	12%	434 ac (176 ha)	7%
Rural/Suburban Residential	87,971 ac (35,601 ha)	1,980 ac (801 ha)	2%	572 ac (231 ha)	1%
Salt Ponds/Tidal Marsh	124,721 ac (50,473 ha)	7,617 ac (3,082 ha)	6%	1,303 ac (527 ha)	1%
Village/Town	5,480 ac (2,218 ha)	622 ac (252 ha)	11%	343 ac (139 ha)	6%

Notes:

a/ Total area of each SLCA that falls within the 46 mi (74 km) radius or ZTV.

b/ TOB – Top of Blade.

#### 7.1.1.1.2 Offshore Visual Impact Receptors/Viewers

Receptors and viewers are the people who interface with the Project and experience its effects. Understanding the characteristics of viewers is important because the project's effects on the viewer experience and the viewer response to these effects contribute to the visual impact.

Consideration of viewer groups were considered within the established APSLVI. These viewer groups were identified based on a review of local planning documents including the *Nantucket Master Plan* (Nantucket Planning Board 2009) and *Wind Energy Plan for Dukes County* (Martha's Vineyard

Commission 2012), input obtained from stakeholder outreach activities, VIAs prepared for other offshore wind projects in the Massachusetts Wind Energy Area, and the activities observed during field reconnaissance.

The following visual impact receptor viewer groups were identified:

- Residential receptors;
- Tourists and Recreational receptors;
- Water-based receptors; and
- Transportation-based receptors.

There is an expectation that most receptors will be sensitive to visual changes to seascape views on Nantucket, Martha's Vineyard, Cape Cod, and Cuttyhunk, Esther, Tuckernuck, and Muskeget Islands, due to the value placed on these areas by the receptors, and the receptors susceptibility to change at each KOP identified. This expectation is based on public input received on prior offshore wind projects in the area, as well as direct discussions with key stakeholders.

Martha's Vineyard, Nantucket, Cape Cod, and the Elizabeth Islands are experienced by a wide range of people including permanent residents who live and work on the Cape and islands year-round as well as seasonal residents who live there on a largely seasonal basis. Martha's Vineyard, Nantucket, Cape Cod, and Cuttyhunk offer a wide range of recreational activities and destinations for both recreation-seeking residents and tourists. The Cape and islands are also experienced by people partaking in water-based activities including commercial mariners, ferry passengers and recreational water users.

#### **7.1.1.1.3 Selection of Offshore KOPs**

The Offshore APSLVI indicates that views of the Project are theoretically available from numerous locations across Martha's Vineyard, Nantucket, and Tuckernuck Islands and from a limited number of locations on the south shore of Cape Cod and the Elizabeth Islands. To understand the nature of these views and the likely impact of the Project, potential KOPs were identified and evaluated.

Beacon Wind identified potential KOPs within the APSLVI via a review of local planning documents including the *Nantucket Master Plan* (Nantucket Planning Board 2009) and *Wind Energy Plan for Dukes County* (Martha's Vineyard Commission 2012), a review of prior VIA reports prepared for OSW projects in the MA/RI WEA that shared a common viewshed, and input obtained from stakeholder outreach activities. Stakeholder outreach included a meeting held in September 2020 with the community of Nantucket<sup>1</sup> attended by the Town of Nantucket Energy Office, the Madaket Residents Association and the AECOM/Ramboll SLVIA team. A preliminary list of potential KOPs was reviewed at this meeting. These activities were used as a starting point to identify places of visual significance or importance to viewer groups and receptors within the APSLVI.

The results of the viewshed analysis, as represented graphically in the APSLVI, were verified via field reconnaissance, and refined to eliminate (where warranted) viewpoints that do not currently have visibility of the project area and to add viewpoints where imperfections in the viewshed analysis incorrectly resulted in a finding that the project or activity would not be visible. The AECOM/Ramboll

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<sup>1</sup> Key stakeholders within the community of Martha's Vineyard have been notified regarding the Project but have not engaged the visual impact assessment project team yet.

SLVIA team completed the initial field review of Martha's Vineyard and Nantucket KOPs in October 2020, with follow-up visits from the AECOM team in June 2021 and March 2022 to complete the field documentations on Cape Cod, Cuttyhunk, and Martha's Vineyard. The following actions were completed for each potential KOP during the field reconnaissance:

- Detailed observations were made and notes collected regarding the KOP required to support completion of visual impact analysis including the SLCA context; viewer groups and numbers; and the nature and composition of the view;
- Secured measured, geo-referenced photographs were collected from the KOPs with potential visibility of the project area including relevant data associated with the photograph including the time of day, GPS coordinates, temperature, percent humidity, wind direction and speed, weather condition, sun angle and sun elevation.

A total of 64 potential offshore KOPs were identified for further evaluation (see **Figure 7.1-10**, **Figure 7.1-11**, **Figure 7.1-12**, and **Figure 7.1-13**). Of those, 41 were determined to have at least some visibility of the Project, while 23 are not expected to have visibility due to being screened by topography, land cover, or building structures. No simulations were produced for those potential KOPs for which it was determined that visibility of the Project was not expected. The KOPs selected for simulations and impact analysis are representative of 13 SLCA. The SLCA with no direct representation in the simulations is the Ocean OCA. However, seven KOPs located within the Ocean Beach SCA are considered representative of views from the Ocean OCA. These seven Ocean Beach SCA KOPs are found on Nantucket, Martha's Vineyard, and Cape Cod. An infinite number of views are possible from the OCA. The assumption is that any open ocean location on the south sides of Martha's Vineyard and Nantucket will have uninterrupted visibility of the Project.

Ocean Beaches are represented by 29 KOPs, with only three screened from view: Philbin Beach on the west side of Martha's Vineyard; Siasconsset Beach on the east side of Nantucket; and Eel Point Beach on the northwest of Nantucket. Seven KOPs are from the Village/Town Center LCA and two are from the Light Industrial LCA, and these KOPs are visually screened by landform from the Project.

Seven of the 11 KOPs located within the Low-Density Rural Settlement LCA are fully screened from view. Two of the six KOPs in the Forest/Woodland LCA are screened. Coastal Scrub KOPs are more open to a view. Six of 12 KOPs in Coastal Scrub LCA are screened, and most are located on Nantucket. Two of the three KOPs in the Coastal Dune character area are fully screened due to landform, or dunes and residential structures nearby.

A subset of 23 of the 64 potential offshore KOPs were selected for visual simulations and full analysis in the impact assessment. The final KOPs selected for visual simulations and full analysis were selected based on the findings of the field reconnaissance and were selected to represent the experience of a range of viewer groups, visual resource types, and locations within the APSLVI.

The selected KOPs include known or recognized locations where the view is valued including designated historic properties; National Natural Landmarks; public recreation areas; public beaches; and scenic roads, overlooks and vistas. The identified KOPs also include those which represent the general nature of views from a larger area that may lack defining viewpoints including town centers, residential communities, and estates. These 23 selected KOPs were used to assess potential change to key views that could result from the Project.

**Table 7.1-2** provides a summary description of the offshore KOPs selected for visual simulations. Detailed information on these KOPs is provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**. The visual simulations are included as Attachment X-2 to **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

FIGURE 7.1-10. MARTHA’S VINEYARD KOPS

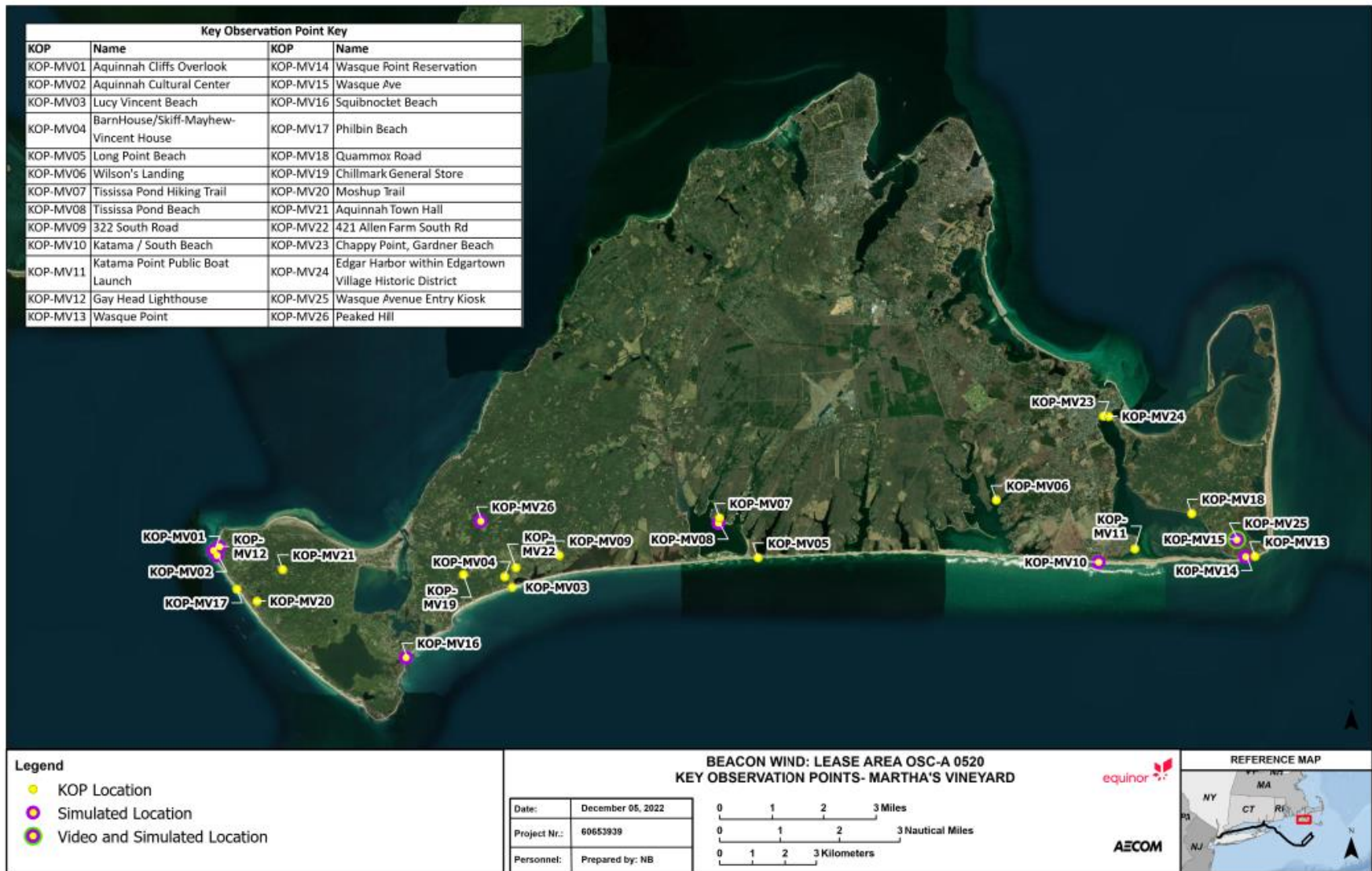


FIGURE 7.1-11. NANTUCKET KOPS



FIGURE 7.1-12. CAPE COD KOPs

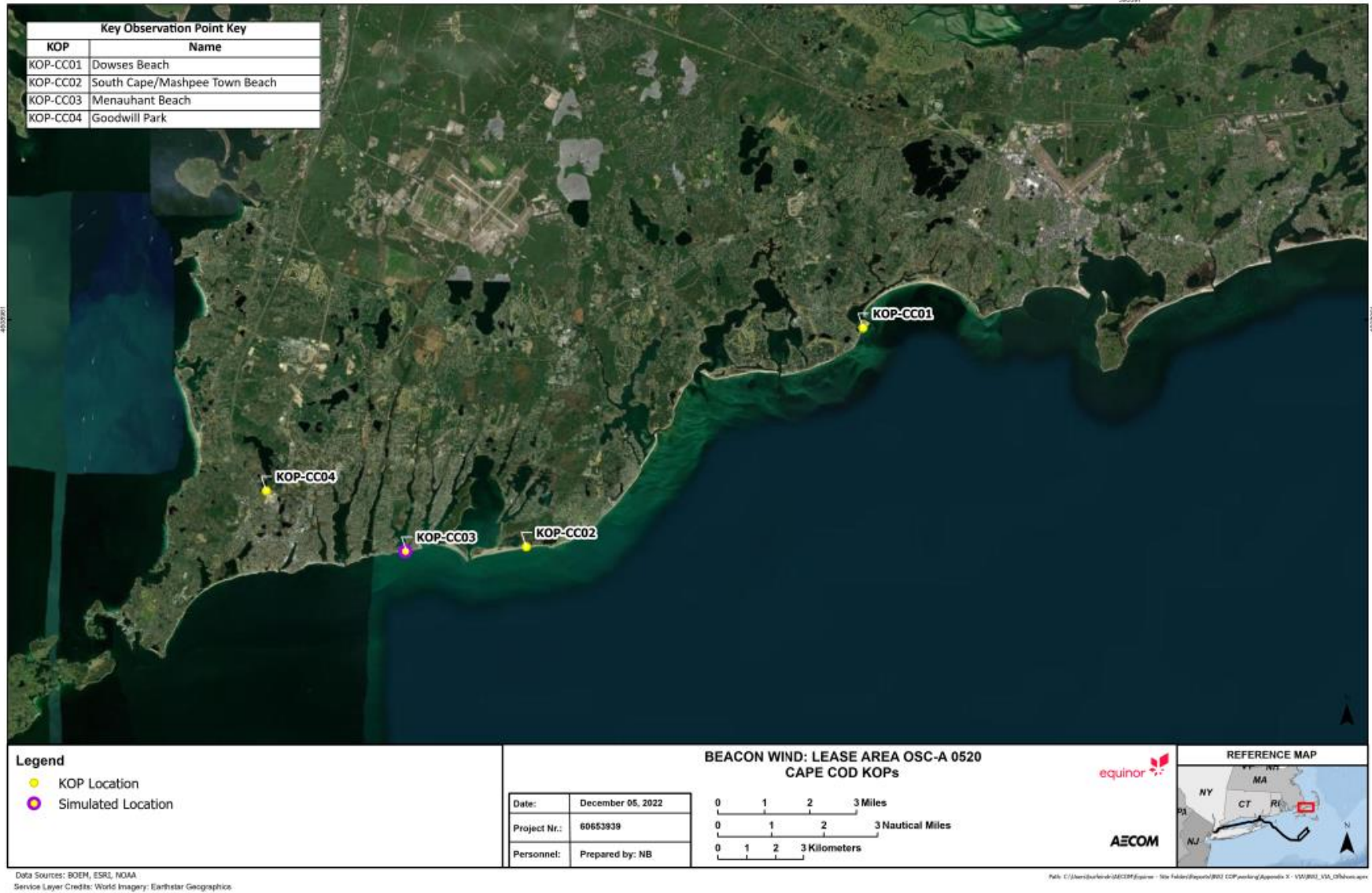




FIGURE 7.1-13. ELIZABETH ISLANDS KOPS



Data Sources: BOEM, ESRI, NOAA  
 Service Layer Credits: World Imagery: Earthstar Geographics

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**TABLE 7.1-2. SUMMARY OF OFFSHORE KOPs SELECTED FOR VISUAL SIMULATIONS**

<b>KOP Number</b>	<b>Name</b>	<b>Municipality</b>	<b>Resource Type</b>	<b>Distance to Nearest Wind Turbine</b>
MV01	Aquinnah Cliffs Overlook	Aquinnah	National Natural Landmark	33 mi (53 km)
MV02	Edwin D. Vanderhoop Homestead (Aquinnah Cultural Center)	Aquinnah	NRHP Historic Property	33 mi (53 km)
MV08	Tississa Pond Beach	West Tisbury	Recreation	28 mi (45 km)
MV10	Katama/South Beach	Edgartown	Public Open Space	24 mi (39 km)
MV14	Wasque Point Trail Reservation	Edgartown	Open Space Conservation; Chappaquiddick Island TCP/NRHP Historic Property	24 mi (39 km)
MV15	Wasque Avenue Entry Kiosk	Edgartown	Public Road, Open Space Conservation; Chappaquiddick Island TCP/NRHP Historic Property	24 mi (39 km)
MV16	Squibnocket Beach	Aquinnah	Public Recreation	29 mi (47 km)
MV25	Wasque Avenue Entry Kiosk Night	Edgartown	Public Road, Open Space Conservation; Chappaquiddick Island TCP/NRHP Historic Property	24 mi (39 km)
MV26	Peaked Hill	Chilmark	Public Recreation	30 mi (49 km)
NA01	Cisco Beach	Nantucket	Public Recreation	21 mi (34 km)
NA04	Tom Nevers Beach	Nantucket	Public Recreation	26 mi (42 km)
NA07	Nobadeer Beach	Nantucket	Public Recreation	23 mi (47 km)
NA08	Surfside Beach	Nantucket	Public Recreation	22 mi (35 km)
NA09	Miacomet Beach and Pond	Nantucket	Public Recreation	21 mi (34 km)
NA10	Madaket Beach	Nantucket	Public Recreation	20 mi (32 km)
NA12	Hummock Pond Road Bike Path	Nantucket	Public Recreation	21 mi (34 km)
NA13	NCF Sanford Farm Barn Overlook	Nantucket	Public Open Space Conservation	21 mi (34 km)
NA20	Madequacham 5	Nantucket	Public Recreation	24 mi (39 km)
NA21	Madaket Beach (at sunset)	Nantucket	Public Recreation	20 mi (32 km)
NA21	Madaket Beach (Night)	Nantucket	Public Recreation	20 mi (32 km)

KOP Number	Name	Municipality	Resource Type	Distance to Nearest Wind Turbine
T01	Tuckernuck 1	Nantucket	Public Recreation; NRHP Historic Property	21 mi (34 km)
EI01	Cuttyhunk Lookout	Gosnold	Public Recreation	40 mi (65 km)
CC03	Menauhant Beach	Falmouth	Public Recreation	39 mi (62 km)

#### 7.1.1.2 *BW1 and BW2 New York Onshore APSLVI*

The Astoria power complex in Queens, New York was selected as the landfall and POI location, and both AGRE and NYPA are onshore substation sites under consideration for BW1 and BW2. Reference source not found. The entire Astoria power complex is zoned M3-1 (Heavy Manufacturing District), which permits the use of buildings/structures associated with the generation, transmission, or distribution of electricity. The preference was to locate the onshore substation facilities within or immediately adjacent to the existing POI, if possible. This preference would also minimize additional disturbance for installation of the onshore interconnection cables between the onshore substation and the existing POI and would maintain consistency with existing land uses in the vicinity.

The New York Onshore APSLVI evaluated in this assessment extends to the Bronx neighborhood of Crotona to the north, Manhattan to the west, and the Queens neighborhoods of College Point and Corona to the east and southeast, and Maspeth to the south. The central extent of the Onshore APSLVI includes the neighborhoods of Astoria, Jackson Heights, and Rikers Island. The New York APSLVI comprises a dense urban development adjacent to the East River with a mixture of inner city residential, industrial, commercial and airport land uses.

The New York Onshore APSLVI indicates that views of AGRE would be substantially constrained and limited to sections of the East River between Hells Gate Bridge, Randall's Island eastern waterfront, the waterfront of the South Bronx, and from locations at Rikers Island and La Guardia Airport. Views from locations elsewhere on the East River and inland would be restricted by a combination of intervening topography, vegetation and built structures. The pattern of visibility for NYPA would be similar to that of AGRE. The majority of views originate from the East River and extends between Randall's Island, South Bronx and Rikers Island, as well as parts of La Guardia Airport.

##### 7.1.1.2.1 *New York Onshore SLIA Receptor Identification*

To assist in the assessment of impacts on landscape and seascape character, SLCAs have been defined and delineated within the New York Onshore APSLVI (see **Figure 7.1-14**). In-depth New York onshore character area descriptions are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

The following five SLCAs have been categorized within the New York Onshore APSLVI which would be subject to theoretical visibility of either onshore substation facility location.

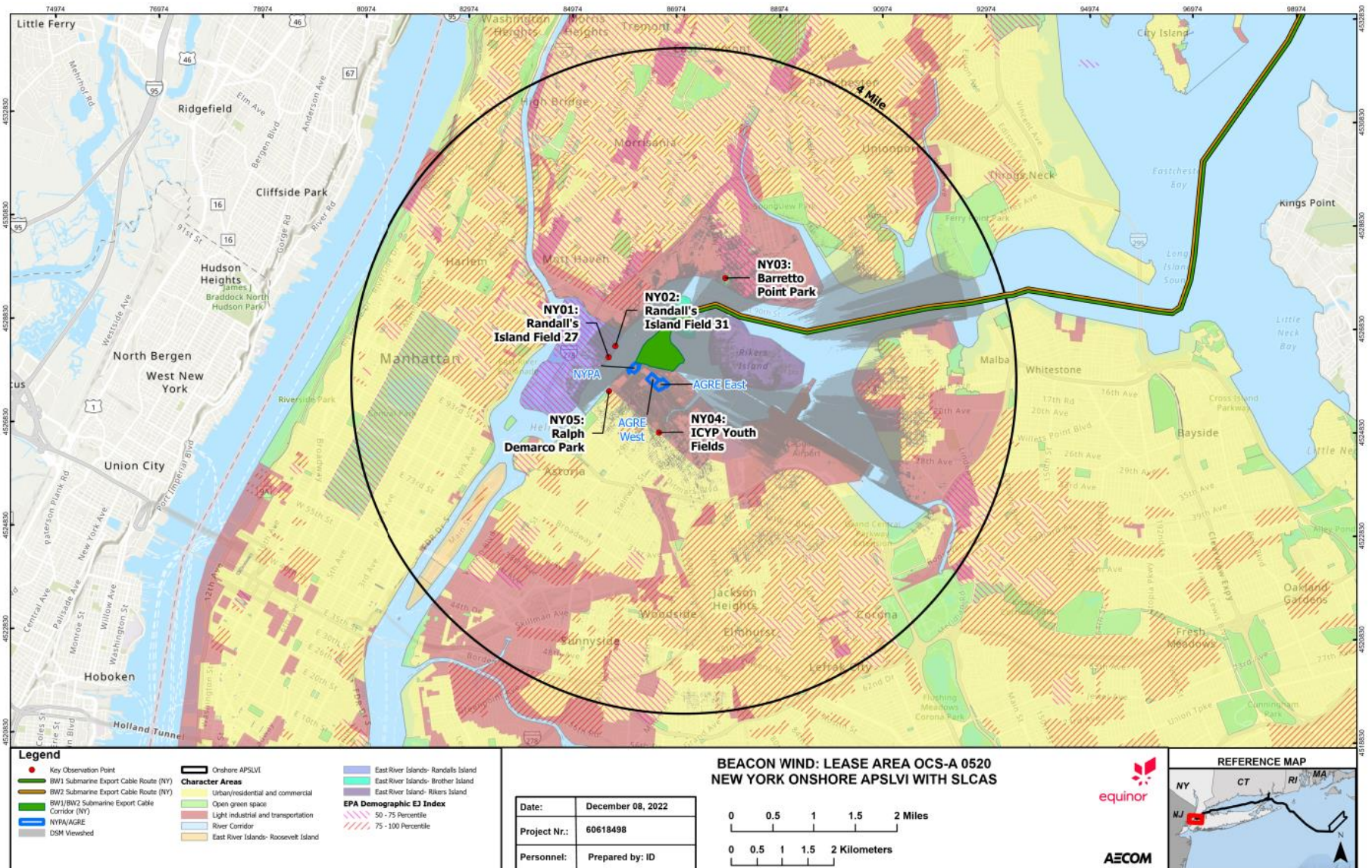
- River Corridor (SCA);
- River Islands: Including Randalls, Rikers Island and North and South Brother Islands (LCA);
- Urban/Residential/Commercial Areas (LCA);
- Light Industrial and Transportation Areas (LCA); and
- Open Green Space (LCA).

**Table 7.1-3** below shows the percent of each SLCA that fall with the theoretical viewsheds created for the AGRE and NYPA onshore substation facility sites. Fifty-one percent of the “East River Islands – Brother Island” character area occurs within the theoretical viewshed of the AGRE substation facilities. Forty-seven percent of the same SLCA occurs with the viewshed of NYPA. This represents the largest coverage of the character areas. “River Corridor” has the second most coverage at 49 and 40 percent for AGRE and NYPA, respectively.

**TABLE 7.1-3. SLCAs WITHIN NEW YORK ONSHORE APSLVI**

Character Areas	Total Area	Total Area within AGRE Viewshed	Percent (%) within AGRE Viewshed	Total Area within NYPA West Viewshed	Percent (%) within NYPA Viewshed
East River Islands – Rikers Island	429.7 ac (173.9 ha)	133.9 ac (54.2 ha)	31%	74.5 ac (30.2 ha)	17%
East River Islands – Brother Island	44.9 ac (18.2 ha)	23.5 ac (9.5 ha)	52%	21.1 ac (8.5 ha)	47%
East River Islands – Randall’s Island	560.8 ac (226.9 ha)	111.9 ac (45.3 ha)	20%	92.5 ac (37.4 ha)	16%
Light Industrial and Transportation	6,384.1 ac (2,583.6 ha)	1080.2 ac (437.1 ha)	17%	597.4 ac (241.8 ha)	9%
Open Green Space	2,523.9 ac (1,021.4 ha)	50.7 ac (20.5 ha)	2%	16.5 ac (6.7 ha)	1%
River Corridor	4,093.2 ac (1,656.5 ha)	2280.9 ac (923 ha)	56%	1,621.3 ac (656.1 ha)	40%
Urban/Residential and Commercial	17,888.3 ac (7,239.1 ha)	350.4 ac (141.8 ha)	2%	113.2 ac (45.8 ha)	1%

FIGURE 7.1-14. BW1 AND BW2 NEW YORK ONSHORE SEASCAPE/LANDSCAPE CHARACTER AREAS



Data Sources: BOEM, ESRI, NOAA  
Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributions

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### **7.1.1.2.2 New York Onshore Visual Receptors/Viewers**

Receptors and viewers are the people who interface with the Project and experience its effects. Understanding the characteristics of viewers is important because the project's effects on the viewer experience and the viewer response to these effects contribute to the visual impact.

In general, the following visual impact receptor viewer groups were identified:

- Residential receptors;
- Tourists and Recreational receptors;
- Water-based receptors; and
- Transportation-based receptors.

### **7.1.1.2.3 New York Onshore KOPs**

The New York Onshore APSLVI indicates that views of the onshore substation facility sites would have a relatively constrained viewshed that is mainly confined to locations across East River and adjoining the river corridor due to the screening effect of the built forms that predominate locally.

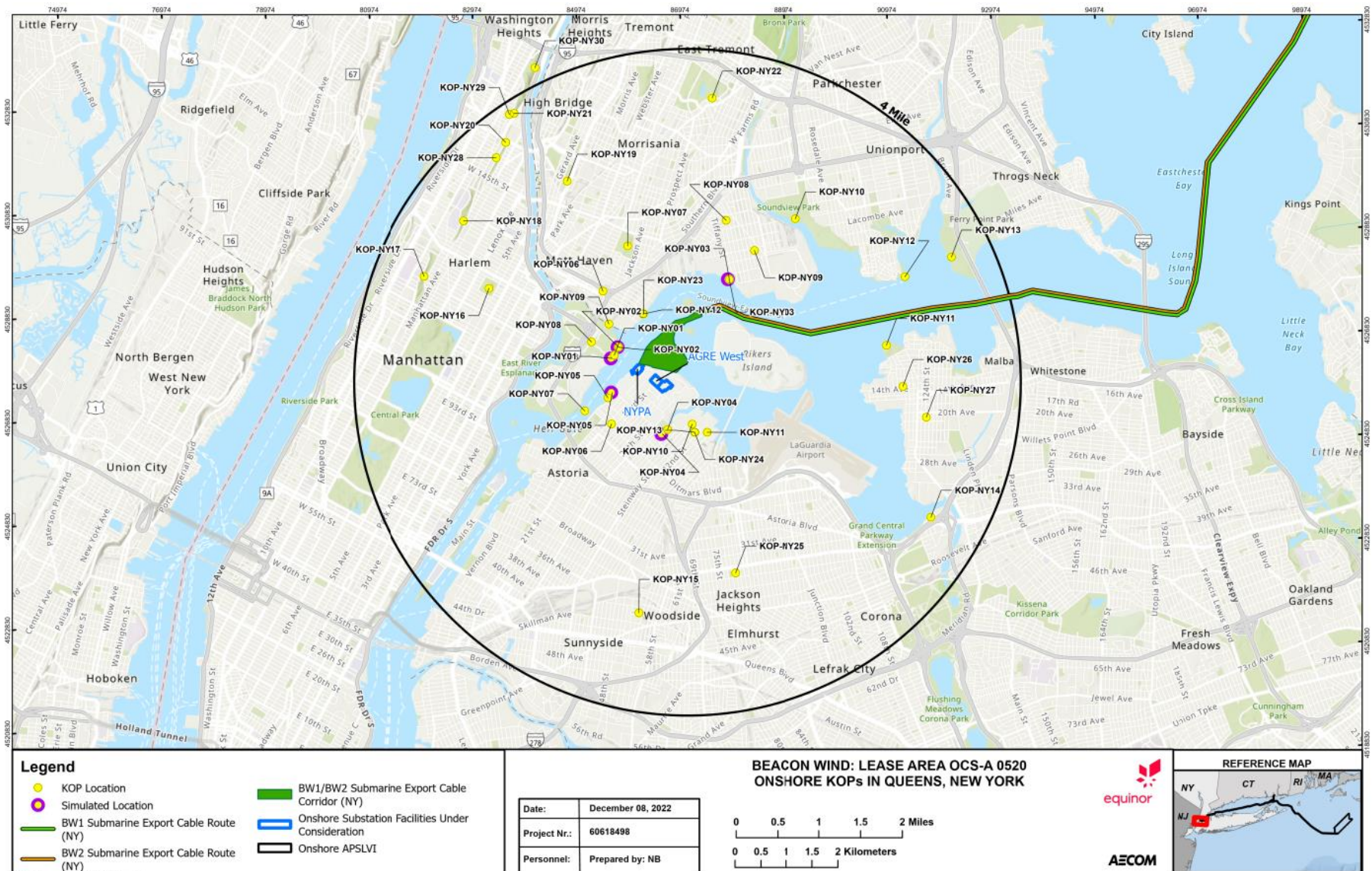
A total of 31 potential New York Onshore KOPs were identified for further evaluation (see **Figure 7.1-15**). KOP locations were confined to publicly accessible locations and therefore do not reflect visibility from private dwellings or private buildings. The results of the viewshed analysis, as represented graphically in the APSLVI, were verified via field reconnaissance, and KOPs eliminated (where warranted) from further evaluation that were determined to not have visibility of the onshore project area.

A subset of five of the 31 KOPs were selected for visual simulations and impact evaluation. The KOPs selected for simulations are intended to represent locations where the view is valued relative the potential KOPs evaluated, and locations that were most likely to have visibility of the onshore substation facilities. The selected KOPs are located in different directions with respect to the onshore substation facilities and at different elevations.

Water-based receptor views from vessels on East River, such as the Soundview Ferry, are represented by waterfront KOPs at Randall's Island Field 27 (KOP-NY01) and Field 31 (KOP-NY02), and Barretto Point Park (KOP-NY03), which afford open views across the river, toward the onshore substation facility sites.

**Table 7.1-4** provides a summary description of the selected New York onshore KOPs. The New York onshore visual simulations are included as Attachment X-5 and Attachment X-7 to **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

FIGURE 7.1-15. NEW YORK ONSHORE KOPS



Data Sources: BOEM, ESRI, NOAA  
Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributions

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**TABLE 7.1-4. BW1 AND BW2 NEW YORK ONSHORE KOPS SELECTED FOR VISUAL SIMULATIONS**

KOP Number	Name	Borough	Resource Type	KOP Distance to Substation Options
NY01	Randall's Island Field 27	Manhattan	Public Recreation, Open Green Space	AGRE - 0.5 mi (0.85 km); NYPA - 0.28 mi (0.45 km)
NY02	Randall's Island Field 31	Manhattan	Public Recreation, Open Green Space	AGRE - 0.5 mi (0.85 km); NYPA - 0.32 mi (0.51 km)
NY03	Barretto Point Park	Bronx	Public Recreation, Open Green Space	AGRE - 1.4 mi (2.3 km); NYPA - 1.45 mi (2.34 km)
NY04	ICYP Youth Program Fields	Queens	Public Recreation, Open Green Space	AGRE - 0.46 mi (0.74 km); NYPA - 0.75 mi (1.21 km)
NY05	Ralph Demarco Park	Queens	Public Recreation, Open Green Space	AGRE - 0.5 mi (0.85 km); NYPA - 0.41 mi (0.65 km)

### 7.1.1.3 BW2 Connecticut Onshore APSLVI

The Waterford power complex in Waterford, Connecticut is zoned by the Planning and Zoning Commission of the Town of Waterford as an I-G (General Industrial District), which permits the use of buildings/structures associated with the generation, transmission, or distribution of public electricity. The preference was to locate the onshore substation facility within or immediately adjacent to the existing POI, if possible. This preference would also minimize additional disturbance for installation of the onshore interconnection cables between the onshore substation facility and the existing POI and would maintain consistency with existing land uses and landscape character in the vicinity.

The Connecticut Onshore APSLVI evaluated in this assessment extends up north to the Niantic River and the intersection of Route I-95 and Connecticut Route 85, the Rocky Neck State Park in the Town of East Lyme to the west, the western coastline of Thames River to the east, and Long Island Sound, to the south. The existing Dominion Millstone Power Station on Millstone Point blocks portions of the direct southerly view from the ocean. On land, views are constrained along the coastline due to intervening buildings and structures, vegetation, and topography. The APSLVI comprises many parks/developed recreation areas, water views, forests/woodlands, and residential areas.

The Connecticut Onshore APSLVI indicates that views of the onshore substation facility would be substantially constrained by topography and woodland cover, and limited to the Niantic Bay, Jordan Cove, and the beaches and walkways along the coastline of these water bodies. Most views from locations inland would be restricted by a combination of intervening topography, vegetation, and built structures.

#### 7.1.1.3.1 Connecticut Onshore SLIA Receptor Identification

To assist in the assessment of impacts on landscape and seascape character, SLCAs have been defined and delineated within the Connecticut Onshore APSLVI (see **Figure 7.1-16**). In-depth New York onshore character area descriptions are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**.



The following 11 SLCAs have been categorized within the Connecticut Onshore APSLVI and would be subject to theoretical visibility of the onshore substation facility.

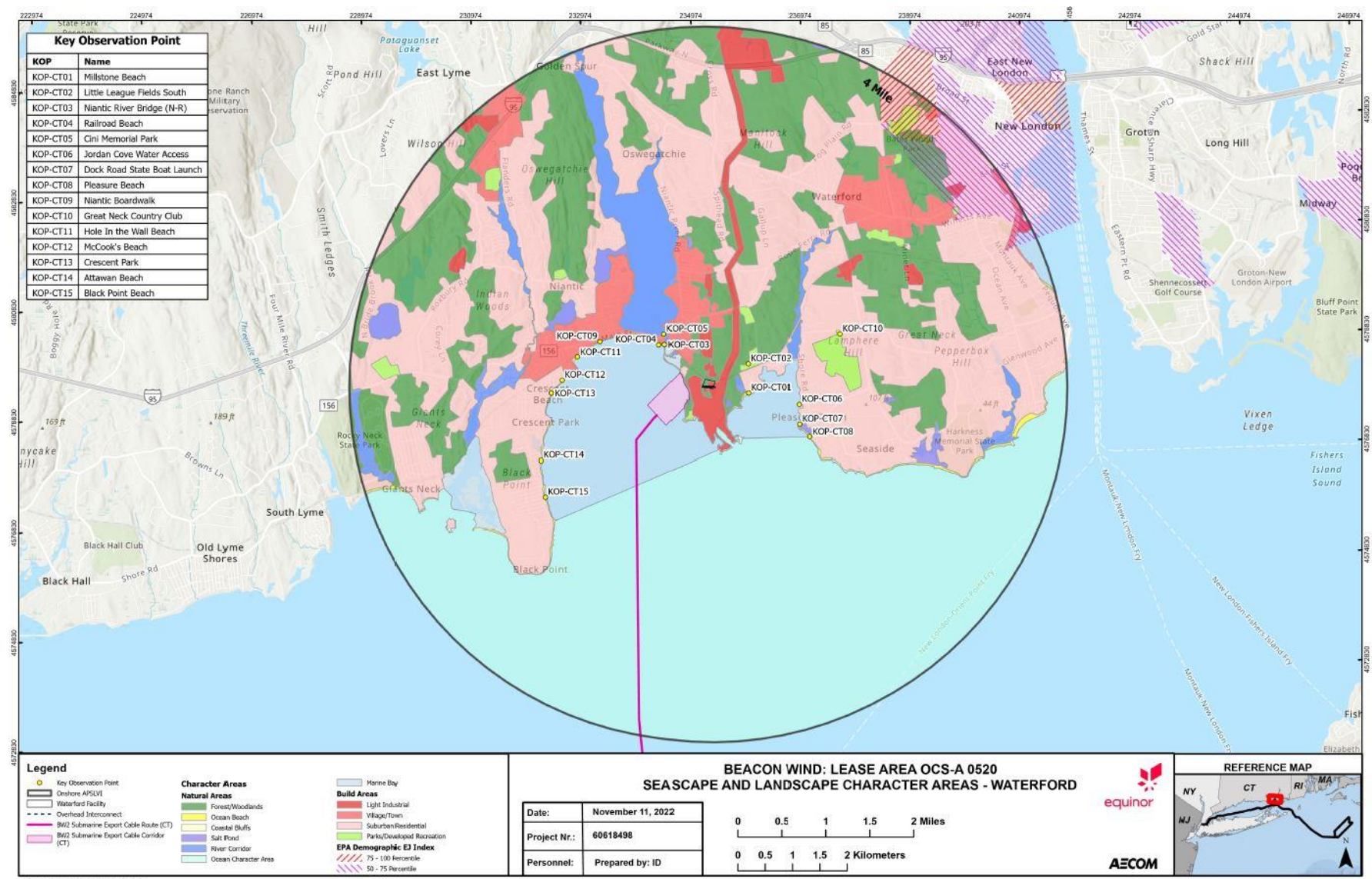
- Suburban Residential (LCA);
- Village/Town (LCA);
- Light Industrial (LCA);
- Parks/Developed Recreation (LCA);
- Forests/Woodlands (LCA);
- Ocean Beach (SCA);
- Coastal Bluffs (SCA);
- Salt Pond (LCA);
- River Corridor (SCA);
- Marine Bays (SCA); and
- Ocean (OCA).

**Table 7.1-5** below shows the percent of each SLCA that fall with the theoretical viewshed created for the Waterford, Connecticut onshore substation facility. 59 percent of the Ocean character unit occurs within the theoretical viewshed of the Waterford, Connecticut onshore substation facility. This represents the largest coverage of the character areas. Ocean Beach has the second most coverage, followed by Coastal Bluffs, Ocean Bays/Covers, and River Corridor. There is a very limited amount of Forests/Woodlands and Suburban Residential SLCA falling within the viewshed.

**TABLE 7.1-5. SLCAs WITHIN CONNECTICUT ONSHORE APSLVI**

Character Area	Total Area	Total Area within Viewshed	Percent (%) within Viewshed
Suburban Residential	9,846 ac (3,984 ha)	65 ac (26 ha)	1%
Village/Town	1,422 ac (576 ha)	41 ac (16 ha)	3%
Light Industrial	695 ac (281 ha)	67 ac (27 ha)	10%
Parks/Developed Recreation	302 ac (122 ha)	8 ac (3 ha)	3%
Forests/Woodlands	5,944 ac (2,406 ha)	12 ac (5 ha)	0.2%
Ocean Beach	115 ac (47 ha)	36 ac (15 ha)	31%
Coastal Bluffs	22 ac (9 ha)	5 ac (2 ha)	23%
Salt Pond	182 ac (74 ha)	10 ac (4 ha)	5%
River Corridor	1,155 ac (467 ha)	155 ac (63 ha)	13%
Ocean Bays/Coves	449 ac (182 ha)	60 ac (24 ha)	13%
Ocean	13,158 ac (5,325 ha)	7,800 ac (3,157 ha)	59%

FIGURE 7.1-16. BW2 ONSHORE SEASCAPE/LANDSCAPE CHARACTER AREAS MAP (CONNECTICUT)



Data Sources: BOEM, ESRI, NOAA  
 Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributions

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### 7.1.1.3.2 Connecticut Onshore Visual Receptors/Viewers

Receptors and viewers are the people who interface with the Project and experience its impacts. Understanding the characteristics of viewers is important because the project's impacts on the viewer experience and the viewer response to these effects contribute to the visual impact.

In general, the types of viewers and viewer groups present within the Connecticut Onshore APSLVI are classified as residents, tourists, recreational users, water-based users, and transportation-based users (rail and roadway).

### 7.1.1.3.3 Connecticut Onshore KOPs

The Connecticut Onshore APSLVI indicates that views of the onshore substation facility site are mostly constrained to the coastline and within the Marine Bays and some scattered inland areas due to the screening effects of built forms and vegetation. The results of the viewshed analysis, as represented graphically in the APSLVI, were verified via field reconnaissance, and viewpoints eliminated (where warranted) that were determined unlikely to have visibility of the project area and to add viewpoints where imperfections in the viewshed analysis incorrectly resulted in a finding that the project or activity would not be visible.

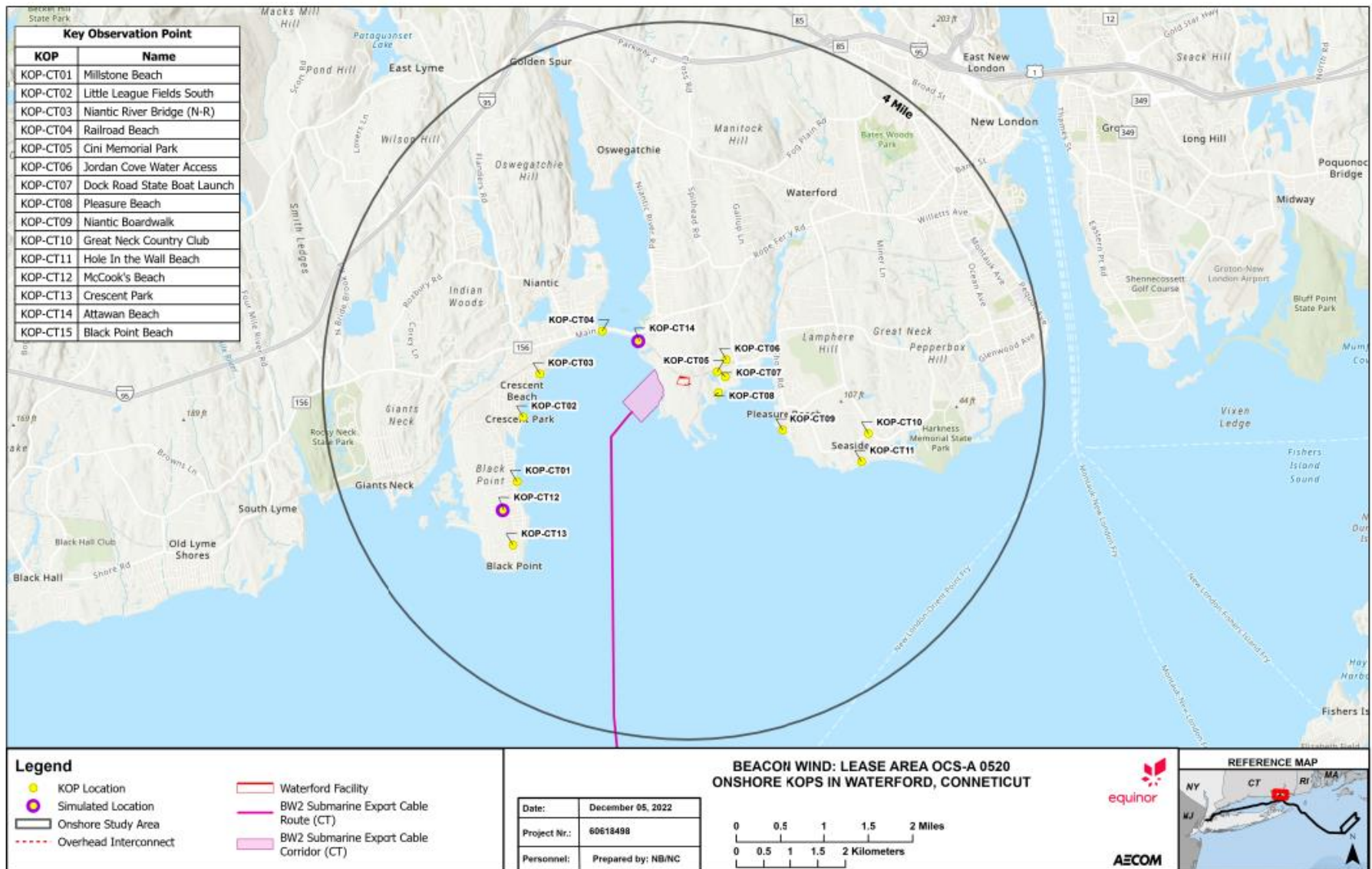
A total of 15 potential Connecticut Onshore KOPs were identified for further evaluation (see **Figure 7.1-17** Error! Reference source not found.). KOP locations were confined to publicly accessible locations and therefore do not reflect visibility from private dwellings or private buildings. A subset of seven of the 15 KOPs were selected for visual simulations and full analysis in the impact assessment that follows. The KOPs selected for simulations are intended to represent a number of different viewer types, locations where the view is valued, and locations that were most likely to have visibility of the onshore substation facilities. The selected KOPs are located in different directions with respect to the onshore substation facilities and at different elevations.

Views from boats departing into and arriving from the Niantic Bay are represented by the land-based KOP at Railroad Beach (KOP-CT04), which affords a view from a jetty just west of the Niantic River Bridge underpass toward the onshore substation facility site. The locations of Connecticut Onshore KOPs are presented in the preceding figures. **Table 7.1-6** below summarizes these KOPs.

**TABLE 7.1-6. SUMMARY OF CONNECTICUT ONSHORE KOPs SELECTED FOR VISUAL SIMULATIONS**

KOP Number	Name	Borough	Resource Type	Distance to Onshore Substation Facilities
CT02	Little League Fields South	Waterford	Parks/Developed Recreation	0.36 mi (0.58 km)
CT04	Railroad Beach	East Lyme	Ocean Beach	0.79 mi (1.26 km)
CT07	Dock Road State Boat Launch	Waterford	Parks/Developed Recreation	0.93 mi (1.50 km)
CT09	Niantic Boardwalk	East Lyme	Parks/Developed Recreation	1.40 mi (2.25 km)
CT10	Great Neck Country Club	Waterford	Parks/Developed Recreation	1.43 mi (2.30 km)
CT12	McCook's Beach	East Lyme	Ocean Beach	1.73 mi (2.78 km)
CT14	Attawan Beach	East Lyme	Ocean Beach	2.16 mi (3.47 km)

FIGURE 7.1-17. ONSHORE KOPS IN WATERFORD, CONNECTICUT



Data Sources: BOEM, ESRI, NOAA  
 Service Layer Credits: Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

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### 7.1.2 Impacts Analysis for Construction, Operations, and Decommissioning

For visual resources, the maximum design scenario is the presence of new fixed structures offshore (i.e., wind turbines and offshore substation facilities) and onshore (i.e., onshore substation facilities and interconnection facilities), as described in **Table 7.1-7**.

The base case for the HVAC interconnection cables from the AGRE onshore substation facility to the Astoria East and West POIs is overhead installation but could potentially be considered for underground installation. Overhead HVAC interconnection between AGRE onshore substation facility and the POIs is considered in the SLVIA. The base case for HVAC interconnection circuits between the NYPA site and the POIs is underground and therefore no long-term visual impacts will occur as a result of the NYPA interconnection facilities. The Waterford, Connecticut onshore export cables will be installed underground; however, the interconnection cables are planned to be installed overhead, on three single-phase steel monopoles.

The parameters provided below represent the maximum potential impact from the full build-out of BW1 and BW2. This design concept incorporates a total of up to 157 foundations within the Lease Area (made up of up to 155 wind turbines and two offshore substation facilities), one submarine export cable route to Queens, New York for BW1 and one submarine export cable route to Queens, New York or Waterford, Connecticut for BW2, and the associated onshore substation facilities.

**TABLE 7.1-7. MAXIMUM DESIGN SCENARIO PARAMETERS FOR VISUAL RESOURCES**

Parameter	Maximum Design Scenario	Rationale
<b>Construction</b>		
<b>Duration offshore installation</b>	Based on full build-out of the Project (BW1 and BW2), which corresponds to the maximum number of structures (155 wind turbines and two offshore substation facilities; 157 foundations) submarine export and interarray cables, and maximum period of cumulative duration for installation.	Representative of the maximum period required to install the offshore components, which has the potential to visually impact resources in the Project Area.
<b>Duration onshore construction</b>	Based on full build-out of the Project (BW1 and BW2). <ul style="list-style-type: none"> <li>• BW1 to Queens, New York.</li> <li>• BW2: <ul style="list-style-type: none"> <li>○ Queens, New York or</li> <li>○ Waterford, Connecticut.</li> </ul> </li> </ul> <p>Construction and installation of export cable landfalls, onshore export and interconnection cables, and onshore substation facilities.</p>	Representative of the maximum period required to install the onshore components, which has the potential to visually impact resources in the Project Area.
<b>Operations and Maintenance</b>		
<b>Offshore structures</b>	Based on full build-out of the Project (BW1 and BW2): <ul style="list-style-type: none"> <li>• 155 wind turbines and two offshore substation facilities.</li> </ul>	Representative of the presence of new fixed structures in an area that previously had none.

Parameter	Maximum Design Scenario	Rationale
	<ul style="list-style-type: none"> <li>• Wind turbine upper blade tip above Highest Astronomical Tide (HAT) = 1,083 ft (330 m)</li> <li>• Wind turbine hub height above HAT = 591 ft (180 m)</li> </ul>	
<b>Onshore substation facilities</b>	<p>Based on full build-out of the Project (BW1 and BW2):</p> <ul style="list-style-type: none"> <li>• BW1 to Queens, New York (up to a 7 ac [2.8 ha] area).</li> <li>• BW2: <ul style="list-style-type: none"> <li>○ Queens, New York (up to a 7 ac [2.8 ha] area) or</li> <li>○ Waterford, Connecticut (up to a 7 ac [2.8 ha] area).</li> </ul> </li> </ul>	<p>Representative of the presence of new structures in an area where there was previously none.</p>
<b>Onshore interconnection structures</b>	<p>Based on full build-out of the Project (BW1 and BW2):</p> <ul style="list-style-type: none"> <li>• For BW1 and BW2 to Queens, New York: <ul style="list-style-type: none"> <li>○ Two conductor bundles per phase, six phase conductors per circuit with a total of three circuits each for BW1 and BW2 (18 conductors total for three circuits)</li> <li>○ <b>Scenario 1:</b> BW1 comprised of overhead interconnection between AGRE West onshore substation facility and the Astoria West POI; and BW2 comprised of overhead interconnection between AGRE East onshore substation facility and the Astoria East POI.</li> <li>○ <b>Scenario 2:</b> BW1 comprised of underground interconnection between NYPA onshore substation facility and Astoria West POI; and BW2 comprised of overhead interconnection between AGRE East onshore substation facility and the Astoria East POI.</li> <li>○ Up to 59 steel transmission structures each with a maximum height of 100 ft (30.5 m) above existing ground level</li> </ul> </li> <li>• For BW2 to Waterford, Connecticut: <ul style="list-style-type: none"> <li>○ Up to three single phase steel monopoles a maximum height of 80 ft (24.4 m) above existing ground level</li> </ul> </li> </ul>	<p>Representative of the presence of overhead transmission structures required for the interconnection between the onshore substation facility and the POI.</p>

### 7.1.2.1 Construction

During construction, the potential impact-producing factors to visual resources may include:

- Installation of the offshore components, including the foundations, submarine export cables, and interarray cables;
- Staging activities and assembly of Project components at applicable facilities or areas; and
- Construction of the onshore components, including the export cable landfalls, the onshore export and interconnection cables, and the onshore substation facilities.

The following impacts may occur as a consequence of factors identified above:

- Short-term visual impacts during offshore installation activities; and
- Short-term visual impacts during onshore construction activities.

**Short-term visual effects during offshore installation activities.** Short-term visual effects will occur during installation of the offshore Project components (i.e., wind turbines, offshore substation facilities, foundations, and submarine export and interarray cables) and will result from installation activities and the presence of vessels used to transport components from fabrication and manufacturing facilities directly to the Lease Area.

Vessel traffic is common along the Atlantic coast and it is anticipated that the vessels required to transport Project components from shore to the Lease Area will not substantially increase the volume of traffic along the coasts of New York, Connecticut, Rhode Island, and Massachusetts. The majority of the vessels that will be used for Project installation will be similar in size and shape to existing commercial and military vessels; therefore, negligible contrast will be introduced for viewers along the coasts of New York, Connecticut, Rhode Island, and Massachusetts, who will see vessels in the foreground to middle-ground traveling from ports on the mainland to the Lease Area.

Installation of the submarine export cables in nearshore waters will introduce vessels relatively close to shore along the North Fork and North Shore of Long Island, as well as the southern coasts of Connecticut and Westchester County in New York, and coastal portions of the Boroughs of the Bronx and Queens in New York City, and the Town of Waterford in Connecticut. While these vessels will be visible from shore, they will not remain in any area for more than several weeks. Because of the relatively short duration that they will be in any single location, they are not anticipated to adversely affect visual resources.

Nighttime installation activities are also proposed to occur within the Lease Area. Navigation lights associated with large vessels (i.e., barges and jack-up vessels) and lights necessary to perform installation activities may be visible from coastal vantage points. However, visual effects resulting from nighttime installation activities will be limited to select locations within the Lease Area. These visual effects will also be short-term because large installation vessels and lights necessary to perform installation activities will not be present overnight once installation is complete.

**Short-term visual effects during onshore construction activities.** Short-term visual effects will occur during construction of the onshore substation facilities resulting from visual evidence of construction activities and the presence of construction equipment and work crews. Construction activities associated with the onshore export cables and interconnection cable routes will include surveying; clearing the construction site (of either pavement, existing buildings and/or vegetation

depending on the site) and linear right-of-way; stockpiling top soil; grading; forming and construction of the buildings and outdoor electrical 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 will be introduced during Project construction primarily for viewers adjacent to the site and underground and aboveground export and interconnection cables, where the presence of construction equipment, materials, and crews will be dominant in the foreground.

The Queens, New York onshore export and interconnection cables will be installed underground primarily within existing roadways present within the Astoria power complex. The Waterford, Connecticut onshore export cables will be installed underground, and the interconnection cables will be installed overhead. Roads will be restored upon completion of construction. Views of Project construction from areas not immediately adjacent to the onshore substation facilities will 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 impact associated with onshore construction and installation operations, in general, would be minor as construction equipment would only be in use temporarily during the construction and decommissioning periods. The BW1 and/or BW2 Project's onshore substation facility locations under consideration in Queens, New York (NYPA and AGRE) are both within the Astoria power complex, which is located within an existing riverfront industrial zone characterized by active power generation and electrical infrastructure facilities, aboveground storage tanks, and other industrial structures. Public access to the Astoria power complex is restricted, thereby limiting direct adjacent views of the construction area.

The BW2 onshore substation facility location in Waterford, Connecticut is within the Dominion Millstone Power Station complex that contains multiple multistory industrial structures and is zoned as an I-G General Industrial District. The Project site is located on a peninsula mostly screened from nearby areas by vegetation and physically distant from developed areas. Public access to the power complex is restricted, limiting direct adjacent views of the construction area.

Activities at staging and construction facilities will be consistent with the established and permitted use of these facilities, and Beacon Wind will comply with applicable permitting standards to limit environmental impacts from Project-related activities.

#### **7.1.2.2 Operations and Maintenance**

During operations, the potential impact-producing factors to visual resources may include:

- The presence of new fixed structures offshore (e.g., wind turbines and offshore substations); and
- The presence of new fixed structures onshore (e.g., onshore substations and interconnection structures).



The following impacts may occur as a consequence of the factors identified above:

- Long-term seascape/landscape and visual impacts resulting from the presence of new fixed structures offshore (e.g., wind turbines and offshore substations); and
- Long-term seascape/landscape and visual impacts resulting from the presence of new fixed structures onshore (e.g., onshore substations and interconnection structures).

Long-term seascape/landscape and visual impacts resulting from the Project are discussed in the sections below. Assessing the impact level of SLCA and visual impacts is ultimately a matter of professional judgment. The impact level is a function of both the impact receptor and the nature of the impact. The key factors are referred to as the sensitivity of the receptor and the magnitude of the effect. In accordance with the BOEM SLVIA Methodology, each factor and its components are rated on an ordinal scale with three levels, which in some cases use different terms for semantic reasons but are considered equal in importance; in other words, a rating of “high” is considered equivalent in importance to a rating of “large” or “good.” Similarly, a rating of “low” is considered equivalent to a rating of “small” or “poor.” These relationships are presented in **Table 7.1-8** below. In addition to the three levels employed in the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of “Negligible” with respect to size and scale of effect and geographic extent of effect components of impact magnitude when the Project will not be discernible from the SLCA or KOP nor alter the SLCA or view in a perceptible way.

**TABLE 7.1-8. IMPACT RATING FACTORS, COMPONENTS, AND IMPORTANCE LEVELS**

Factor	Component	Importance Level
Receptor Sensitivity		High, medium, low
	Susceptibility	High, medium, low
	Value	High, medium, low
Impact Magnitude		Large, medium, small, negligible
	Size and scale of effect	Large, medium, small, negligible
	Geographic extent of effect	Large, medium, small, negligible
	Duration and reversibility	Good, fair, poor

#### 7.1.2.2.1 Offshore SLIA

**Table 7.1-9** below shows the value and susceptibility ratings assigned to each of the affected offshore SLCA receptors and how that determines the overall sensitivity of the respective character areas. Ten out of the 14 offshore SLCAs were rated as high sensitivity due to the nature and setting of these character areas. Many of the SLCAs are natural, unique and distinctive settings and used for recreation or conservation purposes. Three are rated medium, and one is rated low sensitivity.

**TABLE 7.1-9. OFFSHORE SLIA RECEPTOR SENSITIVITY MATRIX**

<b>Character Area</b>	<b>Value Rating</b>	<b>Susceptibility Rating</b>	<b>Sensitivity Rating</b>
Fields/Meadows	High	Medium	<b>High</b>
Coastal Bluffs	High	High	<b>High</b>
Coastal Dunes	High	High	<b>High</b>
Coastal Scrub	High	Medium	<b>High</b>
Forests/Woodlands	High	Low	<b>Medium</b>
Light Industrial	Low	Low	<b>Low</b>
Low Density Rural Settlement	High	Medium	<b>High</b>
Marine Bays	High	Medium	<b>High</b>
Ocean Beach	High	High	<b>High</b>
OCA	High	High	<b>High</b>
Parks/Developed Recreation	High	Low	<b>Medium</b>
Rural/Suburban Residential	High	Low	<b>Medium</b>
Salt Ponds/Tidal Marsh	High	High	<b>High</b>
Village/Town	High	Medium	<b>High</b>

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-910** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating of the respective offshore character areas.

**TABLE 7.1-10. OFFSHORE SLIA MAGNITUDE OF EFFECT MATRIX**

<b>Character Area</b>	<b>Size and Scale Rating</b>	<b>Geographic Extent Rating</b>	<b>Duration/ Reversibility Rating</b>	<b>Magnitude Rating</b>
Fields/Meadows	Medium	Large	Fair	<b>Small</b>
Coastal Bluffs	Medium	Medium	Fair	<b>Medium</b>
Coastal Dunes	Medium	Large	Fair	<b>Medium</b>
Coastal Scrub	Small	Large	Fair	<b>Medium</b>
Forests/Woodlands	Small	Small	Fair	<b>Small</b>
Light Industrial	Negligible	Medium	Fair	<b>Negligible</b>
Low Density Rural Settlement	Small	Medium	Fair	<b>Medium</b>
Ocean Beach	Medium	Large	Fair	<b>Medium</b>
OCA	Large	Large	Fair	<b>Large</b>
Marine Bays	Medium	Medium	Fair	<b>Medium</b>
Parks/Developed Recreation	Small	Medium	Fair	<b>Medium</b>
Rural/Suburban Residential	Small	Medium	Fair	<b>Small</b>
Salt Ponds/Tidal Marsh	Small	Medium	Fair	<b>Small</b>
Village/Town	Negligible	Medium	Fair	<b>Negligible</b>

The BOEM SLVIA Methodology includes a matrix for combining receptor sensitivity and magnitude ratings to derive an overall SLCA impact rating, which is “...recommended but [is] subject to change in consideration of individual project circumstances” and is scored on a scale of *minor*, *moderate*, and *major* (BOEM 2021a). In addition to the three level ratings employed in the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of *negligible* when it has been determined that the Project will not be discernible from the SLCA nor alter the SLCA in a perceptible way. The overall impact level ratings for the affected offshore SLCAs and the rationale behind those ratings are presented in **Table 7.1-11** below. Beacon Wind has also diverted from the BOEM SLVIA Methodology and exercised professional judgement in the presentation of the overall SLCA impacts as a range between negligible and major levels, where warranted, to reflect the unevenness of impacts across the geographic variability of the respective SLCAs. This is in part because it is believed that the size and scale factors should carry a heavier weight rather than equalizing their counterparts into a simplified matrix.

**TABLE 7.1-11.OFFSHORE SLIA OVERALL IMPACT**

Character Area	Overall Impact Level Range	Overall Impact Rationale
Fields/Meadows	<b>Negligible to Moderate</b>	<p>The Project would introduce a new prominent feature to this high sensitivity LCA that is easily detected after a brief look and would be visible to most casual observers, but one that would be of insufficient size or contrast to compete with key characteristic LCA elements to a great extent. Turbine lights when activated would also introduce prominent new light sources to the largely dark night outlook from representative viewpoints within the LCA, therefore reducing the degree of perceived remoteness (see KOPs MV02, MV12, NA13, NA17, and EI01).</p> <p>Although the DSM-based viewshed model indicates widespread visibility of the Project from within the LCA, the majority of this LCA is located inland or at the northern extents of Nantucket and actual visibility and the scale of perceived change would be substantially reduced at these distances from within the LCA.</p>
Coastal Bluffs	<b>Moderate</b>	<p>The Project would not be located within this high sensitivity SCA but would affect key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity, and horizontal form of the ocean, as well as its essentially dark condition at night. The Project would also lessen the perceived naturalness experienced at representative viewpoints within the SCA (see KOPs MV01 and MV14).</p> <p>This SCA is of relatively small extent but forms an important transitional edge that is substantially influenced by the OCA. The Project would represent a moderate impact, introducing movement, large scale engineered structures and lighting to a currently dark, featureless, horizon, thereby impacting the simplicity and perceived large scale of the Coastal Bluff SCA.</p>
Coastal Dunes	<b>Negligible to Moderate</b>	<p>The Project would not be located within the SCA but would affect key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity and horizontal form of the ocean. The Project would also lessen the perceived naturalness experienced at representative viewpoints within the SLCA and increase the degree of perceived activity present (see KOPs NA06).</p> <p>While this SCA has high sensitivity, potential impacts would range from Moderate to None, reflecting its relative distance from the Project and the variability of actual visibility of the Project.</p>
Coastal Scrub	<b>Negligible to Moderate</b>	<p>The Project would not be located within the LCA but would have a minor effect on key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity, and horizontal form of the ocean. The Project would also lessen the perceived naturalness experienced (see KOPs MV07, MV15, MV25, NA06, NA12, NA15, and NA19).</p> <p>The overall impact on this SCA with medium sensitivity would be negligible to moderate, reflecting the varied distances and orientations of the SCA, and generally constrained visibility of the Project. The Coastal Scrub SCAs along the southern coasts of Nantucket and Martha's Vineyard would experience moderate impacts.</p>
Forests/Woodlands	<b>Negligible to Minor</b>	<p>The Project would not be located within the Forests/Woodlands LCA but would affect key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity and horizontal form of the ocean. The Project would also lessen the perceived naturalness experienced at representative viewpoints (see KOPs MV04, MV09, MV26, and CC04).</p> <p>The overall impact on this LCA with medium sensitivity would be negligible to minor, reflecting the substantially constrained visibility of the Project from within this LCA.</p>
Light Industrial	<b>Negligible</b>	<p>Views of the Project would be limited within this low sensitivity LCA due to the characteristic low lying, essentially flat terrain in the area, coupled with distance and the incidence of intervening topography and structures that would restrict views of the Project. Therefore, the Project presents negligible change and would not alter the existing seascape/landscape or visual context at the LCA (see KOP-NA17).</p>
Low Density Rural Settlement	<b>Negligible to Moderate</b>	<p>The Project would not be located within this LCA but would affect key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity and horizontal form of the ocean. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity (see KOPs MV04, MV09, MV26, and NA12).</p>

Character Area	Overall Impact Level Range	Overall Impact Rationale
		This LCA has high sensitivity, but visibility of the Project would be highly variable, representing an overall impact of negligible to moderate depending upon the location of the settlements and consequent visibility. The greatest impacts to this LCA would occur in locations along the south coast of Martha's Vineyard and Nantucket.
Ocean Beach	<b>Negligible to Major</b>	<p>The Project would not be located within the high sensitivity Ocean Beach SCA but would affect key aspects of the characteristics of the context provided by the OCA, including the scale, openness, simplicity and horizontal form of the ocean. The Project would also lessen the perceived naturalness experienced at representative viewpoints within the SCA and increase the degree of perceived activity present (see KOPs MV03, MV05, MV10, MV13, MV14, MV16, NA01, NA04, NA06, NA07, NA08, NA09, NA10, NA11, NA14, NA16, NA18, NA20, NA21, NA22, T01, T02, EI01, CC01, CC02, and CC03).</p> <p>Highly variable, depending upon distance and position of Ocean Beach areas relative to the Project, nature of seaward views, and consequent relative prominence. Impacts range from negligible in locations on the eastern and western coasts of the islands where there would be no direct views of the Project to major in locations along the southern extents of Nantucket and Martha's Vineyard.</p>
OCA	<b>Moderate to Major</b>	<p>The Project is located in this OCA and therefore would have the greatest visibility and perceived scale and contrast occurring here. The Project may have a variable prominence, depending on closeness to the Project within the OCA. The Project would lessen the perceived naturalness experienced at the KOP and increase the degree of movement and perceived activity present.</p> <p>This character area has a generally high sensitivity to the type of Project proposed. Impacts would, however, be variable, ranging from moderate to major depending upon distance and the corresponding perceived scale and contrast with the character of the OCA.</p>
Marine Bays	<b>Negligible to Major</b>	Views of the Project would be variable within this SCA due to the orientation and amount of enclosure at a particular bay. Many of the bays within the Study Area are on the north side of the island where all views to the Project are blocked by landmasses, or on the southern and western coast of Cape Cod where views are also mostly blocked by the island landmasses and are located at a very far distance. Few bays, such as Katama Bay on Martha's Vineyard, have views toward the OCA. While this LCA is considered high in respect of sensitivity, impact would range from negligible to major due to the variable degree of visibility and the varying scales of naturalness provided at the LCA. Some bays have lots of activity from sailor to ferry routes with built up infrastructure along the coastlines, while others remain mostly natural with little movement other than the variable sea condition and more distant.
Parks/Developed Recreation	<b>Negligible to Moderate</b>	Views of the Project would be highly variable within this LCA, as would its prominence. The majority of the recreational areas within the Study Area are substantially enclosed and distant from the Project (see KOPs NA19 and CC04). While this LCA is considered medium with respect to sensitivity, impacts would range from negligible to moderate due to the highly variable degree of visibility and distance from the Project and corresponding impacts in prominence and perceived contrast.
Rural/Suburban Residential	<b>Minor</b>	<p>This LCA is mainly located inland and in the northern part of Martha's Vineyard. Views of the Project from within the LCA would be variable and principally provided from settlements on the southern side of Martha's Vineyard and Nantucket islands from where the Project would introduce a complex array of large-scale vertical elements to the background in southwards views, offshore, therefore increasing the complexity of the settlements and affecting the perceived scale, openness, simplicity and horizontal form of the ocean that currently forms the backdrop to such settlement (see KOP-CC01).</p> <p>The sensitivity of this LCA is considered medium, reflecting the reduced degree of susceptibility. Given the limited extent of this LCA subject to views of the Project, its limited prominence and reversibility, the overall impact level is considered minor.</p>
Salt Ponds/Tidal Marsh	<b>Minor</b>	Views of the Project would be highly variable from this LCA, as would its prominence, as the majority of the salt pond/tidal marsh areas are substantially enclosed and distant from the Project (see KOPs MV06 and MV08). The sensitivity at this LCA is considered high, however due to the limited extent of this LCA subject to views of the Project and its limited prominence and reversibility overall impacts are considered minor.
Village/Town	<b>Negligible</b>	When visited in the field, this LCA had no views in the direction of the Project, therefore, the Project is not discernible and presents no contrast or apparent change and would not alter the existing context of the LCA (see KOPs MV23 and NA02). Despite the theoretical visibility indicated, the overall impact would be negligible due to the constrained nature of potential views of the Project.

#### 7.1.2.2.2 Offshore VIA

Martha's Vineyard, Nantucket, Cape Cod, and the Elizabeth Islands are popular places to live and vacation, and based on field reconnaissance, there is evidence that people are drawn to this geography by the unique maritime setting, historic features, and high level of naturalness. The KOPs are visited by people who come, at least in part, to enjoy the views, including views of the ocean horizon. It is therefore determined that visual receptors are generally considered sensitive to changes in views given that the viewers value the setting, are aware of the surroundings, and will likely be aware of changes in the visual environment.

**Table 7.1-12** below shows the value and susceptibility ratings assigned to each of the affected offshore KOPs and how that determines the overall sensitivity of the view. Twenty-two out of the 23 KOPs were rated as high sensitivity with respect to viewer susceptibility to change and the value of the views from the respective KOPs.

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-13** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating for the KOP.

Once the components for receptor sensitivity (susceptibility and value) and impact magnitude (size and scale, geographic extent, and duration and reversibility) are rated, the components are combined into an overall visual impact level recorded on a scale of *major*, *moderate*, or *minor*. The BOEM SLVIA Methodology recommends the same process for combining the sensitivity and magnitude components and factors to determine the impact level for a given KOP in the VIA as is used in the SLIA and recommends the same matrices. The overall visual impact levels for the analyzed KOPs are presented in **Table 7.1-14** below.

**TABLE 7.1-12. OFFSHORE VIA RECEPTOR SENSITIVITY MATRIX**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>VIEWER GROUP</b>	<b>VIEWER SUSCEPTIBILITY RATING</b>	<b>VIEW VALUE RATING</b>	<b>VIEWER SENSITIVITY RATING</b>
MV01	Aquinnah Cliffs Overlook	Tourists and recreational	High	High	<b>High</b>
MV02	Edwin D. Vanderhoop Homestead (Aquinnah Cultural Center)	Tourists	High	High	<b>High</b>
MV08	Tississa Pond Beach	Recreational	Medium	High	<b>High</b>
MV10	Katama/South Beach	Tourists and recreational	High	High	<b>High</b>
MV12	Gay Head Lighthouse	Tourists and recreational	High	High	<b>High</b>
MV14	Wasque Point Trail Reservation	Tourists and recreational	High	High	<b>High</b>
MV15	Wasque Avenue Entry Kiosk	Tourists and recreational	High	High	<b>High</b>
MV16	Squibnocket Beach	Tourists and recreational	High	High	<b>High</b>
MV25	Wasque Avenue Entry Kiosk Night	Tourists and recreational	High	High	<b>High</b>
MV26	Peaked Hill	Tourists and recreational	High	High	<b>High</b>
NA01	Cisco Beach	Tourists and recreational	High	High	<b>High</b>
NA04	Tom Nevers Beach	Tourists and recreational	High	High	<b>High</b>
NA07	Nobadeer Beach	Tourists and recreational	High	High	<b>High</b>
NA08	Surfside Beach	Tourists and recreational	High	High	<b>High</b>
NA09	Miacomet Beach and Pond	Tourists and recreational	High	High	<b>High</b>
NA10	Madaket Beach	Tourists and recreational	High	High	<b>High</b>
NA12	Hummock Pond Road Bike Path	Tourists and recreational	Low	High	<b>Medium</b>
NA13	Nantucket Conservation Foundation (NCF) Sanford Farm Barn Overlook	Tourists and recreational	Medium	High	<b>High</b>
NA20	Madequacham 5	Tourists and recreational	High	High	<b>High</b>
NA21	Madaket Beach (at Sunset & Night)	Tourists and recreational	High	High	<b>High</b>

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<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>VIEWER GROUP</b>	<b>VIEWER SUSCEPTIBILITY RATING</b>	<b>VIEW VALUE RATING</b>	<b>VIEWER SENSITIVITY RATING</b>
T01	Tuckernuck 1	Tourists and recreational	High	High	<b>High</b>
CC03	Menauhant Beach	Tourists and recreational	High	High	<b>High</b>
EI01	Cuttyhunk Lookout	Tourists and recreational	High	High	<b>High</b>



**TABLE 7.1-13. OFFSHORE VIA MAGNITUDE OF EFFECT MATRIX**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>SIZE AND SCALE RATING</b>	<b>GEOGRAPHIC EXTENT RATING</b>	<b>DURATION/REVERSIBILITY RATING</b>	<b>MAGNITUDE RATING</b>
MV01	Aquinnah Cliffs Overlook	Medium	Small	Fair	<b>Medium</b>
MV02	Edwin D. Vanderhoop Homestead (Aquinnah Cultural Center)	Medium	Large	Fair	<b>Medium</b>
MV08	Tississa Pond Beach	Small	Medium	Fair	<b>Small</b>
MV10	Katama/South Beach	Medium	Large	Fair	<b>Medium to Large</b>
MV12	Gay Head Lighthouse	Medium	Medium	Fair	<b>Medium</b>
MV14	Wasque Point Trail Reservation	Medium	Large	Fair	<b>High</b>
MV15	Wasque Avenue Entry Kiosk	Medium	Medium	Fair	<b>Medium</b>
MV16	Squibnocket Beach	Medium	Small	Fair	<b>Small</b>
MV25	Wasque Avenue Entry Kiosk Night	Medium	Medium	Fair	<b>Medium</b>
MV26	Peaked Hill	Medium	Small	Fair	<b>Medium</b>
NA01	Cisco Beach	Medium	Large	Fair	<b>Medium</b>
NA04	Tom Nevers Beach	Small	Large	Fair	<b>Medium</b>
NA07	Nobadeer Beach	Medium	Large	Fair	<b>Medium</b>
NA08	Surfside Beach	Small	Large	Fair	<b>Medium</b>
NA09	Miacomet Beach and Pond	Medium	Large	Fair	<b>Medium</b>
NA10	Madaket Beach	Medium	Large	Fair	<b>Medium</b>
NA12	Hummock Pond Road Bike Path	Small	Small	Fair	<b>Small</b>
NA13	Nantucket Conservation Foundation (NCF) Sanford Farm Barn Overlook	Small	Medium	Fair	<b>Medium</b>
NA20	Madequacham 5	Medium	Large	Fair	<b>Medium</b>
NA21	Madaket Beach (at Sunset & Night)	Medium	Large	Fair	<b>Medium</b>

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KOP NUMBER	KOP NAME	SIZE AND SCALE RATING	GEOGRAPHIC EXTENT RATING	DURATION/REVERSIBILITY RATING	MAGNITUDE RATING
T01	Tuckernuck 1	Medium	Large	Fair	<b>Medium</b>
CC03	Menauhant Beach	Small	Medium	Fair	<b>Small</b>
EI01	Cuttyhunk Lookout	Small	Medium	Fair	<b>Small</b>

**TABLE 7.1-14. OFFSHORE VIA OVERALL IMPACT LEVELS**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>OVERALL IMPACT LEVEL</b>	<b>OVERALL IMPACT LEVEL RATIONALE</b>
MV01	Aquinnah Cliffs Overlook	<b>Moderate</b>	The proposed Project would form a relatively modest new focal point in a different direction from the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen, and its position framed by the Normans Land and Martha's Vineyard landmasses.
MV02	Edwin D. Vanderhoop Homestead (Aquinnah Cultural Center)	<b>Moderate</b>	The proposed Project would form a relatively modest new focal point in the view from this KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen, and its position framed by the Normans Land and Martha's Vineyard landmasses.
MV08	Tississa Pond Beach	<b>Minor</b>	The proposed Project would form a relatively minor change to the view due to the small magnitude of change to which receptors' sensitivity is high. The proposed Project would lessen the perceived naturalness experienced at the KOP and increase the degree of perceived movement present.
MV10	Katama/South Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
MV12	Gay Head Lighthouse	<b>Moderate</b>	The proposed Project, by implication of the KOP's position to the principal outlook, distance and consequent reduced prominence would represent a relatively modest impact to the receptor at this KOP based on the character, visual amenity, and sensitivity associated with this KOP.
MV14	Wasque Point Trail Reservation	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
MV15	Wasque Avenue Entry Kiosk	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive and remote KOP, its prominence being exacerbated by the simple flat form of the horizon on which it would be seen and the movement of turbine rotors, but partially screened by existing stand of trees.
MV16	Squibnocket Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP and medium magnitude. Its prominence would be exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
MV25	Wasque Avenue Entry Kiosk Night	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive and remote KOP, its prominence being exacerbated by the simple flat form of the horizon on which it would be seen and the movement of turbine rotors, but partially screened by existing stand of trees.

KOP NUMBER	KOP NAME	OVERALL IMPACT LEVEL	OVERALL IMPACT LEVEL RATIONALE
MV26	Peaked Hill	<b>Moderate</b>	The proposed Project, by implication of the KOP's position to the principal outlook, distance, elevation, and prominence would represent a relatively modest impact to the sensitive receptors at this KOP.
NA01	Cisco Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA04	Tom Nevers Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a small new element along the horizon line from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA07	Nobadeer Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA08	Surfside Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA09	Miacomet Beach and Pond	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA10	Madaket Beach	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA12	Hummock Pond Road Bike Path	<b>Minor</b>	The proposed Project would form a relatively minor impact to the receptor at this KOP as it would introduce a new element to the view, however recreationalists and tourists on the bike path are not focused on this view. The prominence of the project is exacerbated by the simple horizontal form of the horizon on which it would be seen.
NA13	Nantucket Conservation Foundation (NCF) Sanford Farm Barn Overlook	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new element to the sensitive view, however recreationalists and tourists on the path may not be focused on this view. The prominence of the project is exacerbated by the simple horizontal form of the horizon on which it would be seen but is partially interrupted by existing vegetation..

KOP NUMBER	KOP NAME	OVERALL IMPACT LEVEL	OVERALL IMPACT LEVEL RATIONALE
NA20	Madequacham 5	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
NA21	Madaket Beach (at Sunset & Night)	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
T01	Tuckernuck 1	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
EI01	Cuttyhunk Lookout	<b>Moderate</b>	The proposed Project would form a relatively modest impact to the receptor at this KOP as it would introduce a new focal point on the principal view from this highly sensitive KOP, its prominence being exacerbated by the simple horizontal form of the horizon on which it would be seen. The Project would also lessen the perceived naturalness experienced at the KOP and increase the degree of perceived activity present.
CC03	Menauhant Beach	<b>Minor</b>	The proposed Project would form a relatively minor change to the view due to the small magnitude of change to which receptors' sensitivity is high. The proposed Project is at a far distance and mostly obscured by Martha's Vineyard, but when viewed, would lessen the perceived naturalness experienced at the KOP and increase the degree of perceived movement present.

### 7.1.2.2.3 New York Onshore SLIA

**Table 7.1-15** below shows the value and susceptibility ratings assigned to each of the affected SLCAs within the New York Onshore APSLVI and how that determines the overall sensitivity of the SLCA.

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-16** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating of the respective offshore character areas.

In-depth New York onshore character area descriptions and rationales for these sensitivity and magnitude of effect ratings are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**.

**TABLE 7.1-15. NEW YORK ONSHORE SLIA RECEPTOR SENSITIVITY MATRIX**

Character Area	Value Rating	Susceptibility Rating	Sensitivity Rating
East River Islands – Rikers Island	Low	Low	<b>Low</b>
East River Islands – Brother Island	Low	Low	<b>Low</b>
East River Islands – Randall's Island	Medium	Medium	<b>Medium</b>
Light Industrial and Transportation	Low	Low	<b>Low</b>
Open Green Space	High	Medium	<b>High</b>
River Corridor	High	Low	<b>Medium</b>
Urban/Residential and Commercial	Medium	Medium	<b>Medium</b>

**TABLE 7.1-16 NEW YORK ONSHORE SLIA MAGNITUDE OF EFFECT MATRIX**

Character Area	Size and Scale Rating	Geographic Extent Rating	Duration/ Reversibility Rating	Magnitude Rating
East River Islands – Rikers Island	Small	Medium	Fair	<b>Small</b>
East River Islands – Brother Island	Small	Large	Fair	<b>Medium</b>
East River Islands – Randall's Island	Small	Medium	Fair	<b>Small</b>
Light Industrial and Transportation	Small	Medium	Fair	<b>Small</b>
Open Green Space	Small	Small	Fair	<b>Small</b>
River Corridor	Small	Large	Fair	<b>Medium</b>
Urban/Residential and Commercial	Small	Small	Fair	<b>Small</b>

The BOEM SLVIA Methodology includes a matrix for combining receptor sensitivity and magnitude of impact ratings to derive an overall SLCA impact rating, which is “...recommended but [is] subject to change in consideration of individual project circumstances” and is scored on a scale of *minor*, *moderate*, and *major* (BOEM 2021a). In addition to the three level ratings employed in the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of *negligible* when it has been determined that the Project will not be discernible from the SLCA nor alter the SLCA in a perceptible way. The overall impact level ratings for the affected SLCAs and the rationale behind those ratings are presented in **Table 7.1-17** below. These ratings are established using BOEM’s matrix for combining sensitivity and magnitude to identify impact level (BOEM 2021a). Overall, five of the seven SLCAs have a minor overall impact level, with the two remaining SLCAs having a moderate overall impact level.

**TABLE 7.1-17 SLIA OVERALL IMPACT – QUEENS, NEW YORK**

Character Area	Overall Impact Level	Overall Impact Rationale
East River Islands – Rikers Island	<b>Minor</b>	While a medium geographical extent is predicted, field reconnaissance suggests that much of the predicted visibility would be interrupted by built forms on the island, also giving a low susceptibility. Value is low due to the dominance of the prison and low scenic value of the island. Given the low sensitivity of the character type, the limited visibility and similar scale of built forms pre-existing on the island, both the AGRE and NYPA substation facility options would have a minor overall impact to the character area.
East River Islands – Brother Island	<b>Minor</b>	While a large geographical extent is predicted, there is essentially no public access to these islands, making for low sensitivity in terms of both value and susceptibility. They are situated within a navigable waterway and views from the islands are bounded by extensive urban form and industrial developments, consequently, the overall impact of both AGRE and NYA would be minor.
East River Islands – Randall’s Island	<b>Minor</b>	While a medium geographical extent is predicted, field reconnaissance suggests that much of the predicted visibility would be interrupted by built forms unless along the eastern waterfront areas of the island. Given the medium sensitivity of the character type and the similar scale of built forms pre-existing in views across the East River, overall impacts of AGRE and NYPA would be minor.
Light Industrial and Transportation	<b>Minor</b>	Although the proposed substation options are both located in this LCA, the impacts to the LCA within the viewshed is minor. Where visible, the substations would be seen relatively distantly in some areas, and already within a highly industrial context and would therefore not be anomalous.
Open Green Space	<b>Moderate</b>	Although sensitivity is high at this LCA, both AGRE and NYPA would be seen relatively distantly and in an industrial context and would therefore not be anomalous. Many of these open green spaces are bounded by built structures creating restricted views.
River Corridor	<b>Moderate</b>	The River Corridor is a moderately sensitive SCA. Where the substations may be visible, the size/scale and character of the substations are consistent with the existing industrial context and so would therefore not be anomalous.
Urban/Residential and Commercial	<b>Minor</b>	Due to the degree of visibility being highly constrained and subject to the influence of variable quality residential and urban forms, and medium sensitivity, overall impacts to the LCA are minor.



#### 7.1.2.2.4 New York Onshore VIA

AGRE and NYPA are located within an existing power complex that is zoned for heavy manufacturing and is set within the densely developed cityscape of New York City. The land uses within the Onshore APSLVI suggest that most people who will view the onshore substation facilities (i.e., primarily permanent residents, commuters, and recreational users and a limited amount of tourists) will have low susceptibility to change. The value of the views at the KOPs have generally been characterized as low to medium, given the highly developed industrial landscape and low degree of naturalness and/or historical character. Viewers may value the waterfront setting, are aware of the surroundings, and will likely be aware of changes in the visual environment but their attention or interest is unlikely to be focused on the landscape and views and their expectations for scenery in this setting are expected to be low to medium.

**Table 7.1-18** below shows the value and susceptibility ratings assigned to each of the New York onshore KOPs and how that determines the overall sensitivity of the view. The overall sensitivity viewer rating has been characterized as low.

**TABLE 7.1-18. NEW YORK ONSHORE VIA RECEPTOR SENSITIVITY MATRIX**

KOP NUMBER	KOP NAME	VIEWER GROUP	VIEWER SUSCEPTIBILITY RATING	VIEW VALUE RATING	VIEWER SENSITIVITY RATING
NY01	Randall's Island Field 27	Recreational Users	Low	Medium	<b>Low</b>
NY02	Randall's Island Field 31	Recreational Users	Low	Medium	<b>Low</b>
NY03	Barretto Point Park	Recreational Users	Low	Medium	<b>Low</b>
NY04	ICYP Youth Program	Recreational Users	Low	Low	<b>Low</b>
NY05	Ralph Demarco Park	Recreational Users, Transportation	Low	Medium	<b>Low</b>

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-19** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating for the KOP.

**TABLE 7.1-19. NEW YORK ONSHORE VIA MAGNITUDE OF EFFECT MATRIX**

KOP NUMBER	KOP NAME	SIZE AND SCALE RATING	GEOGRAPHIC EXTENT RATING	DURATION/ REVERSIBILITY RATING	MAGNITUDE RATING
NY01	Randall's Island Field 27	Scenario 1 - Small Scenario 2 - Small	Scenario 1 - Small Scenario 2 - Small	Fair	<b>Scenario 1 - Small Scenario 2 - Small</b>
NY02	Randall's Island Field 31	Scenario 1 - Small Scenario 2 - Small	Scenario 1 - Small Scenario 2 - Small	Fair	<b>Scenario 1 - Small Scenario 2 - Small</b>

KOP NUMBER	KOP NAME	SIZE AND SCALE RATING	GEOGRAPHIC EXTENT RATING	DURATION/ REVERSIBILITY RATING	MAGNITUDE RATING
NY03	Barretto Point Park	Scenario 1 - Small Scenario 2 - Small	Scenario 1 - Small Scenario 2 - Small	Fair	<b>Scenario 1 - Small</b> <b>Scenario 2 - Small</b>
NY04	ICYP Youth Program	Scenario 1 - Negligible Scenario 2 - Negligible	Scenario 1 - Negligible Scenario 2 - Negligible	Fair	<b>Scenario 1 - Negligible</b> <b>Scenario 2 - Negligible</b>
NY05	Ralph Demarco Park	Scenario 1 - Negligible Scenario 2 - Negligible	Scenario 1 - Negligible Scenario 2 - Negligible	Fair	<b>Scenario 1 - Negligible</b> <b>Scenario 2 - Negligible</b>

The BOEM SLVIA Methodology includes a matrix for combining receptor sensitivity and magnitude of impact ratings to derive an overall VIA impact rating, which is "...recommended but [is] subject to change in consideration of individual project circumstances" and is scored on a scale of *minor*, *moderate*, and *major* (BOEM 2021a). In diverting from the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of *negligible* when it has been determined that the Project will not be readily discernible from the KOP nor alter the view from the KOP in a perceptible way. The overall impact level ratings for the KOPs that were simulated and evaluated and the rationale behind those ratings are presented in **Table 7.1-20** below.

**TABLE 7.1-20. NEW YORK ONSHORE VIA OVERALL IMPACT LEVELS**

KOP NUMBER	KOP NAME	OVERALL IMPACT LEVEL	OVERALL IMPACT LEVEL RATIONALE
NY01	Randall's Island Field 27	<b>Scenario 1 - Minor</b> <b>Scenario 2 - Minor</b>	The onshore facilities under both Scenario 1 and Scenario 2 would be discernible without prolonged viewing and could sometimes be noticed by casual observers yet would constitute a localized visual change within a largely unchanged wider context without competing with key elements of the view.
NY02	Randall's Island Field 31	<b>Scenario 1 - Minor</b> <b>Scenario 2 - Minor</b>	The onshore facilities under both Scenario 1 and Scenario 2 would be discernible without prolonged viewing and could sometimes be noticed by casual observers yet would constitute a localized visual change within a largely unchanged wider context without competing with key elements of the view.
NY03	Barretto Point Park	<b>Scenario 1 - Minor</b> <b>Scenario 2 - Minor</b>	The onshore facilities under both Scenario 1 and Scenario 2 would be discernible without prolonged viewing and could sometimes be noticed by casual observers yet would constitute a localized visual change within a largely unchanged wider context without competing with key elements of the view.
NY04	ICYP Youth Program	<b>Scenario 1 - Negligible</b> <b>Scenario 2 - Negligible</b>	The onshore facilities under both Scenario 1 and Scenario 2 would be screened by intervening buildings and vegetation and would therefore have no visual impacts at this KOP.
NY05	Ralph Demarco Park	<b>Scenario 1 - Negligible</b> <b>Scenario 2 - Negligible</b>	The onshore facilities under both Scenario 1 and Scenario 2 would be screened by intervening buildings and would therefore have no visual impacts at this KOP.

### 7.1.2.2.5 Connecticut Onshore SLIA

**Table 7.1-21** below shows the value and susceptibility ratings assigned to each of the affected SLCA within the Connecticut Onshore APSLVI and how that determines the overall sensitivity of the SLCA.

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-22** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating of the respective offshore character areas.

In-depth Connecticut onshore character area descriptions and rationales for these sensitivity and magnitude of effect ratings are provided in **Appendix X Seascape, Landscape, and Visual Impact Assessment**

**TABLE 7.1-21. SLIA RECEPTOR SENSITIVITY MATRIX – WATERFORD, CONNECTICUT**

Character Area	Value Rating	Susceptibility Rating	Sensitivity Rating
Suburban Residential	High	Medium	High
Village/Town	High	Low	Medium
Light Industrial	Low	Low	Low
Parks/Developed Recreation	High	High	High
Forests/Woodlands	High	Low	Medium
Ocean Beach	High	High	High
Coastal Bluffs	High	High	High
Salt Pond	High	Medium	High
River Corridor	High	Medium	High
Marine Bays	High	Medium	High
OCA	High	High	High

**TABLE 7.1-22 SLIA MAGNITUDE OF EFFECT MATRIX – WATERFORD, CONNECTICUT**

Character Area	Size and Scale Rating	Geographic Extent Rating	Duration/ Reversibility Rating	Magnitude Rating
Suburban Residential	Small	Small	Fair	Small
Village/Town	Small	Small	Fair	Small
Light Industrial	Small	Small	Fair	Small
Parks/Developed Recreation	Small	Small	Fair	Small
Forests/Woodlands	Small	Small	Fair	Small
Ocean Beach	Small	Large	Fair	Small
Coastal Bluffs	Small	Medium	Fair	Small
Salt Pond	Medium	Small	Fair	Medium
River Corridor	Medium	Medium	Fair	Medium
Marine Bay	Medium	Medium	Fair	Medium
Ocean	Medium	Large	Fair	Medium

The BOEM SLVIA Methodology includes a matrix for combining receptor sensitivity and magnitude of impact ratings to derive an overall SLCA impact rating, which is “...recommended but [is] subject to change in consideration of individual project circumstances” and is scored on a scale of *minor*, *moderate*, and *major* (BOEM 2021a). In addition to the three level ratings employed in the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of *negligible* when it has been determined that the Project will not be discernible from the SLCA nor alter the SLCA in a perceptible way. The overall impact level ratings for the affected SLCAs and the rationale behind those ratings are presented in **Table 7.1-23** below. These ratings are established using BOEM’s matrix for combining sensitivity and magnitude to identify impact level (BOEM 2021a).

**TABLE 7.1-23 SLIA OVERALL IMPACT – WATERFORD, CONNECTICUT**

Character Area	Overall Impact Level Range	Overall Impact Rationale
Suburban Residential	<b>Negligible</b>	Despite its high sensitivity, the overall magnitude of impacts on this LCA would be Negligible due to the variability and often highly constrained visibility of the Project. Where visible, the Project would be a barely discernible new feature in the landscape. It would be unlikely to compete with the key characteristic seascape/landscape elements to any notable extent.
Village/Town	<b>Negligible</b>	Despite the medium sensitivity of this LCA, views from Village/Town centers are variability and often highly constrained due linear streets lines with built structures. Where visible, the Project would be a barely discernible new feature in the landscape. It would be unlikely to compete with the key characteristic seascape/landscape elements to any notable extent.
Light Industrial	<b>Negligible to Minor</b>	Due to the low sensitivity and small magnitude rating of the LCA, overall impacts range from Negligible to Minor. Views from certain areas within this LCA will be highly constrained. Where visible, and due to the substation being partially within this LCA, the substation would be a barely discernible new feature in the landscape and consistent with the key characteristic elements of this LCA.
Parks/Developed Recreation	<b>Negligible to Moderate</b>	The overall impact to this LCA is variable due to the variability of visibility from this LCA and high sensitivity. Where visible, the proposed substation would add to the existing industrialized skyline in the background of views from this LCA but would mostly not be anomalous. Moderate to limited impacts on the existing character of this LCA may occur.
Forests/Woodlands	<b>Negligible to Minor</b>	Given the medium sensitivity and the restricted nature of visibility from this LCA, impacts on the character of this LCA would range from Negligible to Minor. Certain views from the LCA would be completely restricted. The substation would be partially located and adjacent to this LCA, causing direct minor impacts to the LCA. However, the characteristic elements of the LCA are already influenced by neighboring industrialized areas.
Ocean Beach	<b>Negligible to Moderate</b>	While this SCA has a high sensitivity, the variability of views from this SCA due to distance and primary view indicates a range from Negligible to Moderate impacts. The greatest impacts would occur at locations such as Attawan Beach and McCook’s Beach where there are readily open views across the bay, however the substation would constitute a new industrial building in the backdrop to the SCA. Views along the coastline from Ocean Beaches are currently composed of transportation infrastructure, forest edges, residential structures, and industrial powerplants.
Coastal Bluffs	<b>Negligible</b>	Despite the high sensitivity of this SCA, the distance and variability of views from the SCA means that it would be unlikely to compete or distract from the key characteristic seascape/landscape character in this SCA.
Salt Pond	<b>Negligible to Minor</b>	Despite the high sensitivity of this LCA, it is often enclosed by forest/woodlands or residential properties, limiting visibility outward. Many of the Salt Ponds in the study area will not have any visibility of the substation due to distance. Two small ponds are located east/southeast of the

Character Area	Overall Impact Level Range	Overall Impact Rationale
		proposed substation location, where depending on the season, may have some visibility, however due to the current industrial environment nearby, the substation would be unlikely to compete with the key characteristics at this LCA.
River Corridor	<b>Negligible to Moderate</b>	This SCA is highly sensitive due to the value placed on from the community. However, views along the River Corridor are highly variable and often a far distance from the proposed substation location, making for a potentially Negligible to Moderate overall impact. The substation may add to, but is unlikely to complete with, the current semi-urbanized edges of the riverbank.
Marine Bay	<b>Negligible to Moderate</b>	While this SCA has a high sensitivity, the variability of views from this SCA due to distance and primary view indicates a range from Negligible to Moderate impacts. The greatest impacts would occur at locations just off the coast from the substation site, however, primary views from this SCA are out towards the Long Island Sound. Here, the additions to the existing industrial context would not diminish the key characteristics of this SCA. In some areas of this LCA, the substation would not be visible due to land blockage or would be very small and barely discernible in the pre-existing industrial context.
OCA	<b>Negligible to Moderate</b>	While the substation would be seen from a larger proportion of the highly sensitive OCA, its prominence would vary considerably according to distance and the extent of view shadow that occurs along the coast. Moreover, where the project is seen, it would be seen against a backdrop of similar industrial forms and would not, therefore, represent a wholly new or anomalous feature, but would be noticeable to the casual observer.

#### 7.1.2.2.6 Connecticut Onshore VIA

The Waterford power complex in Waterford, Connecticut is zoned by the Planning and Zoning Commission of the Town of Waterford as an I-G (General Industrial District), which permits the use of buildings/structures associated with the generation, transmission, or distribution of public electricity. The preference was to locate the onshore substation facility within or immediately adjacent to the existing POI, if possible. This preference would also minimize additional disturbance for installation of the onshore interconnection cables between the onshore substation facility and the existing POI and would maintain consistency with existing land uses and landscape character in the vicinity.

The Connecticut Onshore APSLVI evaluated in this assessment extends up north to the Niantic River and the intersection of Route I-95 and Connecticut Route 85, the Rocky Neck State Park in the Town of East Lyme to the west, the western coastline of Thames River to the east, and Long Island Sound, to the south. The existing Dominion Millstone Power Station on Millstone Point blocks portions of the direct southerly view from the ocean. On land, views are constrained along the coastline due to intervening buildings and structures, vegetation, and topography. The APSLVI comprises many parks/developed recreation areas, water views, forests/woodlands, and residential areas.

The Connecticut Onshore APSLVI indicates that views of the onshore substation facility would be substantially constrained by topography and woodland cover, and limited to the Niantic Bay, Jordan Cove, and the beaches and walkways along the coastline of these water bodies. Most views from locations inland would be restricted by a combination of intervening topography, vegetation, and built structures.

**Table 7.1-24** below shows the value and susceptibility ratings assigned to each of the Connecticut onshore KOPs and how that determines the overall sensitivity of the view. The overall sensitivity viewer rating has been characterized as low.

The magnitude factor has three components: the size and scale of the change to existing conditions caused by the project, the geographic extent of the area subject to the project's effects, and the duration and reversibility of impacts. **Table 7.1-25** below shows the ratings assigned to each of these components and how that determines the overall magnitude rating for the KOP.

The BOEM SLVIA Methodology includes a matrix for combining receptor sensitivity and magnitude of impact ratings to derive an overall VIA impact rating, which is "...recommended but [is] subject to change in consideration of individual project circumstances" and is scored on a scale of *minor*, *moderate*, and *major* (BOEM 2021a). In diverting from the BOEM SLVIA Methodology, Beacon Wind has employed a fourth level rating of *negligible* when it has been determined that the Project will not be readily discernible from the KOP nor alter the view from the KOP in a perceptible way. The overall impact level ratings for the KOPs that were simulated and evaluated and the rationale behind those ratings are presented in **Table 7.1-26** below.

**TABLE 7.1-24. CONNECTICUT ONSHORE VIA RECEPTOR SENSITIVITY MATRIX**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>VIEWER GROUP</b>	<b>VIEWER SUSCEPTIBILITY RATING</b>	<b>VIEW VALUE RATING</b>	<b>VIEWER SENSITIVITY RATING</b>
CT02	Little League Fields South	Recreational Users	Low	Medium	<b>Low</b>
CT04	Railroad Beach	Recreational Users, Tourists, Water-Based, Transportation-Based	Medium	High	<b>High</b>
CT07	Dock Road State Boat Launch	Recreational Users	Medium	High	<b>High</b>
CT09	Niantic Boardwalk	Recreational Users, Tourists	High	High	<b>High</b>
CT10	Great Neck Country Club	Recreational Users, Transportation-Based	Medium	Medium	<b>Medium</b>
CT12	McCook's Beach	Recreational Users, Tourists	High	High	<b>High</b>
CT14	Attawan Beach	Recreational Users, Residents	High	High	<b>High</b>

**TABLE 7.1-25. CONNECTICUT ONSHORE VIA MAGNITUDE OF EFFECT MATRIX**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>SIZE AND SCALE RATING</b>	<b>GEOGRAPHIC EXTENT RATING</b>	<b>DURATION/ REVERSIBILITY RATING</b>	<b>MAGNITUDE RATING</b>
CT02	Little League Fields South	Negligible	Negligible	Fair	<b>Negligible</b>
CT04	Railroad Beach	Negligible	Negligible	Fair	<b>Negligible</b>
CT07	Dock Road State Boat Launch	Negligible	Negligible	Fair	<b>Negligible</b>
CT09	Niantic Boardwalk	Small	Small	Fair	<b>Small</b>
CT10	Great Neck Country Club	Negligible	Negligible	Fair	<b>Negligible</b>
CT12	McCook's Beach	Small	Small	Fair	<b>Small</b>
CT14	Attawan Beach	Small	Small	Fair	<b>Small</b>



**TABLE 7.1-26. CONNECTICUT ONSHORE VIA OVERALL IMPACT LEVELS**

<b>KOP NUMBER</b>	<b>KOP NAME</b>	<b>OVERALL IMPACT LEVEL</b>	<b>OVERALL IMPACT LEVEL RATIONALE</b>
CT02	Little League Fields South	<b>Negligible</b>	The lack of magnitude of the substation from this KOP establishes a negligible impact to the low-sensitive receptors at this KOP as they are not focused on views towards the Project and instead on recreating. The Project would not be discernible or present any apparent change to the view.
CT04	Railroad Beach	<b>Negligible</b>	Although the receptors at this KOP are highly sensitive, the Project would be entirely screened, therefore, have no impact to the receptor.
CT07	Dock Road State Boat Launch	<b>Negligible</b>	Although the receptors at this KOP are highly sensitive, the Project would be entirely screened, therefore, have no impact to the receptor.
CT09	Niantic Boardwalk	<b>Minor</b>	The proposed Project would form a discernible new feature with a relatively small magnitude on the skyline in the background of the view from this KOP location. The substation building would extend the influence of power related structures along the side of the bay but would not compete with visual elements at the KOP location to any great extent, even considering the highly sensitive receptors.
CT10	Great Neck Country Club	<b>Negligible</b>	Although the receptors at this KOP are moderately sensitive, the Project would be entirely screened, therefore, have no impact to the receptor.
CT12	McCook's Beach	<b>Minor</b>	The proposed Project would form a discernible new feature with a relatively small magnitude on the skyline in the background of the view and would be seen relatively distantly, representing a minor localized change to the view at this KOP. The substation building would extend the influence of power related structures along the side of the bay but would not compete with visual elements at the KOP location to any great extent, even considering the highly sensitive receptors.
CT14	Attawan Beach	<b>Minor</b>	The proposed Project would form a discernible new feature with a relatively small magnitude on the skyline in the background of the view and would be seen relatively distantly, representing a minor localized change to the view at this KOP. The substation building would extend the influence of power related structures along the side of the bay but would not compete with visual elements at the KOP location to any great extent, even considering the highly sensitive receptors.

### 7.1.2.3 Decommissioning

Impacts during decommissioning are expected to be similar or less than those experienced during construction, as described in **Section 7.1.2.1**. It is important to note that advances in decommissioning methods/technologies are expected to occur throughout the operations phase of the Project. A full decommissioning plan will be approved by BOEM prior to any decommissioning activities, and potential impacts will be re-evaluated at that time. For additional information on the decommissioning activities that Beacon Wind anticipates will be needed for the Project, please see **Section 3 Project Description**.

### 7.1.3 Summary of Avoidance, Minimization, and Mitigation Measures

In order to mitigate the potential impact-producing factors described in **Section 7.1.2**, Beacon Wind is proposing to implement the following avoidance, minimization, and mitigation measures.

#### 7.1.3.1 Construction

During construction, Beacon Wind will commit to the following avoidance, minimization, and mitigation measure to mitigate the impacts described in **Section 7.1.2.1**:

- Onshore components have been proactively sited in highly developed and previously disturbed areas, where feasible, where they will introduce less visual contrast relative to their surroundings; and
- The Project will utilize an existing O&M Base and will not require construction of a new O&M Base in New York or Connecticut, therefore avoiding additional potential impacts to existing viewsheds as a result of new construction.<sup>2</sup>

In addition, during construction, Beacon Wind will consider the following avoidance, minimization, and mitigation measure to mitigate the impacts described in **Section 7.1.2.1**:

- Vegetative screening, as feasible and applicable, at the onshore substation facilities to help screen views of the onshore substation facilities by nearby residents, subject to New York and Connecticut permitting requirements.

#### 7.1.3.2 Operations and Maintenance

During operations, Beacon Wind will commit to the following avoidance, minimization, and mitigation measures described below to mitigate the offshore and onshore impacts described in **Section 7.1.2.2**.

##### 7.1.3.2.1 Offshore

Mitigation is a requirement of the BOEM SLVIA for the purpose of offsetting potential visual impacts. There are some factors that may be somewhat mitigated by reducing visual contrast or visibility of the offshore facilities. These include turbine color and a night lighting system consistent with FAA requirements.

Some Project elements may not allow for mitigation measures. These include blade motion and the positions of the turbines within a 1x1 nm (1.9x1.9 km) grid agreed to across the MA/RI WEA lease areas.

Beacon Wind will commit to the following avoidance, minimization, and mitigation measures described below to mitigate the offshore described in **Section 7.1.2.2**.

- Beacon Wind will utilize wind turbines and towers that fall within the BOEM-recommended paint color range of no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey (BOEM, 2021b). The wind turbines and towers have been simulated in RAL 9010 Pure White which was the basis for the evaluation of visual impacts as described in **Section 7.1.2.2**. The RAL 9010 color treatment is considered a conservative worst-case scenario with respect to visual contrast and has been utilized in the VIA to provide flexibility for final selection of a wind turbine supplier for the Project. Beacon Wind will work with the selected wind turbine

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<sup>2</sup> The Project is considering leasing satellite O&M warehouse and port facilities in addition to the O&M Base at SBMT.

supplier to evaluate the use of an alternate color no darker than RAL 7035 Light Grey to potentially reduce the level of visual contrast, to the extent practicable. The selection of RAL 7035 Light Grey will better reduce visual contrast by balancing the turbines within the surroundings (average day), reducing reflectivity, and improving the blending into the typical colors of its setting. This approach for color selection will not hide the feature but will lower visual contrast. The offshore substation will appear as small, gray blocks on the horizon, lower than the hub heights of the wind turbines and, therefore, likely resulting in weak contrast or will not be noticeable or perceived from coastal vantage points.

- Current BOEM requirements follow FAA guidelines that require flashing red lights positioned on the turbines. Beacon Wind is considering the use of agency-approved ADLS, or similar system, to turn the aviation obstruction lights on and off in response to detection of a nearby aircraft and is actively completing an evaluation to determine the impacts of the implementation of this system. This commitment as a mitigation is subject to final Project evaluation and agency approval (see **Section 8.6 Aviation** for additional details). Preliminary findings of the evaluation indicate that aircraft flights would have resulted in a total obstruction light system activated duration of 2 hours, 42 minutes and 9 seconds in the year 2019 (see **Appendix Y Aircraft Detection Lighting System Analysis** for additional details). ADLS lighting will avoid extending visual impacts into twilight and nighttime hours and substantially reduce visual impacts (BOEM, 2021b).

#### **7.1.3.2.2 Onshore**

Beacon Wind will commit to the following avoidance, minimization, and mitigation measures described below to mitigate the onshore impacts described in **Sections 7.1.2.2 and 7.1.2.4**.

Given the size of many of these structures associated with the onshore substation facilities, the visual landscape of the surrounding area could potentially be affected. However, based on the assessments described in **Sections 7.1.2.2 and 7.1.2.4**, minimal impacts to nearby visual resources are likely to occur.

Both Queens, New York landfall options are located in an area already defined by heavy manufacturing and dense urban development. Similarly, the Waterford, Connecticut landfall and onshore substation facility site are characterized by existing power generation and transmission infrastructure. Although the onshore substation facility structures would be visible from several sensitive receptor locations, the existing industrial and power generation land uses mean that the proposed onshore substation facility would not significantly change the seascape/landscape character or visual amenity of the area.

Consequently, efforts to mitigate the appearance of the Project would focus upon:

- The layout and design of onshore substation facility elements, with the emphasis on keeping the scale, and form of structures on site to a level consistent with existing industrial and power station structures nearby;
- The rendering of structures in a color that reflects existing colors present nearby, and which minimizes visual contrast with existing structures; and
- Lighting at the onshore substation facilities will be designed to reduce light pollution, where feasible (e.g., downward lighting, motion-detecting sensors).

Beacon Wind will work with the municipal land use authorities and original equipment manufacturers on the layout and design of substation elements and color treatment of structures in a color that are acceptable with respect to the substantive provisions of applicable zoning and building codes.

### 7.1.3.3 Decommissioning

Avoidance, minimization, and mitigation measures proposed to be implemented during decommissioning are expected to be similar to those implemented during construction and operations, as described above in **Section 7.1.3.1** and **Section 7.1.3.2**. A full decommissioning plan will be approved by BOEM prior to any decommissioning activities, and avoidance, minimization, and mitigation measures for decommissioning activities will be proposed at that time.

## 7.1.4 References

TABLE 7.1-27. DATA SOURCES

Source	Includes	Available at	Metadata Link
BOEM	Lease Area	<a href="https://www.boem.gov/BOEM-Renewable-Energy-Geodatabase.zip">https://www.boem.gov/BOEM-Renewable-Energy-Geodatabase.zip</a>	N/A
BOEM	State Territorial Waters Boundary	<a href="https://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/ATL_SLA(3).aspx">https://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/ATL_SLA(3).aspx</a>	<a href="http://metadata.boem.gov/geospatial/OCS_SubmergedLandsActBoundary_Atlantic_NAD83.xml">http://metadata.boem.gov/geospatial/OCS_SubmergedLandsActBoundary_Atlantic_NAD83.xml</a>
OCM Partners	Digital Surface Model LiDAR Data	<a href="https://chs.coast.noaa.gov/htdata/lidar1_z/geoid18/data/4914/">https://chs.coast.noaa.gov/htdata/lidar1_z/geoid18/data/4914/</a>	<a href="https://www.fisheries.noaa.gov/inport/item/49846">https://www.fisheries.noaa.gov/inport/item/49846</a>
USGS	National Land Cover Database	<a href="https://www.sciencebase.gov/catalog/item/5d4c6a1de4b01d82ce8dfd2f">https://www.sciencebase.gov/catalog/item/5d4c6a1de4b01d82ce8dfd2f</a>	<a href="https://www.sciencebase.gov/catalog/file/get/5d4c6a1de4b01d82ce8dfd2f?f=disk_31%2F3d%2Fdc%2F313ddcbd13982c2658b4e0e8560f7f02207e6ac6&amp;transform=1&amp;allowOpen=true">https://www.sciencebase.gov/catalog/file/get/5d4c6a1de4b01d82ce8dfd2f?f=disk_31%2F3d%2Fdc%2F313ddcbd13982c2658b4e0e8560f7f02207e6ac6&amp;transform=1&amp;allowOpen=true</a>
USGS	National Elevation Dataset (NED)	<a href="https://apps.nationalmap.gov/services/">https://apps.nationalmap.gov/services/</a>	<a href="https://elevation.nationalmap.gov/arcgis/rest/services/3DEPElevation/ImageServer">https://elevation.nationalmap.gov/arcgis/rest/services/3DEPElevation/ImageServer</a>

BLM (U.S. Bureau of Land Management). 1986. Visual Resource Management System. Available on-line at: <http://blmwyomingvisual.anl.gov/vr-overview/blm/>. Accessed April 2018.

BOEM (Bureau of Ocean and Energy Management). 2021a. Assessment of Seascape, Landscape, and Visual Impacts of Offshore Wind Energy Developments on the Outer Continental Shelf of the United States.

BOEM. 2021b. Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development.

BOEM. 2020. Information Guidelines for a Renewable Energy Construction and Operations Plan (COP). Version 4.0. May 27, 2020.

LI/IEMA (Landscape Institute [LI] and Institute of Environmental Management and Assessment [IEMA]). 2013. Guidelines for Landscape and Visual Impact Assessment, Third Edition.

Sullivan, Robert G. and Jackson Cothren. 2013. Offshore Wind Turbine Visibility and Visual Impact Threshold Distances. Environmental Practice, March 2013.



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