Visual Impact Assessment

Revised

South Fork Wind Farm

New York/Rhode Island, US

Prepared for:

South Fork Wind Farm

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GLOSSARY/LIST OF ACRONYMS AND ABBREVIATIONS

ADLS	Aircraft Detection Lighting Systems
AIS	Automatic Identification System
AMSL	Above Mean Sea Level
BIWF	Block Island Wind Farm
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
COP	Construction and Operations Plan
Cross Section	A profile of the terrain that illustrates sources of visual screening along a line of sight between the proposed Project and a specific viewer/resource location.
DEM	Digital Elevation Model
DSM	Digital Surface Model
DTM	Digital Terrain Model
DWSF	Deepwater Wind South Fork, LLC.
EDR	Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
FAA	Federal Aviation Administration
FOV	Field of View
GIS	Geographic Information System
GPS	Global Positioning System.
Km	Kilometer (1 kilometer = 0.62 miles = 0.54 nautical miles)
KOP	Key Observation Point
Lidar	Light Detection and Ranging
LSZ	Landscape Similarity Zone. Area of similar landscape/aesthetic character based on patterns of landform, vegetation, water, land use, and user activity.
m	Meter (1 meter = 3.38 feet)
MHC	Massachusetts Historical Commission
MASSDCR	Massachusetts Department of Conservation and Recreation
MASSDEP	Massachusetts Department of Environmental Protection
mile	Statute mile (1 mile = 1.61 kilometers = 0.87 nautical miles)
MCS	Management Classification System
MW	Megawatt = One million watts
nm	Nautical Mile (1 nm = 1.15 statute mile)
NHPA	National Historic Preservation Act of 1966
NLCD	National Land Cover Dataset. Land cover types classified and mapped by U.S. Geological Survey

NHL	National Historic Landmark
NNL	National Natural Landmark
NPS	National Park Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NCDC	National Climatic Data Center
NYSDEC	New York State Department of Environmental Conservation
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OCS	Outer Continental Shelf
O&M	Operations and Maintenance
OSS	Offshore Substation
PAL	Public Archaeology Laboratory, Inc.
Project	South Fork Wind Farm
PAPE	Preliminary Area of Potential Effects
SLR	Single Lens Reflex
RIDEM	Rhode Island Department of Environmental Management
RIHPHC	Rhode Island Historical Preservation & Heritage Commission
RPM	Revolutions Per Minute
RV	Recreational Vehicle
SASS	Scenic Area of Statewide Significance
SFEC	South Fork Export Cable
SFWF	South Fork Wind Farm
TCP	Traditional Cultural Property
TNC	The Nature Conservancy
UAS	Unmanned Aircraft System
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of the Interior
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
VIA	Visual Impact Assessment

Viewshed	Area of potential Project visibility defined by maximum structure height and mapped topography, vegetation, and structures within the study area.
VRAP	Visual Resource Assessment Procedure
WEA	Wind Energy Area
WMA	Wildlife Management Area
WTG	Wind Turbine Generator
3D	Three Dimensional

Executive Summary

Deepwater Wind South Fork, LLC (DWSF) proposes to construct and operate an offshore wind power project known as the South Fork Wind Farm (SFWF or the Project). As proposed, the SFWF will be located in federal waters, approximately 19 miles[1] southeast of Block Island (Town of New Shoreham), Rhode Island, approximately 20 miles southwest of Martha's Vineyard[2], Massachusetts, and approximately 35 miles east of Montauk Point, New York. The visible components of the operational Project will be located on the outer continental shelf (OCS) in water depths averaging approximately 100 feet. The proposed Project is a wind-powered electric generating facility composed of up to 15 wind turbine generators (WTG) and associated foundations, one offshore substation, and an inter-array cable connecting the WTGs and the offshore substation, as well as an export cable connecting the offshore substation to the mainland power grid. Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) was retained by Jacobs Engineering Group (Jacobs) to prepare a Visual Impact Assessment (VIA) for the proposed SFWF in order to analyze potential visibility of the proposed SFWF and to determine the difference in landscape visual quality with and without the Project in place.

For the purpose of this VIA, it was assumed that the offshore wind turbines will be 12-megawatt (MW) units, which would be the largest units under consideration in terms of generation capacity and dimensions. Based on the height of the proposed turbines, the previous analysis conducted by EDR on the operational Block Island Wind Farm (BIWF), guidance from the Bureau of Ocean Energy Management (BOEM), and the desire to address potential Project visibility from visually sensitive resources in New York, Rhode Island, and Massachusetts, a 40-mile radius around each of the proposed turbines was defined as the visual study area. Approximately 87% of this study area is open ocean.

EDR completed analyses for two layouts in response to ongoing survey and engineering modifications since the initiation of the original VIA in 2017. Each of the layouts are described in this section, and illustrated in images 6.2-1 through 6.2-3, below.

The first layout, which was evaluated in early version of the VIA consisted of 15 turbine locations and a single OSS within an approximate 3 mile by 3 mile Project area. Simulations of this layout considering the 12 MW turbine were completed and provided to the rating panel for visual impact assessment.

[1]All measurements in this report are presented in English units. All references to miles are statute miles. See Glossary/List of Acronyms and Abbreviations for metric and nautical mile conversion factors.

[2] In order to model the maximum design scenario for potential visual impacts associated with WTG visibility, the VIA considers a layout that extends the width of the MWA. The MDS layout includes WTG positions closer to Martha's Vineyard and affecting a larger percentage of the visible ocean horizon than the Project layouts presented in the COP. Comparison of the MDS and alternative layouts is presented in Section 6.2.

The layout investigated in this revised VIA also consists of 15 turbines and a single OSS. However, project components occur within an approximate 6.5 mile by 2.2 mile area representing a wider spacing between WTGs expanding across the full Maximum Work Area (MWA). Revised simulations of this layout considering the 12 MW turbine were completed and provided to the rating panel for review. It was determined that the expanded layout had a negligible effect on visual impact, and most of the rating panel scores remained unchanged from the original layout investigated.

The most recent layout modification included in the COP revised in April 2019 includes the same Project components, but within a 5.0 mile by 2.3 mile area. The approximate turbine spacing on the north south axis is 1.15 miles (1 nautical mile), creating a 1 nautical mile wide east-west corridor . The most recent layout is essentially a hybrid of those previously analyzed. The most recent layout falls within the design envelope fully evaluated in the revised VIA. Rating panel scores only varied slightly between the layouts previously investigated. Therefore, it was determined that additional analysis of the most recent layout was not necessary. The analysis in this revised VIA is robust and representative of the most recent layout proposed.

Within the terrestrial portions of the visual study area, EDR defined the Preliminary Area of Potential Effects (PAPE) by running a preliminary lidar viewshed analysis to identify potential geographic areas of Project visibility. For the purpose of this VIA, EDR used the PAPE resulting from the viewshed analysis to define areas in which further analysis was warranted to determine the degree of Project visual impact. Considering both landscapes and seascapes found within the PAPE, EDR defined 17 different Landscape Similarity Zones (LSZs), three distinct viewer groups, and 296 visually sensitive public resources (e.g., historic sites, parks, public beaches, conservation areas, etc.). Potential Project visibility and visual impact were evaluated through viewshed analysis, cross section analysis, field review, preparation of visual simulations, and evaluation of visual contrast by a panel of four experienced professionals (three registered landscape architects and one certified planner).

Viewshed analysis indicates that approximately 2.1% of the land area within the 40-mile radius study area could have potential views of some portion of the Project, based on the availability of an unobstructed line of sight. This limited visibility reflects the fact that forest land is the dominant land use within the mainland portions of the study area and will significantly screen outward views. In areas of concentrated human settlement, views of the proposed Project will also be significantly screened by vegetation and buildings. When considering the screening provided by forest vegetation and buildings/structures, this analysis indicates that potential Project visibility is largely restricted to the ocean shoreline and water bodies immediately inland of the shoreline. Throughout the study area, the areas of potential visibility extended up to around 700 feet inland from the shoreline before breaking up into small pockets of visibility and then dissolving completely.

Open Water/Ocean is the dominant LSZ within the study area, and in most areas offers an unobstructed line of sight toward the proposed Project. Other LSZs identified by the viewshed analysis as offering potential views of the Project include Shoreline Beaches and Bluffs, Coastal Dunes, Coastal Scrub/Shrub Forest, Salt Ponds/Tidal Marsh, Shoreline Residential, and Maintained Recreational Areas.

Viewshed results suggest some minor areas of potential Project visibility in inland portions of the mainland study area. These areas typically extend inland from undeveloped and unvegetated shorelines that are backed by salt marshes and ponds. Some areas of inland visibility also occur at topographic high points devoid of dense vegetation and buildings/structures. On islands within the study area, such as Long Island, Block Island, Conanicut Island, Aquidneck Island, Cuttyhunk Island and the other Elizabeth Islands, and Martha's Vineyard, potential visibility primarily occurs along shoreline beaches and bluffs. Views further inland on these islands are restricted to high points and/or areas where views are unscreened by foreground vegetation or buildings/structures. The viewshed analysis treats all buildings/structures and vegetation as if they are completely opaque; therefore, it is possible that views will be available from forest edges and through thin/sparse vegetation, although these views would generally be obstructed by branches. Block Island and Nomans Land Island are the only significant land masses within 20 miles of the Project. At distances beyond 20 miles, even partial screening will be effective in minimizing or eliminating Project visibility.

Cross sections were completed at simulated Key Observation Points (KOPs) to determine how much of the turbines would be screened by the curvature of the earth at different KOPs. The line of sight cross sections demonstrated that from a beach-level view, 38.7 miles is the approximate maximum visibility limit of the Project, and 30.8 miles is the approximate maximum distance at which the turbine nacelle could be visible above the horizon. However, elevated views significantly counteract the effects of curvature of the earth. When considering two KOPs from a similar distance (such as New Shoreham Beach at a distance of 20.6 miles and Southeast Lighthouse at a distance of 19.4), more than one-third of the turbine is screened from view due to the curvature of the earth when viewed at beach level, while the majority of the turbine is visible from an elevated view of 160 feet above mean sea level (AMSL). The line of sight cross sections also revealed that none of the mainland views from Rhode Island and Massachusetts will include more than the upper one-half to two-third of the turbines.

Field review conducted between June 2017 and January 2018 confirmed the results of the lidar viewshed analysis. The vast majority of the inland portions of the visual study area were found to be screened from view of the Project by vegetation and buildings/structures. Open views toward the Project, as indicated by visibility of the ocean, were concentrated within one mile of the shoreline, and were largely restricted to beaches, bluffs, dunes, open fields, salt ponds, road corridors, and cleared residential yards, where lack of foreground trees allowed for unscreened views of the ocean.

From Block Island, views of the Project were largely restricted to beaches and bluffs along the south shore of the island. No views were documented from beaches and bluffs along the western and northern shorelines or the village/town center area of New Shoreham. Similarly, views toward the Project were not available from most interior roads. However, potential views were documented from beach areas along the eastern shoreline, the northwest side of Great Salt Pond, and the Block Island Ferry in transit. Although private roads, yards, and homes could generally not be accessed, many of these sites in the southern portion of the island are on areas of higher ground and are likely to have at least partial views of the proposed Project.

Open views toward the Project from Long Island were available from within Montauk State Park and Camp Hero State Park on the eastern edge of the South Shore, mainly from bluff overlooks along hiking trails or at designated bluff overlook parking areas. Views further inland were completely obscured by topography and/or vegetation.

From Conanicut and Aquidneck Islands, views towards the Project are restricted to the south-facing shorelines, including Beavertail State Park, Brenton Point State Park, the Newport Cliff Walk, Sachuest Beach, and Sachuest Point National Wildlife Refuge (NWR). As the viewer moves inland, views toward the Project are blocked by buildings/structures and vegetation, with the exception of topographic highpoints, such as Hanging Rock at Normans Bird Sanctuary and the inland portions of Brenton Point State Park.

In the Elizabeth Islands chain, Cuttyhunk Island will have opens views toward the Project along the southern and western shores, as well as from the topographic high point in the central portion of the island. This high point offers the potential for views of the full height of the turbines, whereas shoreline views from the island toward the Project would be partially screened by curvature of the earth.

Views toward the Project from Martha’s Vineyard were generally restricted to the shoreline and bluffs on the western and southern sides of the island. The southern beaches of Martha’s Vineyard, such as Lucy Vincent Beach and Squibnocket Beach, had partially or fully screened views, respectively. Screening at these locations was provided by the western headlands of Martha’s Vineyard and intervening vegetation. Visibility was noted as far east as South Beach State Park, but subsequent analysis indicated that views of the Project would be fully obscured by curvature of the earth at Wasque Point in Edgartown. Inland views on Martha’s Vineyard were located at the Peaked Hill Reservation, which is located atop a topographic high point. Other open views from inland locations will generally be partially screened, tightly enclosed, and/or of short duration due to the abundant screening provided by topography, vegetation, and buildings/structures.

Open views from the mainland were available along the shoreline from Westerly, Rhode Island to Falmouth, Massachusetts. These views were generally restricted to the immediate shoreline, and base on line of sight cross section analysis, would only include the upper one-third to one-half of the turbines. Throughout the majority of the inland portions of the visual study area, views toward the Project were screened by vegetation, dunes, and buildings/structures.

Visually sensitive public resources with open views toward the Project included several historic sites, lighthouses, state parks/beaches, wildlife refuges, designated scenic areas, and a National Recreation Trail. The historic resources with the highest potential for Project visibility were those that are situated to take advantage of panoramic ocean views. No open views toward the Project were documented from any mainland parks, historic sites, designated scenic areas, conservation lands, or village/town center areas that were over a mile inland from the ocean.

Open views toward the Project do not equate to actual Project visibility. A variety of other factors will limit Project visibility, including weather conditions, waves on the ocean surface, humidity, and air pollution. National Climatic Data Center (NCDC) weather data collected from the Newport and Block Island Stations over the six-year period from January 1, 2010 to December 31, 2016 indicate that clear skies (0-30% cloud cover) occur during daylight hours on average 42% of the time. While partly cloudy and cloudy skies do not preclude Project visibility, these data suggest that weather conditions could substantially reduce long distance visibility (i.e., from the Rhode Island and Massachusetts mainland) during much of the year. Additionally, NCDC weather data indicates that visibility is less than 10 miles during approximately 20% of the daylight and nighttime hours throughout the year. Because NCDC weather data only reports visibility to 10 miles, BOEM utilizes a methodology to evaluate visibility at 20 and 30 nautical miles (nm) using the observed visibility out to 10 miles and a relational algorithm based on relative humidity (Wood, 2014). For data collected from the Newport Station, visibility to 20 nm occurred approximately 61 percent of the year during daytime hours while visibility to 30 nm occurred approximately 35 percent of the year during daytime hours. These calculations indicate that weather will have a significant influence on visibility from most land-based viewpoints within the Project's PAPE.

A total of 44 visual simulations were prepared from 29 selected KOPs throughout the study area. These KOPs included sensitive resources and representative landscape settings within the study area. The simulations consist of 29 simulated views of the operational Project during the daytime, nine simulations at sunset, five during nighttime hours, and one construction simulation depicted during daytime conditions. As a whole, the simulations illustrate the full range of distances, lighting conditions, sky color, and landscape settings in which the Project will be viewed. All photos used for the development of simulations illustrate high visibility conditions where the proposed turbines would not be significantly obscured by atmospheric haze or fog. All of the selected KOPs offered the most open, unobstructed views available toward the SFWF. Consequently, the simulations from these viewpoints represent a conservative assessment of potential Project visibility within the study area.

Evaluation of these simulations by a panel of visual professionals was conducted using the U.S. Army Corps of Engineers (USACE) Visual Resources Assessment Procedure (VRAP). The VRAP is a two-step process. The first step, referred to as the Management Classification System (MCS) procedure, assigns each LSZ within the study area a specific MCS designation (Preservation, Retention, Partial Retention, Modification, or Rehabilitation), each of which has an associated numerical threshold of acceptable visual change. The second step, referred to as the VIA procedure, uses views from representative KOPs within each LSZ to determine/quantify the Project's visual impact. The scores determined through the VIA procedure are compared to the thresholds of acceptable visual change established for each LSZ by the MCS procedure to determine the acceptability/compatibility of the Project within each LSZ.

Evaluation of the 44 visual simulations (described above) indicated that the Project's overall contrast with the visual/aesthetic character of the area will be variable, with the most substantial visual impact documented at KOPs that are relatively close to the Project (such as on a ferry or passenger cruise ship in the Atlantic Ocean), offer largely unobscured views of the proposed turbines, and include few other human developed features. Impact evaluation results indicated relatively minor impact on mainland/more distant KOPs, where the turbines are barely perceptible on the horizon. In the higher impact KOPs, the turbines' contrast with water resources (open ocean), sky conditions, user activity (residential and tourist-related), land use (undeveloped land and ocean), and/or a strong level of cultural importance at the land/sea interface generally were the greatest contributors to Project impact.

However, using the USACE VRAP procedure, it was determined that with the proposed Project in place, the threshold of acceptable visual impact was not exceeded for any of the LSZ's identified within the visual study area. The most appreciable impact was assigned to KOPs in the Shoreline Bluffs, Maintained Recreation Areas, and Open Water/Ocean Zones. While one rating panel member's scores for three individual KOPs did exceed thresholds established during the MCS portion of the VRAP, when averaged with the scores assigned by the other rating panel members, the composite scores for these KOPs did not exceed the threshold. When averaged with the scores received by all the KOPs within these LSZs, cumulative scores were well below the threshold of acceptable visual impact.

The generally low visual impact scores may reflect the fact that several measures which reduce or mitigate visual impact have already been incorporated into the design of the SFWF. These include the following:

- The Project will be located over 19 miles from Block Island, over 20 miles from Martha's Vineyard, over 35 miles from Montauk Point, New York and over 23 miles from mainland Massachusetts and Rhode Island.

- The white color of the turbines generally blends well with the sky at the horizon and eliminates the need for daytime FAA warning lights or red paint marking of the blade tips.

Because the threshold of acceptable visual impact was not exceeded for any identified LSZ within the visual study area, in accordance with the VRAP, no mitigation is required to reduce or offset the visual impact of the SFWF.

1.0 Introduction

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR) was retained by. Jacobs Engineering Group (Jacobs) on behalf of Deepwater Wind South Fork LLC (DWSF), to prepare a Visual Impact Assessment (VIA) for the South Fork Wind Farm (SFWF or the Project). As proposed, the SFWF will be located in the Atlantic Ocean, approximately 20 miles southwest of Martha's Vineyard, Massachusetts[3], 19 miles southeast of Block Island (Town of New Shoreham), Rhode Island, and approximately 23 miles from the nearest point on the mainland (southeast of Point Judith on mainland Rhode Island). The purpose of the VIA is to analyze the potential visibility of the proposed SFWF and determine the difference in landscape visual quality with and without the Project in place. Specifically, the study will:

- Describe the appearance of the visible components of the proposed Project.
- Define the character and visual quality of the landscapes within the Project's visual study area.
- Define the types and sensitivity of viewer groups within the study area.
- Inventory existing visually sensitive public resources within the study area.
- Evaluate potential Project visibility within the study area.
- Identify key views for visual assessment.
- Illustrate what the Project will look like from representative vantage points.
- Assess the visual impacts associated with the proposed Project.

The VIA was prepared with oversight and input provided by landscape architects and other visual professionals experienced in the preparation of VIAs.[4] It is also consistent with the policies, procedures, and guidelines contained in established VIA methodologies (see Literature Cited/References section).

[3] In order to model the maximum design scenario for potential visual impacts associated with WTG visibility, the VIA considers a layout that extends the width of the MWA. The MDS layout includes WTG positions closer to Martha's Vineyard and affecting a larger percentage of the visible ocean horizon than the Project layouts presented in the COP. Comparison of the MDS and alternative layouts is presented in Section 6.2.
[4] See resumes in Appendix D.

2.0 Project Description

2.1 Project Site

As proposed, the SFWF will be located in federal waters, approximately 19 miles southeast of Block Island, Rhode Island and approximately 35 miles east of Montauk Point, New York (Figure 1). The visible offshore components of the operational Project will be located on the outer continental shelf (OCS) in Lease OCS-A 0486 in water depths ranging from approximately 108 to 125 feet. The portion of OCS-A 0486 under consideration is approximately 26.7 square miles and includes portions of approximately six subblocks in the south-central portion of the lease area.

2.2 Proposed Project

The SFWF is a wind-powered electric generating facility composed of up to 15 wind turbine generators (WTG) and associated foundations, one offshore substation, and an inter-array cable connecting the WTGs and the offshore substation. Additionally, the South Fork Export Cable (SFEC), a submarine export cable located in both federal waters and New York State territorial waters, will connect the offshore substation to a transition vault in East Hampton, New York. From the transition vault, an underground export cable will complete the connection to a new onshore substation, also located in East Hampton, New York. The visible offshore components of the operational Project, including the WTGs (and associated foundations) and the offshore substation (OSS), will be the focus of this VIA. A separate visual study is being prepared for the visible components of the SFEC in accordance with Article VII of the New York Public Service Law.

Consistent with BOEM's *Draft Guidance Regarding the Use of a Project Design Envelope in a Construction and Operations Plan (2018)*, this VIA considers a Maximal Design Scenario (MDS) layout. The layout represents the largest geographic footprint occupied by visible structures and, therefore, the largest percentage of the visible horizon from shoreline locations that may be affected by Project[5]. Considering this layout, the average turbine and substation spacing is approximately 1.9 miles, oriented roughly on a north-south axis, within an area measuring approximately 26.7 square miles (Figure 2). For the purpose of the VIA, it was assumed that the offshore wind turbines will be 12-megawatt (MW) units which, in terms of generation capacity and dimensions, would be the largest units under consideration for the Project. Since a specific turbine model had not been selected at the time this VIA was being prepared, a hypothetical model, using the largest dimensions currently under consideration, was used for the visibility

[5] For the purposes of this VIA, the MDS represents a maximum design scenario when considering the total geographic footprint occupied by visible structures and as seen on the horizon from shoreline observation locations. Alternative layout scenarios, including those presented in the COP, are presented in Section 6.2 of this report.

and visual impact analyses included in this study. By evaluating the largest turbine currently under consideration, the theoretical turbine visibility increases for distant viewpoints, thereby providing a conservative assessment of Project visibility.

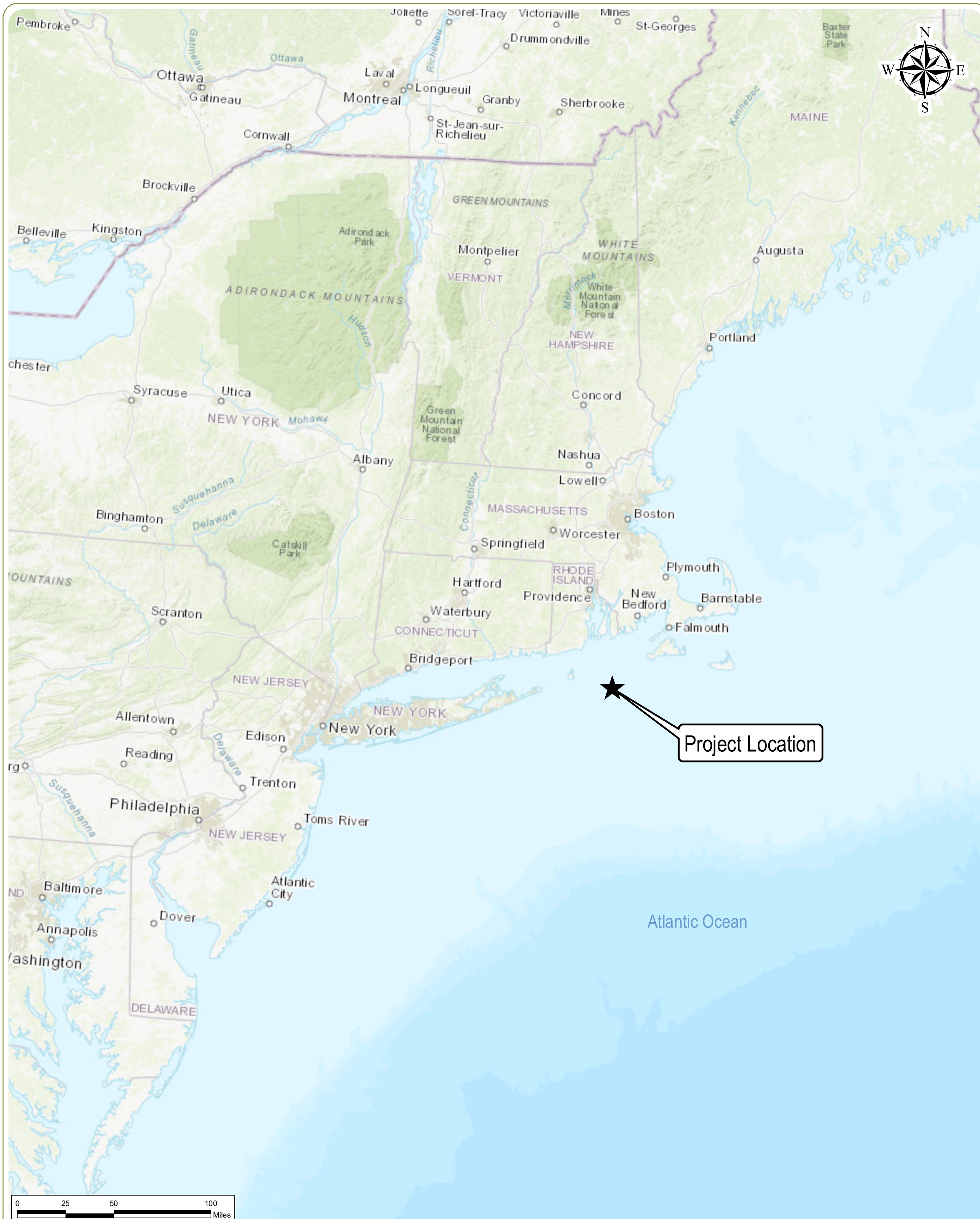
Each wind turbine will consist of four major components: the foundation, the tower, the nacelle, and the rotor. The foundation will extend approximately 75 feet above mean sea level (AMSL). The height of the tower, or “hub height” (height from the water’s surface to the center of the rotor) will be approximately 472 feet AMSL. The nacelle sits atop the tower, and the rotor hub is mounted to the nacelle. Assuming a maximum 735-foot rotor diameter, the total turbine height (i.e., height AMSL at the highest blade tip position) will be approximately 840 feet. The offshore substation (OSS) will be an enclosed structure measuring approximately 130 feet long by 130 feet wide, with a maximum elevation of 200 feet AMSL. For the purpose of this VIA, it is assumed that the OSS will be mounted on a dedicated foundation. An alternative design may result in the collocation of the substation with a turbine on a shared foundation system. A diagram illustrating the appearance and dimensions of the turbine and offshore substation evaluated in this study is presented in Figure 3. Descriptions of each of the proposed turbine components are provided below.

Foundation: For the purpose of this VIA, it was assumed that each of the turbines will be anchored to the sea floor using a monopile foundation secured with a single steel pile driven into the sea floor. The monopile foundation is a 30-foot diameter tubular steel structure, upon which the tower transition will be mounted. The foundation will extend approximately 75 feet AMSL, and the exposed portion of the foundation will be yellow in color. A boat landing will be affixed to the foundation with a stairway connecting the landing to a railed deck at the base of the tower.

Tower: The towers used for this Project are tapered hollow steel structures manufactured in three sections. The assembled towers have a diameter of approximately 26 feet at the base and 18 feet at the top. Two amber U.S. Coast Guard (USCG) warning lights will be mounted on the deck at the base of each tower. In accordance with the Federal Aviation Administration (FAA) obstruction marking standards, the turbine will be painted a light grey (RAL 7035) to pure white (RAL 9010). Additionally, the tower will be equipped with a minimum of three low intensity red flashing lights (L-810) at the approximate mid-section of the tower which will operate during nighttime hours only. Each tower will be marked with an individual alpha-numeric identifier located 10 feet above the deck. The numbers will be black in color, approximately 15 feet tall, and will be displayed at 120-degree intervals around each tower.

Nacelle: The main mechanical components of the wind turbine are housed in the nacelle. These components include the drive train, generator, and transformer. For the purpose of this study, the nacelle is assumed to have maximum dimensions of approximately 55 feet long, 31 feet tall, and 32 feet wide. Two aviation warning lights are proposed to be located on top of the nacelle, in accordance with FAA guidelines. These will be medium intensity, flashing red lights (L-864) that are operated only at night, and will be synchronized with the L-810 lights described above. It is assumed that the nacelle will be white in color and will not include any obvious lettering, logos, or other exterior markings.

Rotor: A rotor assembly is mounted on the nacelle to operate upwind of the tower. The rotor consists of three composite blades, each approximately 358 feet in length. The three-bladed rotor assembly will be light grey to white in color (consistent with the tower) and will have a maximum diameter of 735 feet. The rotor blades are rotated along their axis, or “pitched”, to enable them to operate efficiently at varying wind speeds. The rotor can spin at varying speeds, but typically rotates at a rate around 10 revolutions per minute (RPM).



J:\17036 South Fork Wind Farm\Graphics\Figures\Cultural Resources\Historic Resources Visual Effects Analysis\MXD\17036_HRVEA_Figure 1_Regional Project Location.mxd

South Fork Wind Farm

New York/Rhode Island, US

Figure 1: Regional Project Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on April 18, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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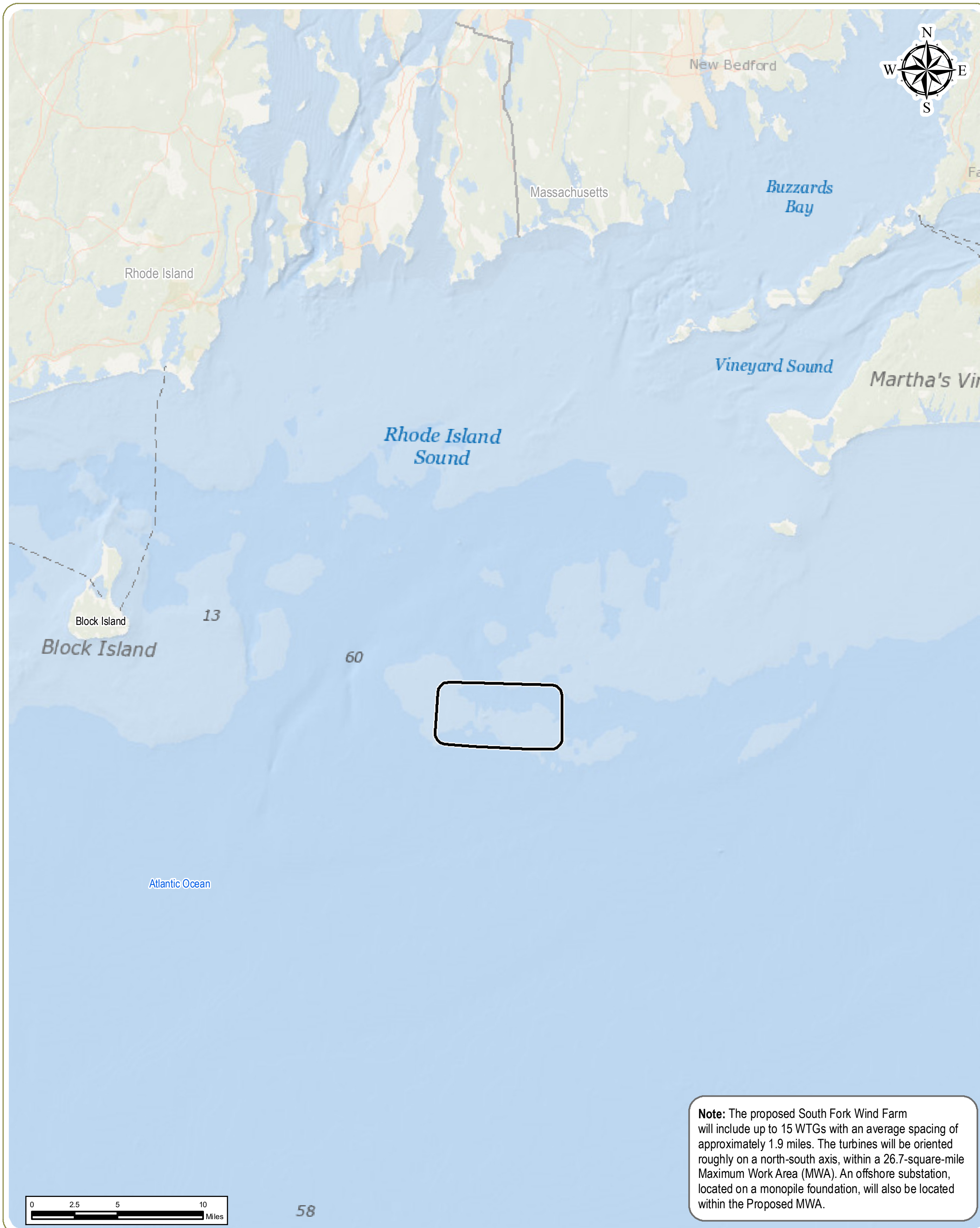

Note: The proposed South Fork Wind Farm will include up to 15 WTGs with an average spacing of approximately 1.9 miles. The turbines will be oriented roughly on a north-south axis, within a 26.7-square-mile Maximum Work Area (MWA). An offshore substation, located on a monopile foundation, will also be located within the Proposed MWA.

J:\17036 South Fork Wind Farm\Graphics\Figures\VIA\MXD\17036_HRVEA_Figure 2_Proposed MWA.mxd

South Fork Wind Farm

New York/Rhode Island, US

Figure 2: Proposed Maximum Work Area

Proposed Maximum Work Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on July 18, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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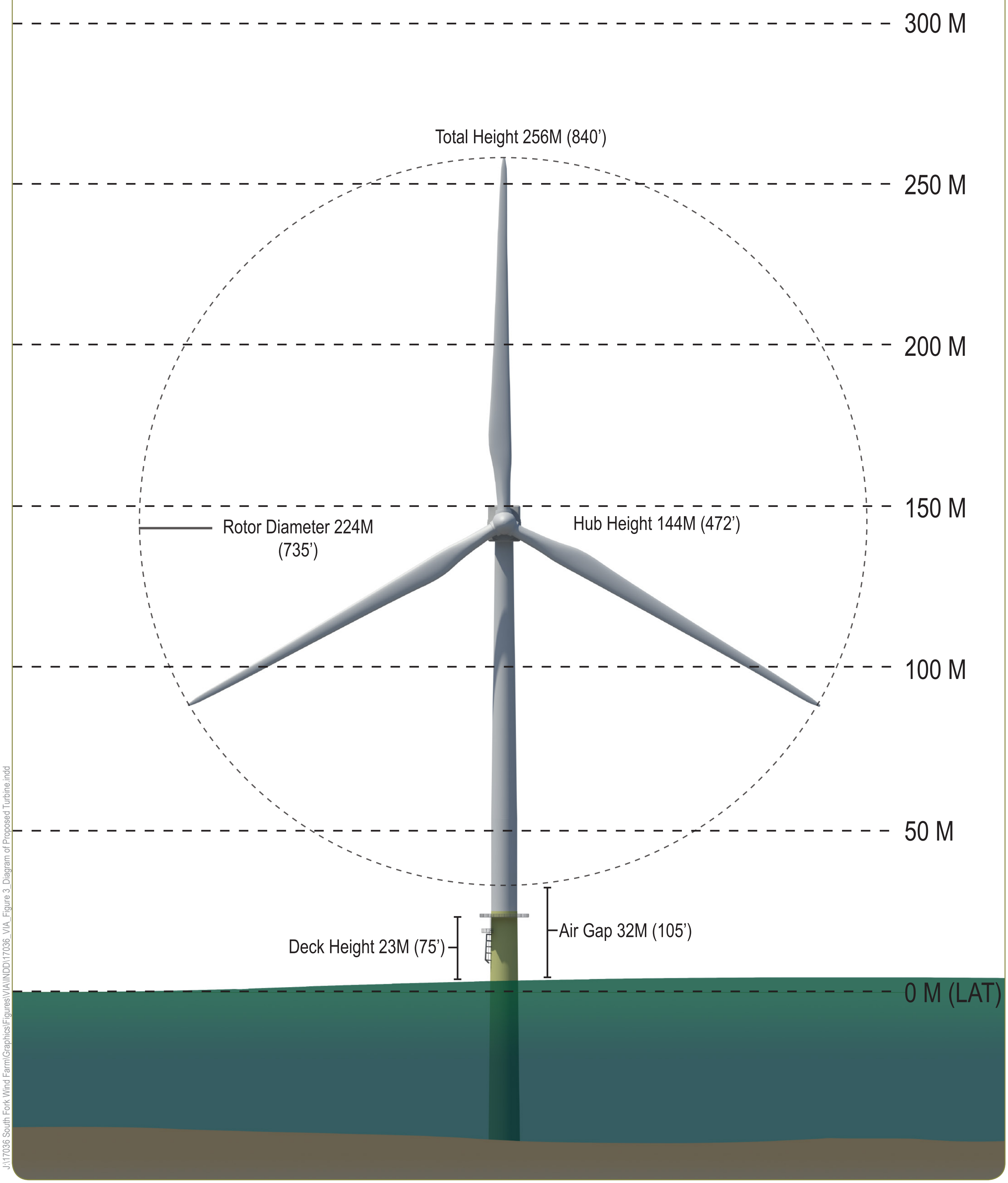
12 MW Turbine



South Fork Wind Farm

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Figure 3: Project Components - Preliminary Diagram of the Proposed Turbine

Notes: 1. This figure was generated in InDesign on December 29, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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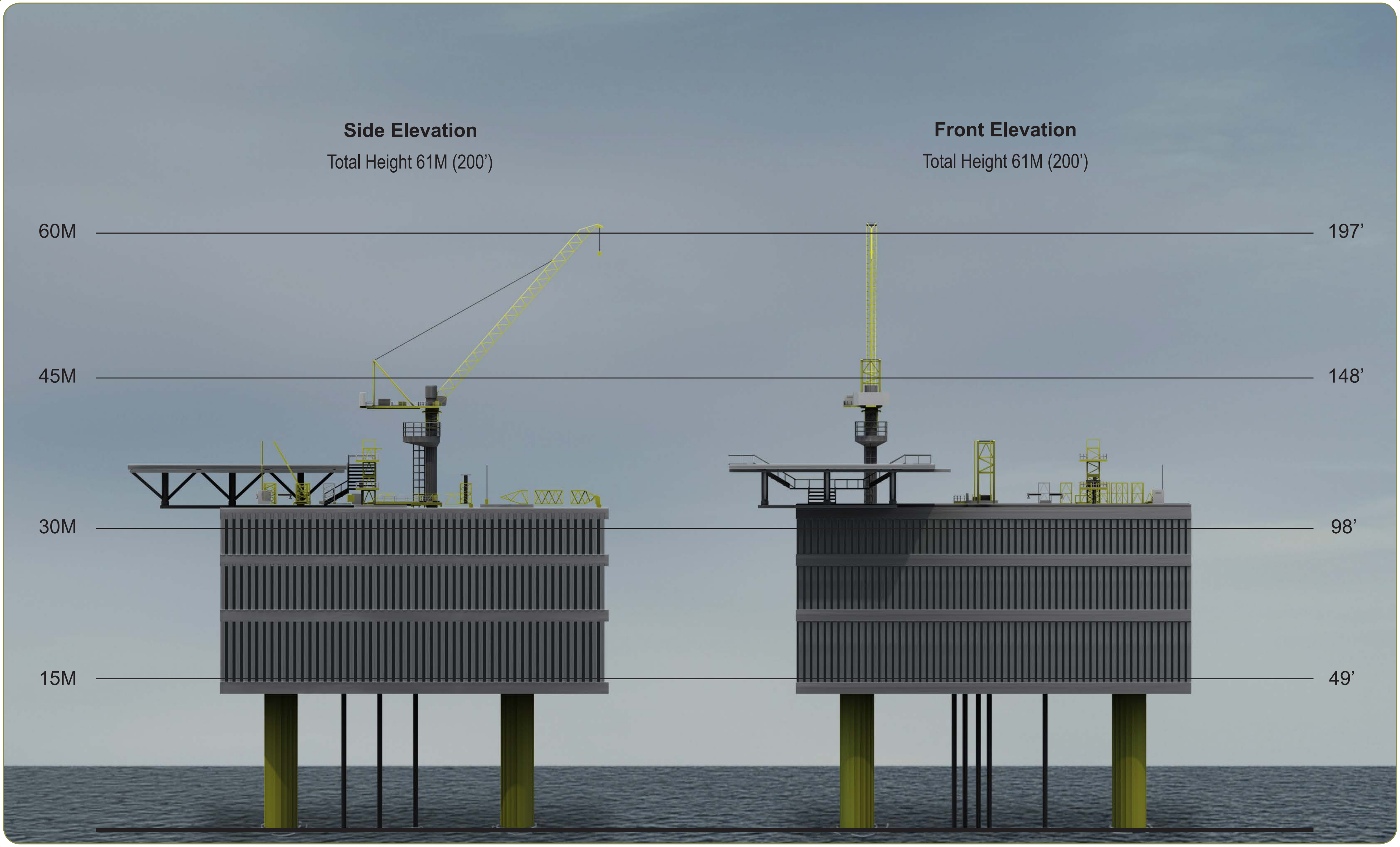

J:\17036 South Fork Wind Farm\Graphics\Figures\VIA\INDD\17036_VIA_Figure 3_ Project Components.indd

South Fork Wind Farm

New York/Rhode Island, US

Figure 3: Project Components - Preliminary Diagram of the Proposed Offshore Substation

Notes: 1. This figure was generated in InDesign on January 2, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Currently, the Project is considering the use of a monopole foundation to support the offshore substation. Due to the minimal visibility of the substation, this variation in foundation type will not affect the results of the VIA.

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3.0 Existing Visual Character

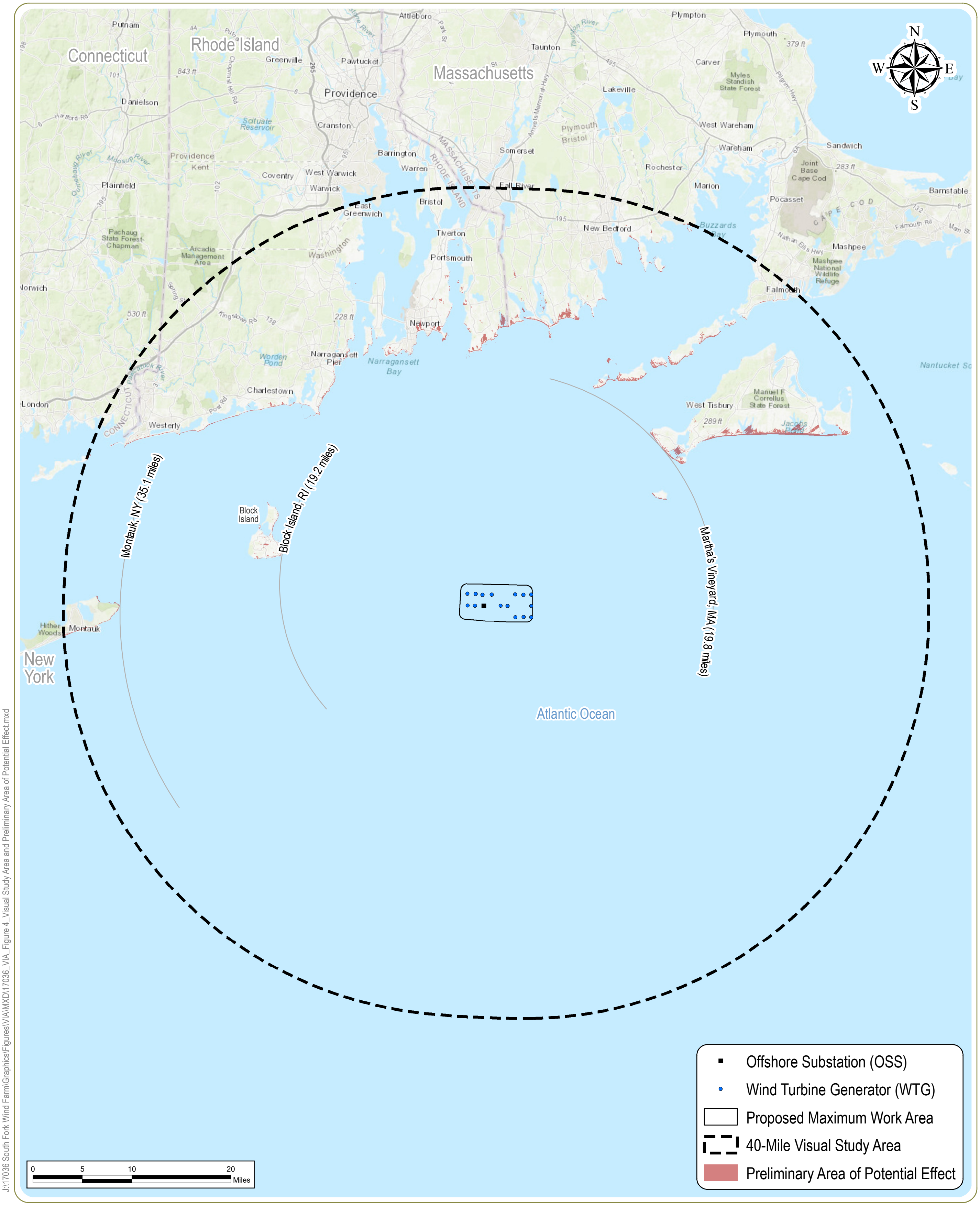
3.1 Definition of the Study Area and Zone of Visual Influence

Currently, a standard visual study area for offshore wind farms has not been expressly defined in regulatory guidance documents. However, *Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP)* (BOEM, 2016) indicates that visual impacts should be evaluated using photo simulations from locations within "*the onshore viewshed from which renewable energy structures, whether located offshore or onshore, would be visible."*

This statement suggests that the Project study area should include all areas with any level of potential Project visibility. The first step in defining the maximum extent of turbine visibility in an offshore setting is to determine the likely physical threshold based on the screening effect of the curvature of the earth. A previous analysis completed by EDR on the operational Block Island Wind Farm (BIWF) suggests that turbines will generally become completely screened at a distance between 35 and 40 miles, depending on the elevation of the viewer and height of the turbine. This conclusion is supported by a study titled "*Offshore Wind Turbine Visibility and Visual Impact Threshold Distances"* which concluded that offshore wind facilities were judged to be a major focus of visual attention at distances up to 10 miles (16 kilometers); were noticeable to casual observers at distances of almost 18 miles (29 kilometers); and were visible with extended or concentrated viewing at distances beyond 25 miles (40 kilometers) (Sullivan, *et al.*, 2012). A more recent study undertaken by the New York State Energy Research and Development Authority (NYSERDA) suggests offshore wind energy projects of typical magnitude would have minimal visual effects at a distance of 20 miles and negligible effect beyond 25 miles (EDR, 2017). Observations of the constructed BIWF and verified line of sight models suggest that visibility will diminish completely at approximately 40 miles (see Image 3.3-1).

Based on the results of this analysis, and the desire to address Project visibility from visually sensitive resources in New York, Rhode Island, and Massachusetts, the visual study area for the SFWF was defined as the area within a 40-mile radius of each of the proposed turbines. This study area includes approximately 5,133 square miles of open ocean, 755 square miles of land (including inland water bodies), and over 1,000 linear miles of shoreline in Rhode Island, Massachusetts, Connecticut, and New York. The proposed visual study area includes all or portions of 19 towns in Rhode Island, 15 towns in Massachusetts, two towns in Connecticut, and one town in New York. The location and extent of the visual study area is illustrated in Figure 4.

However, within this study area, only a relatively small portion of the on-shore locations would actually have open views that would include the proposed Project. To accurately define an inclusive and reasonable Preliminary Area of Potential Effects (PAPE), EDR identified the potential geographic areas of Project visibility by running a preliminary lidar viewshed analysis within the 40-mile study area. The viewshed model considered vegetation, buildings/structures, and the curvature of the earth in order to delineate those areas that may have potential views of the highest portions of the turbines (i.e., blade tips in the upright position). The viewshed analysis results indicated that, 16.1 square miles or 2.1% of the land area within the 40-mile study area could have potential views of the Project from ground-level vantage points. For the purposes of the VIA, this area was defined as the PAPE and represented the areas in which further analysis was warranted to determine the degree of Project visibility and visual impact. A comprehensive description of the viewshed analysis used to define the PAPE is provided in Section 4.1.



South Fork Wind Farm
New York/Rhode Island, US

Figure 4: Visual Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on May 17, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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3.2 Physiographic/Visual Setting

The physiographic/visual setting of the terrestrial portions of the visual study area can be broadly broken down into three categories: islands, the mainland, and the open ocean. A description of each of these is presented below.

3.2.1 Islands

Islands cumulatively total approximately 183 square miles of land within the visual study area, and consist of Long Island, Block Island, Conanicut Island, Prudence Island, Aquidneck Island, the Elizabeth Islands, Martha's Vineyard, and several smaller islands scattered along the coast of Massachusetts and Rhode Island. All of these islands are portions of terminal moraines from the Wisconsin Glacier, which retreated from the area approximately 22,000 years ago. As such, the islands are composed primarily of glacial till, which is a poorly sorted mix of silt, sand, cobbles, and boulders. Topography on the islands is typically undulating to gently rolling, with dunes and/or steep bluffs occurring along the island shorelines. Island elevations range from sea level to a maximum of approximately 260 feet AMSL, which occurs on Slate Hill on Aquidneck Island and on a few hilltops in the western portion of Martha's Vineyard. Vegetation on the islands is typically characterized by a mix of scrub forest, grassy dunes, salt marshes, freshwater wetlands, and open fields (agricultural and successional). Developed areas include seasonal and year-round homes, villages, roads, and ports.

3.2.2 Mainland

The visual study area includes approximately 572 square miles on the mainland: 20 square miles in Connecticut, 382 square miles in Rhode Island, and 170 square miles in Massachusetts (mainland New York does not occur within the study area). Within the mainland portion of the study area, elevations range from sea level along the coast to a high point of 550 feet AMSL on Black Plain in the Town of Exeter, Rhode Island. The mainland coast has variable topography. Barrier beaches and dunes are typically backed by salt ponds and tidal marshes along much of the mainland coast in Rhode Island and Massachusetts. However, in areas such as Watch Hill and Point Judith, Rhode Island, the shoreline topography is defined by steep bluffs and cliffs, along with fewer coastal ponds and marshes. Inland from the coast, mainland topography rises gradually but remains fairly level to gently rolling. Low hills and valleys are primarily forested with scattered freshwater lakes, ponds, and occasional agricultural land. Soils are generally thin and rocky, as is evidenced by abundant surface rock and stone walls. Residential development occurs throughout the area, with the highest density found in villages and towns along the coast. Outside of the village/town center areas, inland development is more scattered and low-density within a largely forested landscape.

3.2.3 Atlantic Ocean

The portions of the Atlantic Ocean that occur within the study area include Rhode Island Sound, Block Island Sound, Narragansett Bay, Buzzards Bay, Vineyard Sound, and other bays and coves. This area is characterized by broad expanses of open water, ranging in depth up to approximately 250 feet (40 miles south of the proposed turbines). Depending on weather conditions, the texture of the ocean surface can range from smooth to choppy, and its color can range from blue, to silver, to dark gray. The ocean in this area is a working water landscape that supports significant human activity, including recreational and commercial fishing, commercial shipping, ferry transportation, pleasure boating, and associated maritime activities and features (buoys, channel markers, warning lights, etc.).

3.3 Distance Zones

Three distinct distance zones are typically defined in visual studies. The zones generally define the foreground as 0 to 0.5 mile, the midground as 0.5 to 3.5 miles, and the background as over 3.5 miles (Jones and Jones 1977; USDA, U.S. Forest Service, 1995). However, for the purpose of this VIA, it was determined that defining an additional distance zone would be appropriate, given that all land-based views of SFWF are in an area that would typically be defined as the background distance zone. Therefore, the "seldom seen" zone was added to address views beyond 15 miles (Bureau of Land Management [BLM], 2009). It is important to note that all foreground, midground, and background views within the study area would only be available to those travelling on the open ocean in commercial vessels, passenger boats, or pleasure craft. Consistent with established agency guidance, distance zones for this VIA are defined as follows:

- *Foreground:* 0 to 0.5 mile. At these distances, a viewer is able to perceive details of an object with clarity. Surface textures, small features, and the full intensity and value of color can be seen on foreground objects.

- *Midground:* 0.5 to 3.5 miles. The midground is usually the predominant distance at which landscapes are seen. At these distances, a viewer can perceive individual structures and trees but not in great detail. This is the zone where the parts of the landscape start to join together; individual hills become a range, individual trees merge into a forest, and buildings appear as simple geometric forms. Colors will be clearly distinguishable but will have a bluish cast and a softer tone than those in the foreground. Contrast in color and texture among landscape elements will also be reduced.

- *Background:* 3.5 to 15 miles. The background defines the broader regional landscape within which a view occurs. Within this distance zone, the landscape has been simplified; only broad landforms are discernible, and atmospheric conditions often render the landscape an overall bluish color. Texture has generally disappeared, and color has flattened, but large patterns of vegetation are discernible. Silhouettes of one land mass set against another and/or the skyline are often the dominant visual characteristics in the background. The background contributes to scenic quality by providing a softened backdrop for foreground and midground features, an attractive vista, or a distant focal point.

- *Seldom Seen:* Over 15 miles. At distances beyond 15 miles, movement is not readily discernible, curvature of the earth becomes a factor in visibility, and objects become less prominent in the overall landscape due to their relative size, occupation of the horizon, and deterioration of visibility due to atmospheric conditions. At distances beyond 15 miles, it is unlikely the Project will be discernible to the casual viewer (even under clear conditions), and only concentrated viewing will reveal the existence of elements on the horizon. During high humidity, fog, and other weather events, visibility at these distances will be diminished or completely eliminated.

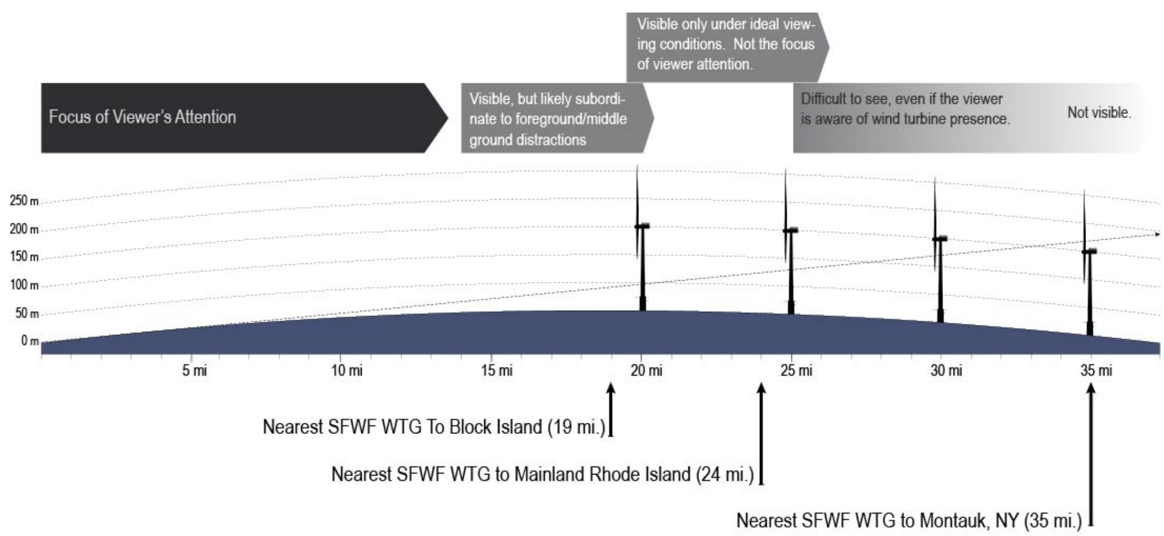


Image 3.3-1 – Distance Zones

Due to the distance at which the SFWF will be most frequently viewed, the curvature of the earth and atmospheric conditions will have a substantial influence on Project visibility. Studies that have been completed in Europe and the U.S. on existing offshore wind installations suggest that within the Seldom Seen Zone, visibility zones can be further delineated until the point of complete diminishment. As demonstrated in the line of sight graphic above (Image 3.3-1), turbines that are positioned in the zone between 15 and 20 miles are typically described as being visible, but less noticeable to the casual observer. At this distance the turbines are likely subordinate to other elements in the landscape that will draw a viewer's attention, such as vessels on the water, waves on the shoreline, etc. Between 20 and 25 miles, turbines are typically visible only after extended or concentrated viewing (Sullivan, 2012). Beyond 25 miles the turbines are difficult to see with the unaided eye and generally require the viewer to know where to look in order to see the turbines. Complete diminishment of potential visibility occurs beyond 35 miles due to a combination of screening from the curvature of the earth and atmospheric diminishment.

3.4 Landscape Similarity Zones

The definition of landscape or seascape types found in the PAPE provides a useful framework for the analysis of existing visual resources and viewer circumstances. These landscape types, referred to in this report as Landscape Similarity Zones (LSZs), are defined based on the similarity of landscape features, such as landform, vegetation, water, and land use patterns. EDR defined 17 distinct LSZs within the SFWF PAPE. These generally homogeneous character zones were identified in accordance with established visual assessment methodologies (Smardon et al., 1988; USDA Forest Service, 1995; USDOT Federal Highway Administration, 1981; USDOI Bureau of Land Management, 1980). The U.S. Geological Survey (USGS) National Land Cover Dataset (NLCD) used to help define the locations of these zones is illustrated in Figure 5 (Sheet 1), along with representative photos of each LSZ (Sheets 2-35). The general landscape character, land use, and types of views available from each of the LSZs that occur within the PAPE are described below.

3.4.1 Zone 1. Open Water/Ocean Zone

Within the study area, this zone consists of the open water of the Atlantic Ocean, Block Island Sound, Vineyard Sound, Rhode Island Sound, Narragansett Bay, Long Island Sound, Mount Hope Bay, Buzzards Bay, and a small portion of Nantucket Sound. The defining characteristic of this LSZ is the presence of open water as a dominant foreground element in all directions. The open expanse of water can be relatively calm and flat or may occasionally include rolling swells and white caps. Man-made features in the water are limited, but may include occasional jetties, buoys, and boats. Views across the open water often extend to the horizon, but in places terminate at a distant shoreline characterized by a mix of natural vegetation and man-made features, including houses, water towers, commercial structures, and marinas. Human activity on the water can be extensive, especially near major ports and navigation channels during the recreation season, and includes ferry transport (Block Island, Long Island, Newport, and Martha's Vineyard ferries), pleasure boating (including tour boats), commercial and recreational fishing, and various water sports.

3.4.2 Zone 2. Shoreline Beach

This LSZ is characterized by an open beach that slopes gradually to the edge of the ocean. The beaches within the PAPE include sandy beaches, such as Watch Hill, Narragansett, Horseneck, and Sachuest Beaches, which occur along the southern and central portions of the mainland shoreline in Rhode Island and Massachusetts. Sandy beaches also occur on the southern and eastern portions of Martha's Vineyard, as well as eastern Block Island. Cobble and rocky beaches exist on Aquidneck and Conanicut Islands and the western and northern portions of Martha's Vineyard and Block Island. The defining characteristic of this LSZ is an unobstructed, water-level view up and down the shoreline and across open water as one looks out to sea. Public beaches, such as Fred Benson Beach, Narragansett Beach, Scarborough State Beach, South Beach State Park, and Horseneck Beach also include occasional public buildings (e.g., bathhouses). Viewer activity in this area is primarily recreational, including swimming, sun-bathing, walking, beach-combing, fishing, and surfing. Views toward the shore from this zone are typically characterized by grassy dunes, coastal scrub, and/or bluffs or cliffs, as well as man-made features and buildings/structures, all of which limit the visibility of inland features.

3.4.3 Zone 3. Shoreline Bluffs

The defining characteristic of this LSZ is an open view of the ocean and shoreline from an elevated bluff or cliff. This zone occurs in several locations within the PAPE but is particularly well represented along the south shore of Block Island, at Gay Head in Aquinnah on Martha's Vineyard, along portions of the Cliff Walk in Newport, and at Montauk Point on Long Island. Coastal scrub vegetation on top of the bluffs is typically separated from the shoreline by a more-or-less vertical wall of rapidly eroding glacial till or exposed rock. Viewers are typically 20 to 100+ feet above sea level and come to these areas primarily for the long-distance views they afford. Because of their elevation and lack of tall vegetation, these views typically include significant lengths of shoreline and a broad expanse of open ocean, as well as typical inland features, including coastal scrub vegetation, lighthouses, homes, and other man-made elements. However, because of the density of surrounding vegetation and/or the predominance of privately-owned land, such views are generally only available from discrete public access points and trails.

3.4.4 Zone 4. Developed Waterfront

This zone also occurs along the shoreline, but unlike the previous LSZs, is defined primarily by the dominance of man-made features, including docks, boats, and shoreline buildings/structures. Fishing ports, harbors, marinas, and shoreline commercial and industrial areas are included in this LSZ, which occurs primarily from Point Judith eastward on the mainland, in the downtown/harbor area of New Shoreham and portions of Great Salt Pond on Block Island, and in Newport on Aquidneck Island. Some examples in the PAPE include Newport Harbor, Point Judith, Woods Hole, and New Shoreham Harbor. Buildings/structures, vehicles, and boats in these areas are a mix of sizes, styles, and conditions. Masts, antennas, and other man-made vertical elements typically break the skyline and create some degree of visual clutter. Viewer activity in these areas is generally water-oriented but highly variable and includes commercial fishing, seafood processing, boat repair, pleasure boating, retail shopping, and restaurants.

3.4.5 Zone 5. Coastal Dunes

This LSZ typically occurs between the ocean beaches and more inland coastal scrub, salt ponds, and marshes throughout the PAPE. Dunes are found at mainland beaches, such as Horseneck Beach State Park in Massachusetts and Scarborough Beach State Park in Rhode Island, and at island beaches on Aquidneck Island, Block Island, Martha's Vineyard, and Long Island. The Coastal Dunes LSZ is characterized by undulating dune topography and vegetation dominated by dune grass, low shrubs, and occasional stunted trees (including pines). Coastal dunes are typically strictly regulated ecological communities, and access is limited to narrow enclosed footpaths and boardwalks that cut through or over the dunes, providing public access to the beaches. Views from the dunes are largely restricted to these paths and typically screened by the tight, rolling landform until emerging at the top of the beach. Viewer activity in this area is almost exclusively recreational and typically focused on sight-seeing and beach access.

3.4.6 Zone 6. Shoreline Residential

This LSZ is characterized by year-round and seasonal homes situated along the ocean shoreline. The defining characteristic of this zone is a broad, often elevated, view of the ocean from a residential setting. The homes are a mix of historic and modern architecture. Along the mainland Rhode Island and Massachusetts shoreline the types of homes are highly variable, ranging from densely situated, modest, cottage style homes in Westerly, Rhode Island and Westport, Massachusetts, to larger waterfront estates in Narragansett, Rhode Island, to the stately, historic mansions situated on large lots in Newport on Aquidneck Island. Landforms in this LSZ are level to gently undulating, and surrounding vegetation includes a mix of coastal scrub, dunes, and maintained landscapes. With the exception of the older estates, large trees are generally lacking. Viewers in this zone are generally engaged in typical residential activities, although some recreational activity/sight-seeing occurs in areas with public access (e.g., the Cliff Walk in Newport). Generally, shoreline homes are specifically situated to take advantage of water views.

3.4.7 Zone 7. Salt Pond/Tidal Marsh

This LSZ is characterized by coastal ponds and marshes that are connected to the ocean by one or more relatively narrow channels. It occurs commonly throughout the mainland portions of the study area and is represented by Winnapaug Pond, Quonochantaug Pond, and Ninigret Pond in southern Rhode Island, and Richmond Pond, Cockeast Pond, and Allens Pond in Massachusetts. Great Salt Pond on Block Island and Oyster Pond on Long Island are also notable examples of the Salt Pond/Tidal Marsh LSZ. These areas are typically characterized by open water surrounded by a fringe of herbaceous marsh vegetation. They are subject to the influence of tides and therefore can include exposed mud banks and flats along their edges at low tide. Views are available across the open water but are generally interrupted by adjacent dunes or barrier spits (typically 10 to 15 feet tall) and/or scrub vegetation that separate the ponds and the adjacent land from the ocean. Residences often occur along the edges of these ponds, as indicated by docks and boats along their shorelines. Recreational activity in the form of boating, fishing, and clamming is common in these areas.

3.4.8 Zone 8. Coastal Scrub/Scrub Forest

This LSZ occurs throughout the visual study area and typically buffers other shoreline LSZs, such as Developed Waterfront, Coastal Dunes, or Shoreline Bluffs. Large contiguous areas of Coastal Scrub/Scrub Forest occur at Rodman's Hollow Nature Preserve and the Clay Head Nature Preserve on Block Island, and coastal areas of the mainland, such as Charlestown, South Kingstown, and Westport, where shoreline development is less dense. The Coastal Scrub/Scrub Forest LSZ is characterized by a thick tangle of woody and herbaceous vegetation, typically less than 20 feet in height. This vegetation occurs on upland dunes as well as along the edges of marshes and shrubby wetlands. Landform in this zone is gently rolling with small hills and hollows. The vegetation is largely impenetrable, except where crossed by roads or trails. In these areas, outward views are largely enclosed by surrounding vegetation and are limited to the orientation and width of the cleared corridor. Viewer activity is primarily local travel and recreational trail use.

3.4.9 Zone 9. Maintained Recreation Areas

This is a diverse LSZ characterized largely by the presence of maintained lawns and managed landscapes that are used primarily for recreational purposes. It includes areas of open lawn at public parks, lighthouses, USCG stations, and golf courses. Prominent man-made structures (e.g., lighthouses) and signage are often focal points/destinations in this LSZ. Views of the ocean are highly variable, depending on the proximity of these sites to the shoreline. However, the open, maintained landscape generally allows for fairly broad, unobstructed views of the surrounding landscape. Typical examples of this LSZ are Brenton Point State Park, Beavertail State Park, and the Point Judith USCG Station on mainland Rhode Island, Nobska Lighthouse on the Massachusetts mainland, Montauk Point Lighthouse on Long Island, and Southeast Lighthouse on Block Island.

3.4.10 Zone 10. Forest Zone

The Forest LSZ is characterized by relatively large tracts of forestland, typically including both deciduous and coniferous species (e.g., oaks, hickories, white pine) in the overstory, with mixed shrubs, vines, and saplings in the understory. In areas closer to the coast, the trees are often crooked and stunted, while inland forests generally have trees that are taller and straighter. Scattered residences, local roads, small fields, and wetlands also occur within this zone but were not called out as separate LSZs due to their low density, relatively small size, and the visual dominance of the surrounding forest. Landform within this zone is typically level to gently rolling, although distinct ridges and valleys are present in places. Boulders, stone walls, and bedrock outcrops on the ground plain are also a distinguishing characteristic of forests within the study area. Notable areas of forest land directly adjacent to the PAPE include Montauk Point State Park and Camp Hero State Park on Long Island, Trustom Pond National Wildlife Refuge (NWR) on mainland Rhode Island, and Peaked Hill Reservation on Martha's Vineyard. Long distance views within the zone are generally either fully or partially screened by vegetation and, when present, are tightly enclosed by the surrounding trees.

3.4.11 Zone 11. Rural Residential Zone

This LSZ occurs primarily along the frontage of rural roads within the inland portion of the visual study area. Some examples of the Rural Residential Zone in the Project PAPE include Little Compton on mainland Rhode Island, Westport on mainland Massachusetts, and occasional inland areas on Block Island and Martha's Vineyard. Frontage development along the roads typically includes single family homes that vary widely in age and architectural style (from modern modular homes to older vernacular farm houses). Rural residences tend to be located along narrow, tree-lined roads, both paved and unpaved. Throughout this LSZ, homes are often surrounded by forest, but this zone also includes small orchards, open fields/lawns, and small farms interspersed with hedgerows and small woodlots. Landform in this area is characterized by gently rolling topography. Long distance views in this LSZ are largely restricted to small open fields. Typical viewer activity within this zone includes residential activity, outdoor recreation, and local travel.

3.4.12 Zone 12. Suburban Residential Zone

The Suburban Residential LSZ occurs primarily in the mainland portion of the visual study area and is characterized by medium- to high-density residential neighborhoods that typically occur on the outskirts of villages and town centers, and along secondary roads and cul-de-sacs spurring off the main roads. Buildings are relatively new, one- and two-story, wood-framed homes with gable roofs and clapboard or shingle siding. In areas along the coast, this LSZ is characterized by clusters of generally modest homes off unpaved roads that follow the lay of the land. Many of these clusters occur on higher ground, in scrub forest settings, and/or along the edges of salt ponds and coastal marshes. In more inland settings, suburban residential developments have the appearance of more typical subdivisions, with regularly spaced homes surrounded by well-maintained lawns and landscaped yards. These neighborhoods often occur in wooded areas with pockets of remnant forest vegetation within the subdivisions and a scattering of individual trees along the roads. The streets are well-organized in layout and appearance and are often curvilinear in form. Examples of the Suburban Residential Zone within the PAPE include the community of Bonnet Shores in Narragansett and Green Hill in Charlestown on the Rhode Island mainland, and south of New Bedford and Sconticut Neck in the Town of Fairhaven on the Massachusetts mainland. Suburban residential zones on the islands do not occur within the PAPE. Typical user activities in this LSZ include home and yard use/maintenance, as well as local travel. Views that are available in this LSZ are generally limited by the surrounding forest vegetation, adjacent buildings/structures, and/or undulating topography that surround the subdivisions.

3.4.13 Zone 13. Village/Town Center Zone

This LSZ includes the more well-defined village/town center areas within the visual study area. This zone is characterized by moderate- to high-density residential and commercial development and includes larger town center areas such as Newport on Aquidneck Island and the City of New Bedford and Falmouth Harbor on the Massachusetts mainland. Vegetation, in the form of street trees and yard trees, contributes to visual character in the villages, but buildings (typically two to three stories tall) and other man-made features dominate the landscape within the majority of this zone. These features can be highly variable in their size, architectural style, and arrangement. However, many of the villages have a distinctive New England feel, which may include tightly situated clusters of historic Georgian, Cape Cod, and Victorian style houses and buildings located in proximity to water features, including rivers, ponds, and harbors. Buildings within the village cores include churches, town halls, libraries, and commercial blocks. Residential buildings generally surround the village cores, which often include churches, town halls, libraries, and commercial blocks. Buildings within the village core tend to be two stories in height, arranged in an organized pattern that generally focuses views along the streets and blocks long distance outward views. Any long-distance outward views that are available will generally be in outskirt areas of the villages and town centers and at least partially screened by existing buildings/structures, mature street trees, and/or surrounding native vegetation.

3.4.14 Zone 14. Commercial Zone

This LSZ typically occurs on the mainland in Rhode Island and Massachusetts, and on some of the larger islands, such as Aquidneck and Conanicut (but not on Long Island, Martha's Vineyard, and Block Island). It generally consists of strip commercial development along a highway, and includes retail businesses, restaurants, convenience stores, automobile dealers, shopping centers, and malls. Topography is typically level, and vegetation is restricted to remnant blocks of trees and landscaping around buildings. Views are focused along the axis of the highway, and the foreground is dominated by buildings, automobiles, and paved roads and parking lots. The surrounding landscape varies from village/town center, to suburban residential, to small woodlots. Within the PAPE, this LSZ occurs primarily in East Newport and Middletown on Aquidneck Island in Rhode Island. The Commercial zones throughout the larger 40-mile study area typically occur well inland from the shoreline and are therefore outside the PAPE.

3.4.15 Zone 15. Agricultural/Open Field Zone

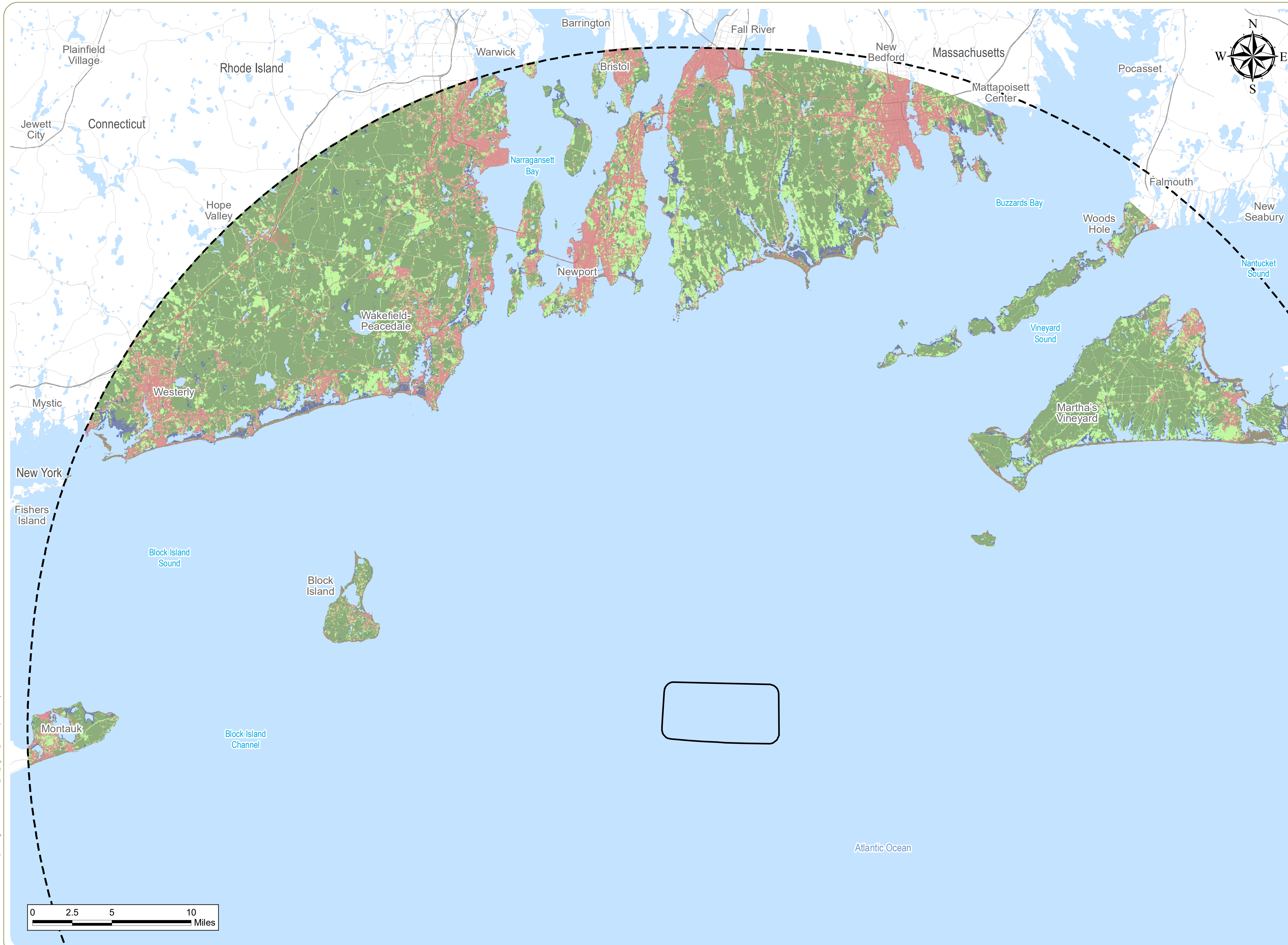
This LSZ is a relatively minor component of the visual study area. It is characterized by generally small, level to gently sloping pastures and crop fields, along with hedgerows, orchards, barns, and rural residences. However, this zone also includes several turf farms characterized by relatively large flat fields of mowed grass. Livestock and working farm equipment add to the visual diversity of the open fields. Within the PAPE, this zone occurs in Little Compton, Rhode Island and as a minor component of the landscape in the southwestern portion of Block Island. Larger agricultural fields also occur in Westport, Fairhaven, and Dartmouth, Massachusetts, and smaller fields are present in Chilmark on Martha's Vineyard. Although open farmland provides for long distance views in this zone, adjacent forest, coastal scrub, and buildings/structures typically frame/enclose these views and provide significant screening. Because this LSZ occurs primarily inland of the coast, views to the ocean from this LSZ are relatively rare, except in the Little Compton area where agricultural fields typically occur on the highpoints of peninsulas.

3.4.16 Zone 16. Inland Lakes and Ponds

This LSZ occasionally occurs within the PAPE, near the coastline but isolated from tidal fluctuation. Examples of freshwater lakes and ponds include Gardiner Pond and Nelson Pond on Aquidneck Island, and Squibnocket Pond on Martha's Vineyard. Inland ponds on the Massachusetts and Rhode Island mainland are typically too far inland to be included in the PAPE, or are isolated from coastal views by intervening ridgelines, such as Worden Pond in southern Rhode Island. The dominant visual feature of this zone is an open expanse of flat water that is enclosed by a vegetated shoreline. The shorelines are typically dominated by deciduous and coniferous trees but are occasionally interrupted by man-made features, such as homes and boat launches. Human activity on the lakes and along the shoreline includes boating, fishing, and swimming. Shoreline trees and low forested hills define the visible background in most views from inland lakes and ponds. Given their locations and surrounding screening, views to the ocean from this LSZ are relatively rare.

3.4.17 Zone 17. Highway Transportation Zone

The Highway Transportation LSZ typically includes primary, high-volume vehicular travel corridors that traverse the study area and are dominated by automobiles, pavement, guardrails, and signs. Within the PAPE, this zone is represented by State Route 138, a limited-access highway connecting the Rhode Island mainland to Conanicut and Aquidneck Islands, and Route 1 on the Rhode Island mainland. Views from within this LSZ are generally focused on the roadway and associated traffic. Travel is at moderate to high speed, and outward peripheral views are fleeting. The surrounding scenery is variable, but within the study area is dominated by adjacent buildings/structures and trees with limited elevated long-distance views available. However, in several locations, elevated bridges such as the Pell Bridge, Verrazano Bridge, and Mount Hope Bridge offer elevated, long distance views over Narragansett Bay, Mount Hope Bay, and the ocean.



South Fork Wind Farm

New York/Rhode Island, US

Figure 5: Landscape Similarity Zones/Land Cover

Sheet 1 of 35

40-Mile Visual Study Area

Maximum Work Area

Land Cover:

Developed

Exposed Sand/Soil

Agriculture/Open Developed

Forest/Scrub

Emergent Herbaceous Wetland

Open Water

Notes:
1. Basemap: ESRI StreetMap North America, 2008.
2. Land cover derived from 2011 USGS NLCD data.
3. This map was generated in ArcMap on April 18, 2019.
4. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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PHOTO 01

Zone 1: Open Water/Ocean Zone

PHOTO 02

Zone 1: Open Water/Ocean Zone

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South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones

Notes: 1. This figure was generated in InDesign on December 29, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

PHOTO 03

Zone 1: Open Water/Ocean Zone

PHOTO 04

Zone 1: Open Water/Ocean Zone

PHOTO 05

Zone 2: Shoreline Beach

PHOTO 06

Zone 2: Shoreline Beach

Notes: 1. This figure was generated in InDesign on December 29, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

PHOTO 07

Zone 2: Shoreline Beach

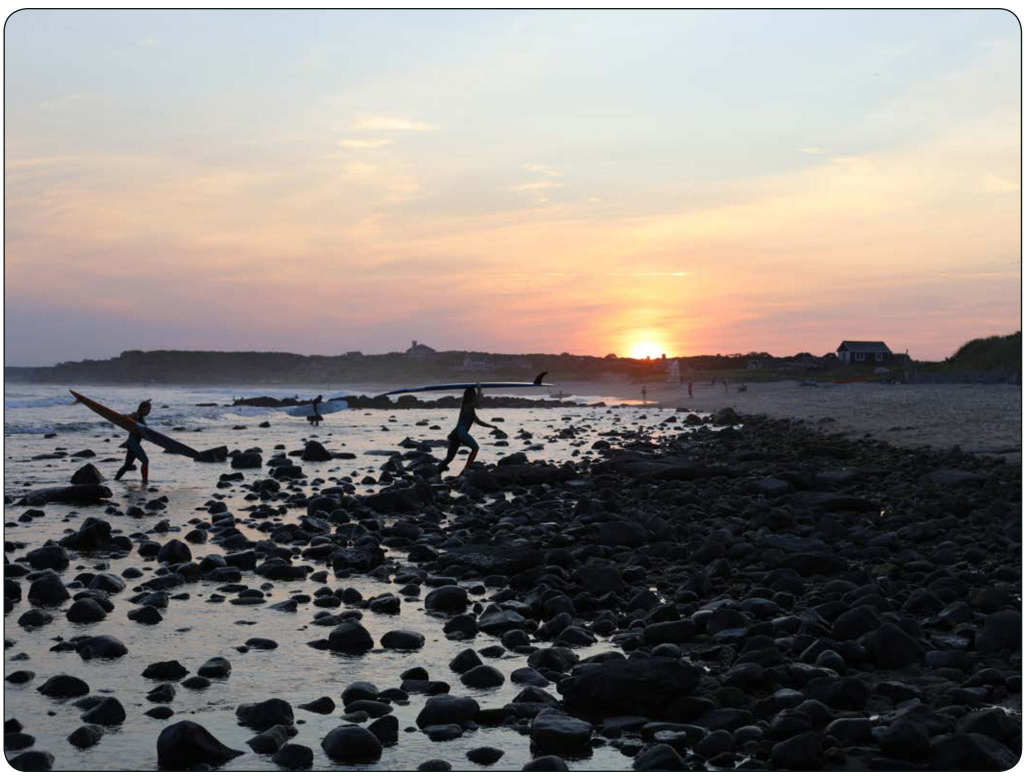

PHOTO 08

Zone 2: Shoreline Beach

Notes: 1. This figure was generated in InDesign on December 29, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

PHOTO 09

Zone 3: Shoreline Bluffs

PHOTO 10

Zone 3: Shoreline Bluffs

Notes: 1. This figure was generated in InDesign on December 29, 2017.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

PHOTO 11

Zone 3: Shoreline Bluffs

PHOTO 12

Zone 3: Shoreline Bluffs

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South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 7 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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PHOTO 13

Zone 4: Developed Waterfront

PHOTO 14

Zone 4: Developed Waterfront

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PHOTO 15

Zone 4: Developed Waterfront

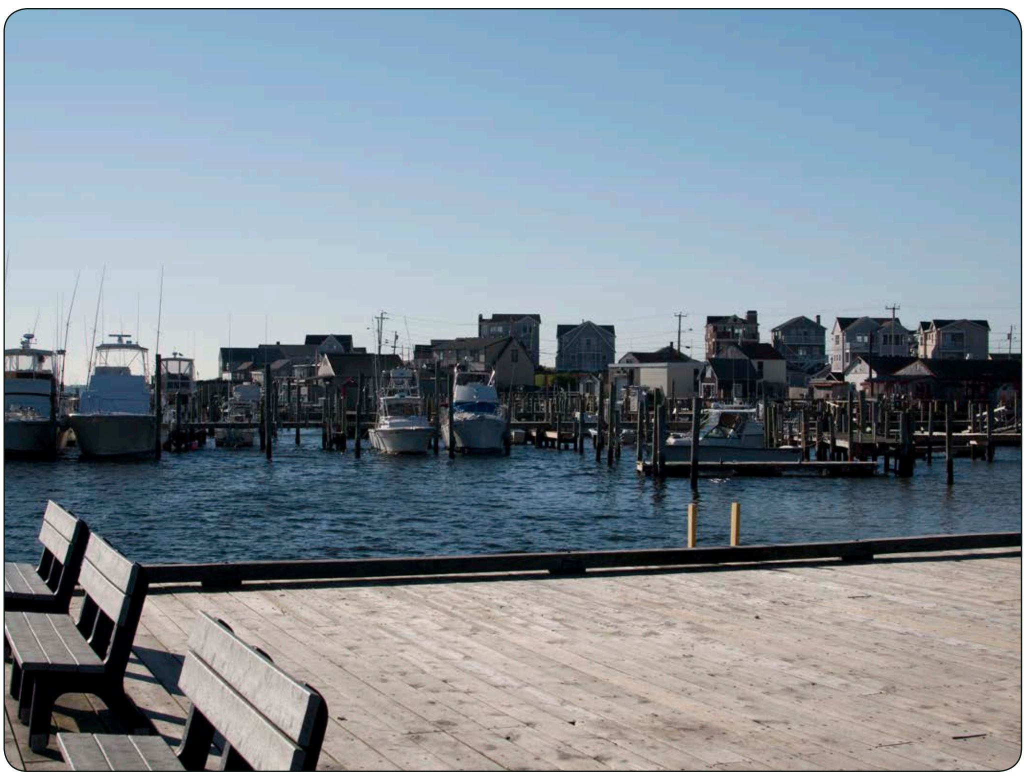

PHOTO 16

Zone 4: Developed Waterfront

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PHOTO 17

Zone 5: Coastal Dunes

PHOTO 18

Zone 5: Coastal Dunes

PHOTO 19

Zone 5: Coastal Dunes

PHOTO 20

Zone 5: Coastal Dunes

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PHOTO 21

Zone 6: Shoreline Residential

PHOTO 22

Zone 6: Shoreline Residential

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 12 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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PHOTO 23

Zone 6: Shoreline Residential

PHOTO 24

Zone 6: Shoreline Residential

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PHOTO 25

Zone 7: Salt Pond/Tidal Marsh

PHOTO 26

Zone 7: Salt Pond/Tidal Marsh

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PHOTO 27

Zone 7: Salt Pond/Tidal Marsh

PHOTO 28

Zone 7: Salt Pond/Tidal Marsh

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PHOTO 29

Zone 8: Coastal Scrub/Scrub Forest

PHOTO 30

Zone 8: Coastal Scrub/Scrub Forest

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PHOTO 31

Zone 8: Coastal Scrub/Scrub Forest

PHOTO 32

Zone 8: Coastal Scrub/Scrub Forest

PHOTO 33

Zone 9: Maintained Recreational Areas

PHOTO 34

Zone 9: Maintained Recreational Areas

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PHOTO 35

Zone 9: Maintained Recreational Areas

PHOTO 36

Zone 9: Maintained Recreational Areas

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 19 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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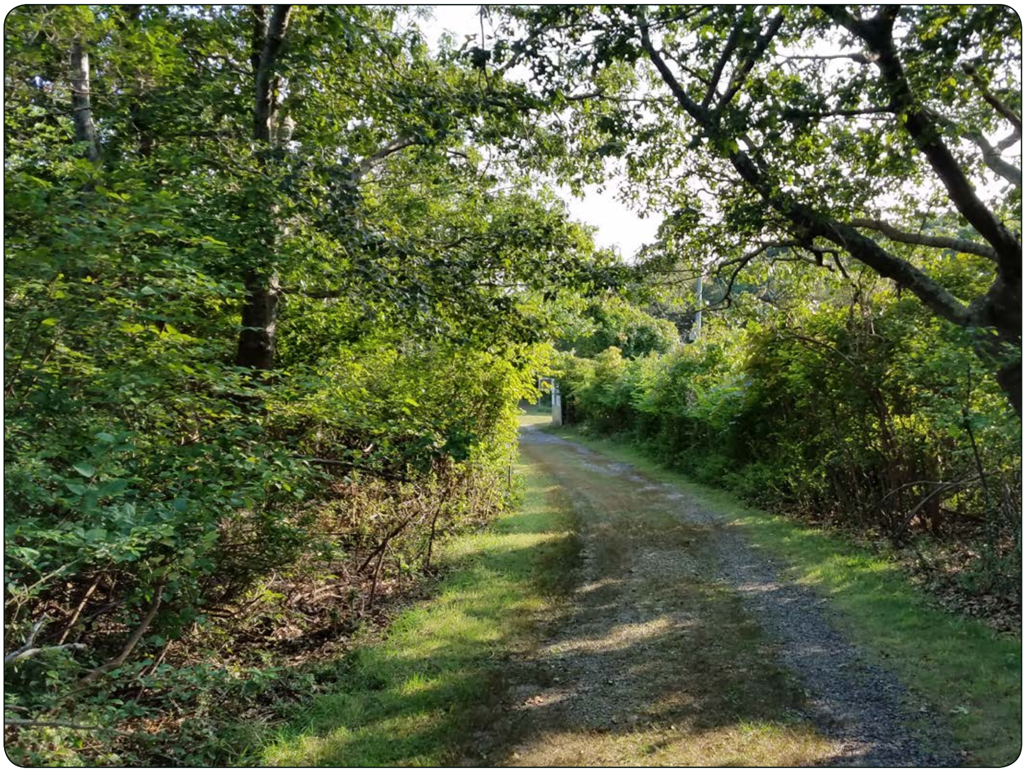

PHOTO 37

Zone 10: Forest Zone

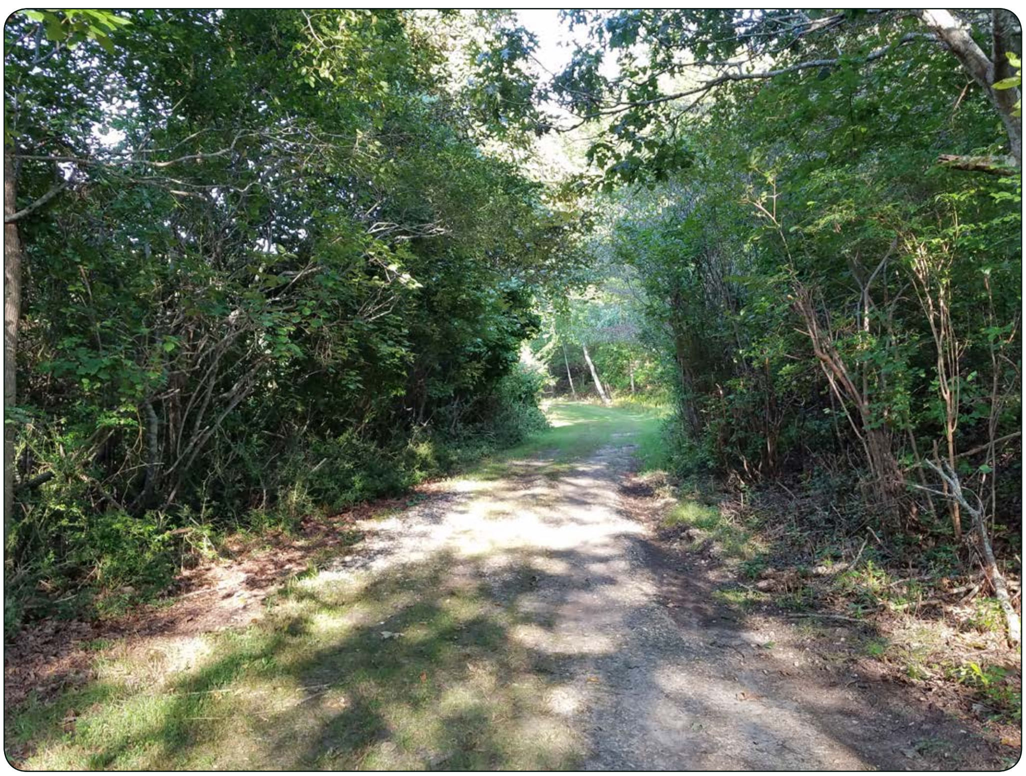

PHOTO 38

Zone 10: Forest Zone

J:\17036 South Fork Wind Farm\Graphics\Figures\VIA\INDD\17036_VIA_Figure 5_Landscape Similarity Zones-Land Cover_Photos.indd

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 20 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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PHOTO 39

Zone 10: Forest Zone

PHOTO 40

Zone 10: Forest Zone

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 21 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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PHOTO 41

Zone 11: Rural Residential Zone

PHOTO 42

Zone 11: Rural Residential Zone

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PHOTO 43

Zone 11: Rural Residential Zone

PHOTO 44

Zone 11: Rural Residential Zone

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PHOTO 45

Zone 12: Suburban Residential Zone

PHOTO 46

Zone 12: Suburban Residential Zone

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PHOTO 47

Zone 12: Suburban Residential Zone

PHOTO 48

Zone 12: Suburban Residential Zone

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PHOTO 49

Zone 13: Village/Town Center Zone

PHOTO 50

Zone 13: Village/Town Center Zone

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PHOTO 51

Zone 13: Village/Town Center Zone

PHOTO 52

Zone 13: Village/Town Center Zone

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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PHOTO 53

Zone 14: Commercial Zone

PHOTO 54

Zone 14: Commercial Zone

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PHOTO 55

Zone 14: Commercial Zone

PHOTO 56

Zone 14: Commercial Zone

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PHOTO 57

Zone 15: Agricultural/Open Field Zone

PHOTO 58

Zone 15: Agricultural/Open Field Zone

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PHOTO 59

Zone 15: Agricultural/Open Field Zone

PHOTO 60

Zone 15: Agricultural/Open Field Zone

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PHOTO 61

Zone 16: Inland Lakes and Ponds

PHOTO 62

Zone 16: Inland Lakes and Ponds

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PHOTO 63

Zone 16: Inland Lakes and Ponds

PHOTO 64

Zone 16: Inland Lakes and Ponds

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PHOTO 65

Zone 17: Highway Transportation Zone

PHOTO 66

Zone 17: Highway Transportation Zone

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PHOTO 67

Zone 17: Highway Transportation Zone

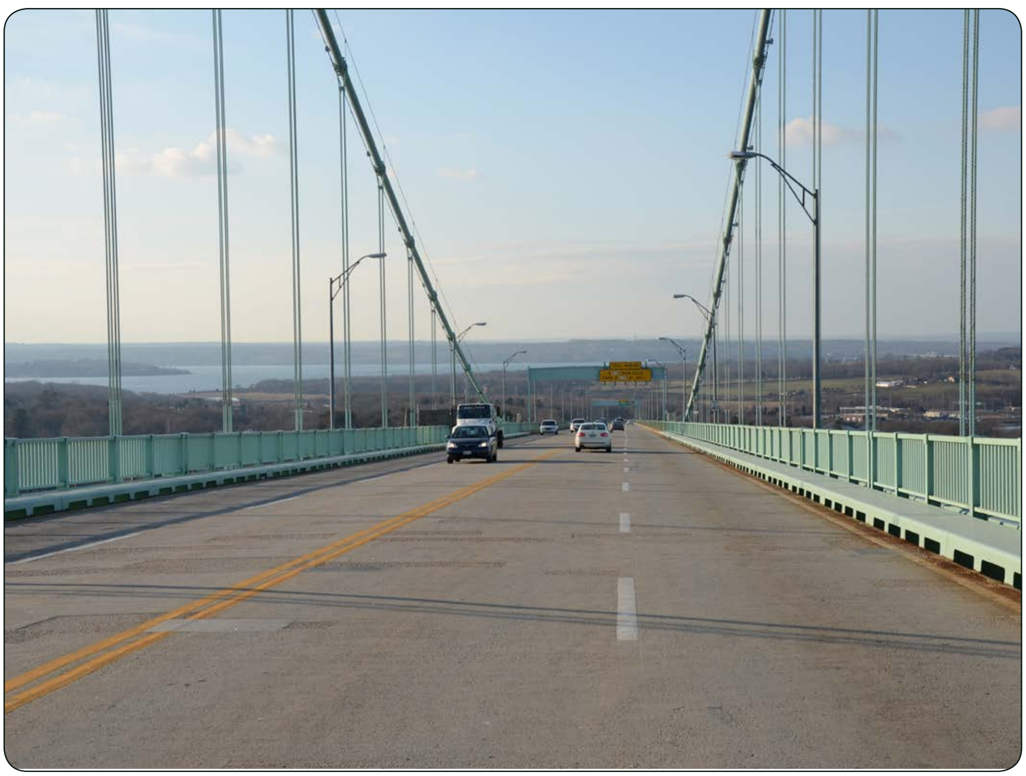

PHOTO 68

Zone 17: Highway Transportation Zone

J:\17036 South Fork Wind Farm\Graphics\Figures\VIA\INDD\17036_VIA_Figure 5_Landscape Similarity Zones-Land Cover_Photos.indd

South Fork Wind Farm
New York/Rhode Island, US

Figure 5: Landscape Similarity Zones
Sheet 35 of 35

Notes: 1. This figure was generated in InDesign on December 29, 2017.
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3.5 Viewer/User Groups

Four broad categories of viewer/user groups were identified within the visual study area and PAPE. These include the following:

3.5.1 Local Residents

Local residents include those who live, work, and travel for their daily business within the study area. They generally view the landscape from their yards, homes, local roads, and places of employment. Residents are concentrated in and around the various village and shoreline residential areas but can be found throughout the visual study area. Except when involved in local travel, residents are likely to be stationary and have frequent or prolonged views of the landscape. Local residents may view the landscape from ground level or elevated viewpoints (typically upper floors/stories of homes). Residents of the various islands within the study area also experience the landscape from the water, since visits to the mainland for goods and services often require travel by ferry. Residents' sensitivity to visual quality is variable and may be tempered by the aesthetic character/setting of their neighborhood or workplace. Those living in more densely settled areas with views focused on their neighborhood street or downtown centers may be less sensitive to landscape changes than those with a view of undeveloped land or the ocean. Residents living on the coast with views toward the water may have an increased level of sensitivity to changes in the seascape. It is generally assumed, however, that all residents are familiar with the surrounding landscape and may be sensitive to changes in their views.

3.5.2 Through Travelers

Travelers passing through the area view the landscape from motor vehicles on their way to other destinations. Through travelers are typically moving, have a relatively narrow field of view oriented along the axis of the roadway, and are destination-oriented. Drivers on major roads in the area (e.g., State Route 138 and U.S. Route 1) will generally be focused on the road and traffic conditions but will have the opportunity to observe roadside scenery. Passengers in moving vehicles will have greater opportunities for prolonged off-road views than drivers, and therefore may be more aware of the quality of surrounding scenery. However, through travelers who are not residents of the area or vacationers are unlikely to be particularly sensitive to visual change. Occasionally, through travelers may also take advantage of the ferry network to go between the islands and the mainland. These viewers are likely to have a higher sensitivity to visual change since the viewer is not driving and can be fully engaged with the scenery and surroundings.

3.5.3 Tourists/Vacationers

This viewer group consists of out-of-town vacationers and seasonal/weekend residents who come to the area for the purpose of experiencing its scenic and recreational resources. These viewers include sightseers, families on vacation, and weekend/seasonal homeowners. They may view the landscape on their way to a destination (i.e., on a roadway or ferry) or from the destination itself. Some, such as weekend and seasonal home owners, may spend extended time in the area. Tourists and vacationers in the area are generally involved in outdoor recreational activities at parks, trails, and beaches, and in natural settings such as forests and the ocean. Typical activities include bicycling, swimming, recreational boating, fishing, and more passive recreational activities (e.g., picnicking, beach-combing, or walking). Visual quality/scenery may or may not be an important part of the recreational experience for these viewers. However, recreational users are generally considered to have relatively high sensitivity to aesthetic quality and landscape character. They will often have continuous views of landscape features over relatively long periods of time, and scenic quality generally enhances the quality of any outdoor recreational activity. Passive recreational activities generally do not require as much concentration as more active recreational activities, and they tend to be more focused on the enjoyment of scenery. Those engaged in passive recreational activities therefore may be particularly sensitive to visual change. Vacation homeowners, tourists, and recreational users will be concentrated in and around the ocean shoreline, but also use interior portions of the islands and public lands on the mainland throughout the study area.

3.5.4 Fishing Community

The fishing community is represented by recreation and commercial fisheries who work in and experience the coastal and open ocean environment on a regular basis. The commercial fishing community typically engages in focused activity associated with various methods of catching fish and shellfish, including setting gear such as longlines, trawl nets, and pots or traps. Inshore fishing is restricted to the bays, coves, and waters along the coast, while offshore fishing occurs many miles offshore along the outer continental shelf, including the Project lease area. The recreational fishing community is active in both inshore and offshore settings. Despite the focused activity associated with harvesting seafood, the fishing community is particularly sensitive to changes to the visual seascape since there is often nothing in their immediate environment except for open ocean and horizon. The fishing community can have prolonged visual exposure to the seascape and coastal environment, in which fleets spend hours to days harvesting fish. This is also one of the only user groups that would have foreground and middle ground views of the project, whereas the other user groups are largely restricted to seldom seen views.

3.6 Visually Sensitive Resources

The identification of visually sensitive resources is an important step in determining locations which may be particularly sensitive to visual change. These resources have generally been identified by national, state, or local governments, organizations, and/or Native American tribes as important sites which are afforded some level of recognition or protection. Avoiding or minimizing impacts to these resources is an important consideration in the planning stages of a project. For the VIA, a comprehensive inventory of visually sensitive resources was prepared for the entire 40-mile radius visual study area. A Geographic Information System (GIS) analysis was then conducted to determine how many of these resources occur within the Project PAPE and would require further evaluation. Appendix A lists the visually sensitive resources that occur within the PAPE (determined by the lidar viewshed analysis). A summary of the results of this GIS analysis is presented in Table 1, below.

Table 3.6-1. Visually Sensitive Resources within the PAPE

Type of Resource	Occurrences of Resource Within PAPE			
	NY	**RI**	**MA**	**Total**
National Historic Landmarks	1	6	0	**7**
Properties Listed on or Determined Eligible for the National or State Registers of Historic Places	2	53	9	**64**
National Natural Landmarks	0	0	1	**1**
State Scenic Areas	2	40	3	**45**
State Scenic Overlooks	0	0	2	**2**
National Wildlife Refuges	0	5	1	**6**
State Wildlife Management Areas	0	2	6	**8**
State Parks	4	4	5	**13**
State Nature and Historic Preserve Areas	0	1	0	**1**
State Beaches	0	7	0	**7**
Highways Designated or Eligible as Scenic	0	2	0	**2**
National Recreation Trails	0	1	0	**1**
State Bike Routes	1	0	0	**1**
State Fishing and Boating Access	0	16	2	**18**
State Conservation Areas (one conservation area occurs in RI and MA)	1	36	1	**36**
Lighthouses (not NRHP-Listed or State Historic-Listed)	0	2	25	**27**
Public Beaches	3	19	56	**78**
Ferry Routes (Occur across multiple states)	2	4	6	**12**
Seaports (Commercial Maritime Facilities)	0	2	0	**2**
Total	**16**	**200**	**116**	**332**

The locations of these visually sensitive resources are illustrated in Figure 6, at the conclusion of this section. Brief descriptions of the visually sensitive resources that occur with the PAPE are presented below:

Historic Sites and National Historic Landmarks

Authorized by the National Historic Preservation Act of 1966 (NHPA), the National Register of Historic Places (NRHP) is maintained by the National Park Service (NPS) as part of a national program to coordinate efforts to identify, evaluate, and protect historic and archeological resources. According to the NPS website, the NRHP is the official list of designated historic places worthy of preservation. Within the PAPE, EDR identified 64 historic districts and individual properties listed or eligible for the NRHP and seven properties or districts listed as National Historic Landmarks (NHL). These properties include historic districts, homes, lighthouses, churches, and government buildings.

The State Registers of Historic Places (SRHP) for Massachusetts, New York, and Rhode Island are maintained by their respective State Historic Preservation Offices (SHPOs) and include resources that these states have determined are worthy of preservation, but which have either not been determined eligible for inclusion or have not been evaluated for listing in the NRHP. A Historic Resources Visual Effects Analysis (HRVEA) prepared for the SFWF (EDR, 2019) contains additional details on S/NRHP and NHL properties and districts. The HRVEA includes analyses of historic design elements, landscape features, and potential associations of individual historic properties with maritime settings that are specific to the requirements of the National Historic Preservation Act. Additionally, the HRVEA discusses sites and districts in Rhode Island and Massachusetts that have been inventoried by the Rhode Island Historical Preservation & Heritage Commission (RIHPHC) and the Massachusetts Historical Commission (MHC) but are not listed on the SRHPs; these resources are not included in this VIA.

National Natural Landmarks

The National Natural Landmarks (NNL) Program identifies sites that contain outstanding biological and geological resources and encourages the conservation of these areas (NPS, 2017c). Gay Head Cliffs is the only designated NNL within the PAPE and is located on Martha's Vineyard, approximately 20.2 miles from the Project at its nearest point.

Designated Scenic Areas

The PAPE includes 45 state-designated scenic areas and include 40 in Rhode Island (14 of which occur on Block Island). The Rhode Island scenic areas consist of a range of landscapes, from shoreline beaches and bluffs to village areas, coastal scrub, and agricultural fields. All of these areas have been designated as noteworthy or distinctive scenic landscapes or views by the Rhode Island Department of Environmental Management (RIDEM). In Massachusetts, three scenic areas were designated by the Massachusetts Department of Conservation & Recreation (MASSDCR) and

The Nature Conservancy (TNC) during their 1982 Landscape Inventory Project (Commonwealth of Massachusetts, 2017b). Scenic areas within the PAPE in Massachusetts are all in coastal areas, including the Elizabeth Islands and Martha's Vineyard. Two New York State-designated Scenic Areas of Statewide Significance (SASS) occur within the PAPE near Montauk Point in East Hampton, at Montauk Point and Hither Hills. These areas consist of a mix of steep coastal bluffs, forested hills, tidal ponds and salt marshes, and pasture lands. All of the designated scenic areas within the PAPE are over 19 miles from the proposed Project.

National Wildlife Refuges

The National Wildlife Refuge (NWR) System, managed by the U.S. Fish and Wildlife Service (USFWS), is a system of public lands and waters set aside to conserve the nation's fish, wildlife, and plants (USFWS, 2017a). Six NWRs occur within the PAPE. Three of these resources are located on the Rhode Island mainland, and consist of the Ninigret NWR, the Trustom Pond NWR, and the John H. Chafee NWR. The Sachuest Point NWR is located on Aquidneck Island, Rhode Island, and the Block Island NWR is located on the northern portion of Block Island. The only NWR in Massachusetts is Nomans Land Island, a former military training site. Nomans Land Island is closed to the public due to potential safety risks from unexploded ordnance (UXO), as well as a desire to protect the undisturbed natural island habitat (USFWS, 2017c). Nomans Land Island is the closest NWR to the Project, approximately 15.9 miles from the nearest proposed turbine.

State Wildlife Management Areas

Eight State Wildlife Management Areas (WMAs) occur within the PAPE: two in Rhode Island and six in Massachusetts. The closest WMA to the Project is the Gosnold WMA, located on Cuttyhunk Island, approximately 22.0 miles from the nearest proposed turbine.

State Nature Preserves

One State Nature Preserve, the John H. Chafee State Nature Preserve, occurs within the PAPE. The nature preserve is located in Washington County, Rhode Island, approximately 32.4 miles from the nearest proposed turbine. The Chafee Nature Preserve is a conservation easement between the RIDEM and the Town of North Kingstown. The property is open to the public and provides agricultural, educational, and scenic values, as well as natural and historical resources (RIDEM, 2017a).

State Parks

Of the 13 state parks and reservations that occur within the PAPE, five are located in Massachusetts, and five are located in New York, and four are located in Rhode Island. Examples of state parks within each state are described below:

Fishermen's Memorial State Park: This Rhode Island State Park is located near Point Judith in the Town of Narragansett, approximately 24.6 miles from the nearest proposed turbine. The park is just over 90 acres in size, and facilities include recreational vehicle (RV) and tent campsites, picnic areas, a playground, and basketball and tennis courts (RIDEM, 2017b).

Brenton Point State Park: Approximately 25.4 miles north of the nearest proposed turbine, this Rhode Island State Park is located midway along Ocean Drive in the Town of Newport on Aquidneck Island, where Narragansett Bay meets the Atlantic Ocean. The park is on the grounds of one of Newport's largest estates and includes scenic views along the Atlantic coast. It provides opportunities for picnicking, hiking, fishing, and scenic views of the Atlantic Ocean (RIDEM, 2017b).

Beavertail State Park: Located at the tip of the Town of Jamestown on Conanicut Island, Rhode Island, this park is approximately 26.3 miles from the nearest proposed turbine. The park includes overlooks and trails along the rocky coastline. In addition to sightseeing, the park also offers saltwater fishing, hiking trails, and a naturalist program (RIDEM, 2017b).

Montauk Point State Park: This New York State Park is located on the eastern tip of the south shore of Long Island, in the Town of East Hampton, approximately 34.1 miles from the nearest proposed turbine. The park offers panoramic views of Block Island Sound where it meets the Atlantic Ocean. Block Island, and the BIWF, are visible at a distance of approximately 16 miles. Activities offered at the park include fishing, hiking, skiing, hunting, surfing, and cross-country skiing (New York State Office of Parks, Recreation, and Historic Preservation [NYSOPRHP], 2017).

South Beach State Park: This Massachusetts State Park is located on the south shore of Martha's Vineyard in the Town of Edgartown, Massachusetts, approximately 32.3 miles from the nearest proposed turbine. The park includes approximately one mile of white sand beach, with wide, rolling dunes separating the main road from the beach. The area is largely undeveloped, and the beach provides opportunities for recreational activities such as sun-bathing, hiking, fishing, and swimming.

<u>State Beaches</u>

Seven state beaches occur within the PAPE, all of which occur along the Rhode Island coast. These Rhode Island State Beaches are heavily used bathing beaches that typically include large parking areas, bathhouses, pavilions, and concession buildings. All have views towards the Project at distances ranging from approximately 24 miles to 40 miles. The beaches consist of Charlestown Breachway State Beach, East Beach State Beach, East Matunuck State Beach, Misquamicut State Beach, Roger Wheeler State Beach, Salty Brine State Beach, and Scarborough State Beach (RIDEM, 2017b).

State Scenic Overlooks

Two Rhode Island State Scenic Overlooks occur within the PAPE, each located over 26 miles from the nearest proposed turbine. These scenic overlooks consist of the Boston Neck Overlook in the Town of Narragansett and Purgatory Chasm in the Town of Middletown (RIDOT, 2017a).

State Scenic Byways

Portions of two State Scenic Byways run through the PAPE, all of which are located in Rhode Island. These consist of Paradise Avenue (and associated roads) in the Town of Middletown, which follows the waterfront along Sachuest Bay and the Sakonnet River and includes portions of Hanging Rock Road, Indian Avenue, Green End Avenue, and Peckham Avenue. Rhode Island Route 1 Scenic Byway in the Town of Charleston parallels the coastline and offers intermittent views of salt marsh ponds and the Atlantic Ocean (RIDOT, 2017a).

National Recreation Trails

One National Recreation Trail, the Cliff Walk, occurs within the PAPE along the eastern shore of Newport, Rhode Island. The trail is also located within the NRHP-listed Ochre Point Cliffs Historic District. It runs 3.5 miles, starting at the western end of Easton's Beach (also known as First Beach), proceeding along Narragansett Bay, and ending at the east end of Bailey's Beach (also known as Reject's Beach). The trail offers views of the Atlantic Ocean and passes historic mansions, wildflowers, wildlife, and dramatic rocky shorelines (Cliff Walk, 2015). At its closest point, the Cliff Walk is 24.8 miles from the nearest proposed turbine.

State Bike Routes

One state-designated bike route occurs within the PAPE. New York State Bike Route 27 is a 30-mile on-road bike route, 7 miles of which are included within the visual study area. Portions of this bike path intersect the PAPE at Montauk Point State Park. The route runs along the south fork of eastern Long Island from Southampton Village to the historic Montauk Point Lighthouse (NYSDOT, 2017a). At its closest point, Bike Route 27 is 35.1 miles from the nearest proposed turbines.

State Fishing and Boating Access

Within the PAPE, there are 18 state-owned and/or -managed fishing and boating access sites. Of these, 16 are in Rhode Island (including five on Block Island) and one each in Edgartown and New Bedford, Massachusetts. The majority of these sites provide access to the bays and sounds of the Atlantic Ocean, and all are at least 19.6 miles from the proposed Project.

Conservation Areas

The Rhode Island portion of the PAPE includes 36 state conservation easements, recreation easements, forestry easements, and fee title conservation areas. One conservation area (Goosewing Beach) also extends from the Town of Little Compton, Rhode Island to Westport, Massachusetts. The majority of these areas are protected by the Audubon Society or TNC. Development/use of these areas is limited in order to “protect the property’s identified unique features and natural or scenic condition” (Ruggiero, 2009). One additional conservation area occurs on Long Island.

Lighthouses

There are 27 lighthouses that are not designated NRHP historic sites, including two in Rhode Island and 25 in Massachusetts. Buzzards Bay Entrance Lighthouse is the lighthouse located closest to the Project, at approximately 20.1 miles from the nearest proposed turbine.

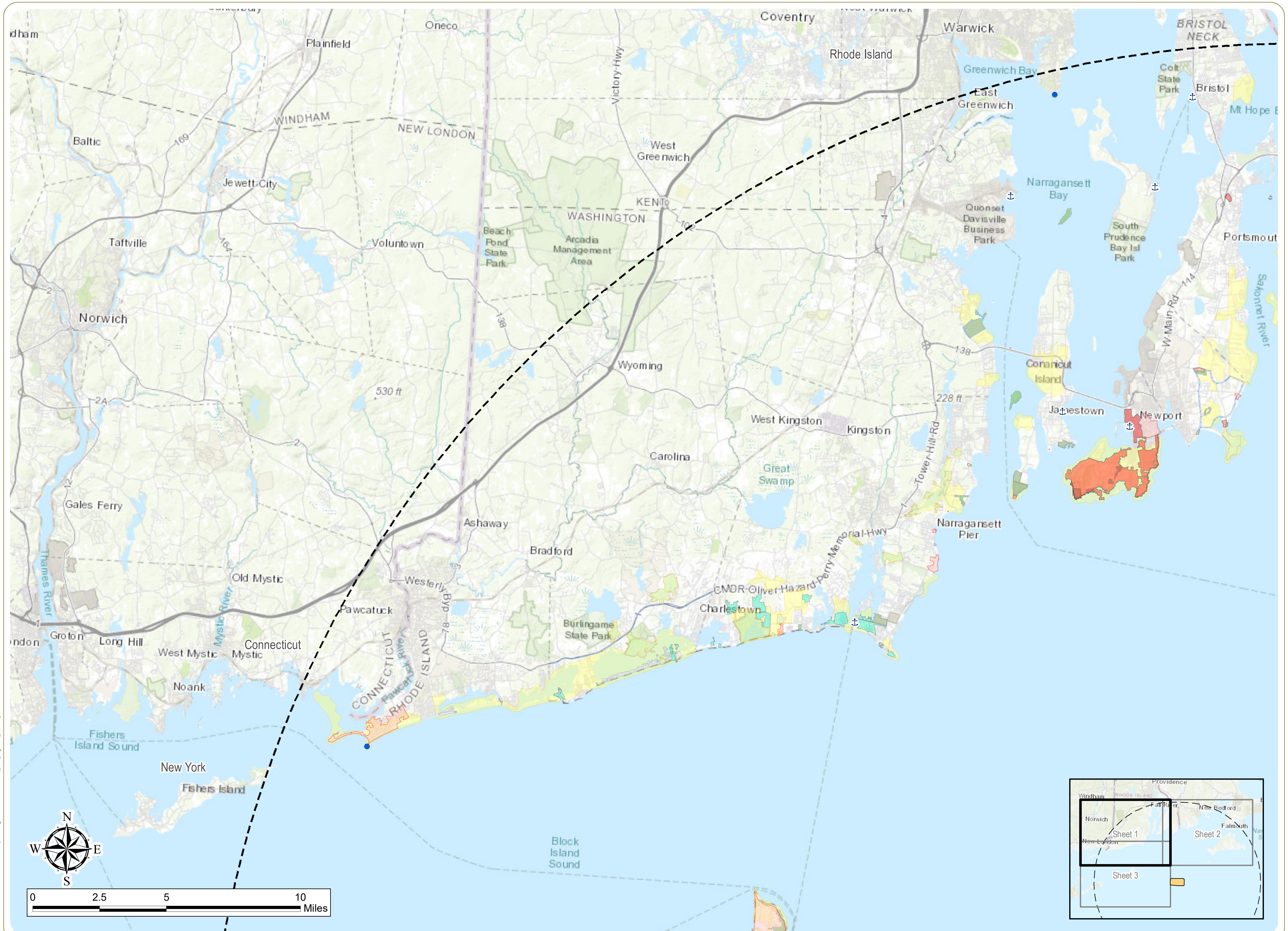
Public Beaches

There are 78 public beaches within the PAPE (in addition to the previously mentioned State Beaches). A total of 19 public beaches are located in Rhode Island, 56 in Massachusetts, and Three on Long Island in New York. The nearest of these beaches (Ballard’s Beach on Block Island, Rhode Island) is approximately 19.6 miles from the proposed Project.

Ferry Routes

Within the PAPE, there are 12 ferry routes and four ferry terminals. These terminals and routes accommodate multiple ferries departing from and going to Montauk, Block Island, Aquidneck Island, Conanicut Island, mainland Rhode Island and Massachusetts, and Martha’s Vineyard.. The ferry that comes closest to the proposed Project is the Newport - Block Island Ferry, whose route comes within approximately 19.5 miles of the nearest proposed turbine.

Although not formally inventoried, it should be noted that the PAPE also includes other public resources that could be considered regionally or locally significant or sensitive due to the type or intensity of land use they receive. These include local park and recreational facilities, campgrounds, golf courses, local nature preserves, tourist attractions, fish and game clubs, schools, churches, cemeteries, areas of concentrated human settlement, and heavily traveled roads. Ocean bays and sounds within the PAPE could also be considered sensitive visual resources. These areas provide recreational opportunities, such as boating, fishing, kayaking, cruising, swimming, and wildlife viewing, and historic villages along these bays offer waterfront dining, shopping, and other tourist attractions and accommodations.



South Fork Wind Farm

New York/Rhode Island, US

Figure 6: Visually Sensitive Public Resources

Sheet 1 of 3

- Seaport
- Lighthouse
- National Historic Landmark
- National Register of Historic Places
- National Natural Landmark
- Scenic Area
- Scenic Overlook
- National Wildlife Refuge
- State Wildlife Management Area
- State Parks
- State Nature Preserve
- State Beach
- Scenic Road
- National Recreation Trail
- State Bike Route
- State Fishing and Boating Access
- State Conservation Areas
- 40-Mile Visual Study Area

Notes:

1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on April 23, 2019.
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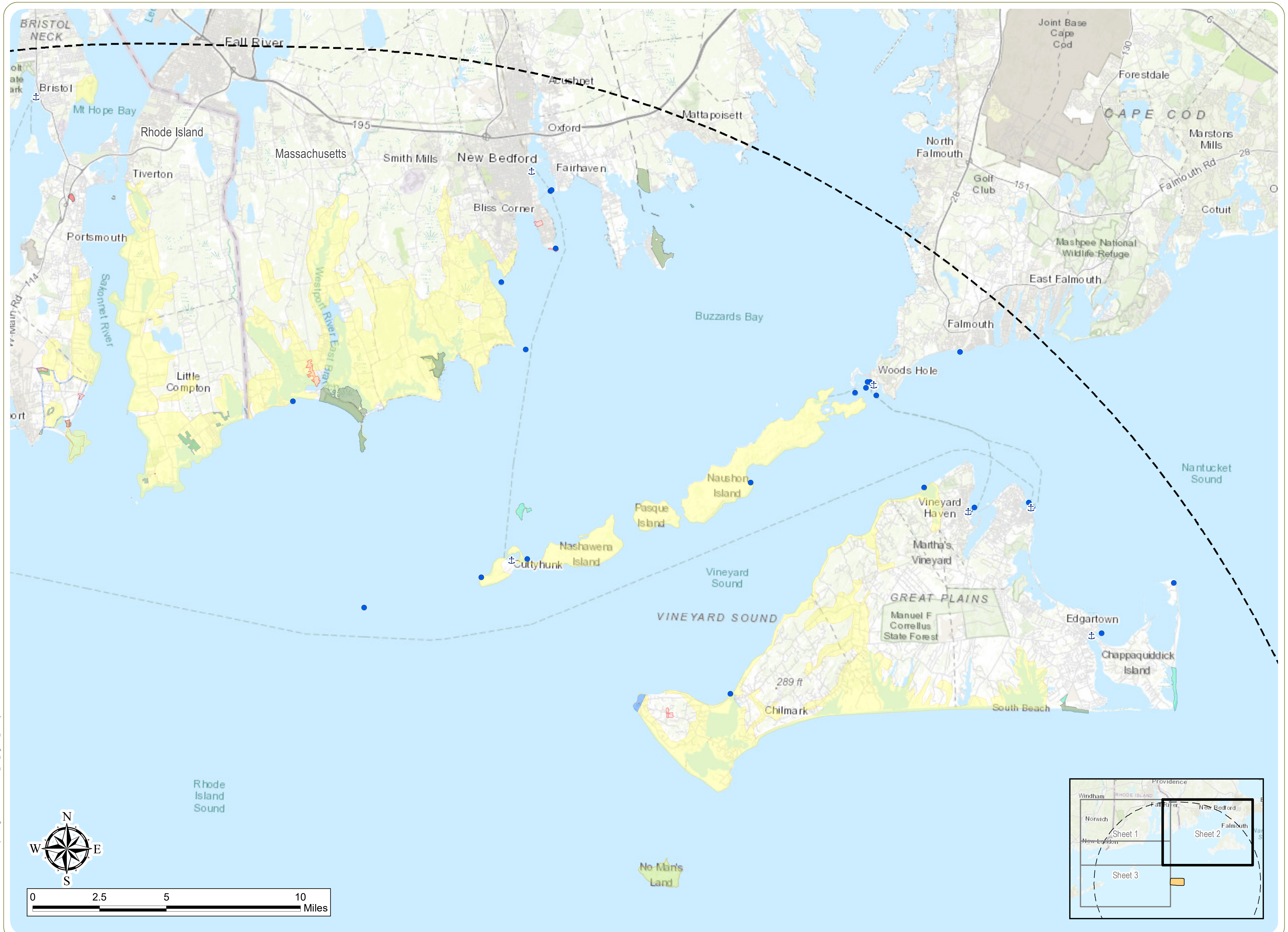

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South Fork Wind Farm

New York/Rhode Island, US

Figure 6: Visually Sensitive Public Resources

Sheet 2 of 3

- Seaport
- Lighthouse
- National Historic Landmark
- National Register of Historic Places
- National Natural Landmark
- Scenic Area
- Scenic Overlook
- National Wildlife Refuge
- State Wildlife Management Area
- State Parks
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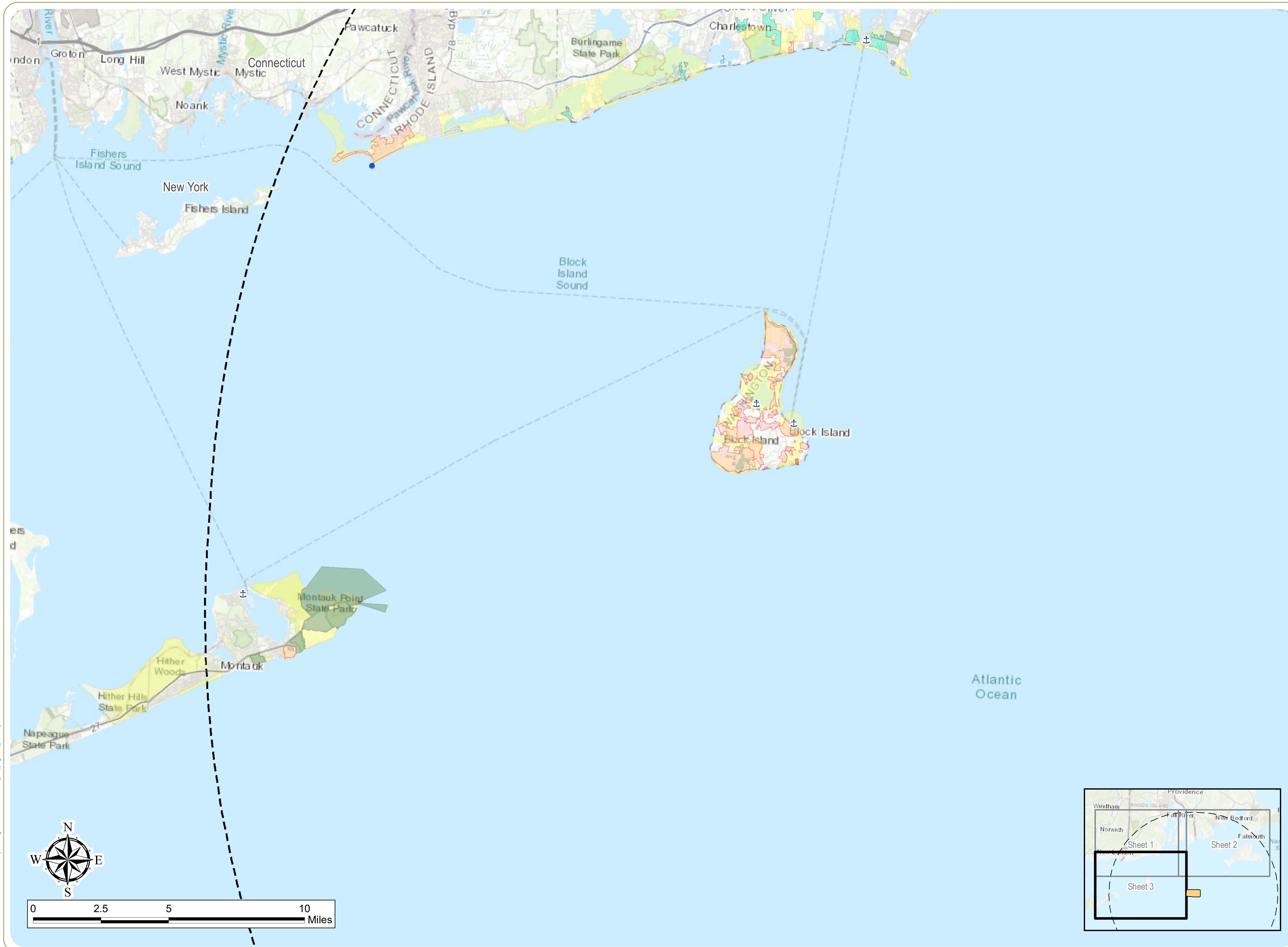

South Fork Wind Farm

New York/Rhode Island, US

Figure 6: Visually Sensitive Public Resources

Sheet 3 of 3

- Seaport
- Lighthouse
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- National Natural Landmark
- Scenic Area
- Scenic Overlook
- National Wildlife Refuge
- State Wildlife Management Area
- State Parks
- State Nature Preserve
- State Beach
- Scenic Road
- National Recreation Trail
- State Bike Route
- State Fishing and Boating Access
- State Conservation Areas
- 40-Mile Visual Study Area

Notes:
1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on April 23, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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J:\17036 South Fork Wind Farm\Graphics\Figures\VIA\MXD\17036_VIA_Figure 6_Visually Sensitive Public Resources.mxd

4.0 Visual Impact Assessment Methodology

BOEM does not have a prescribed VIA methodology for projects under its jurisdiction. However, the VIA procedures used for this study are consistent with methodologies developed by various state and federal agencies, including the BLM (1980), USDA National Forest Service (1974), USDOT Federal Highway Administration (1981), the USACE (Smardon et al., 1988) and the New York State Department of Environmental Conservation (not dated). Methodologies employed to inventory visual resources, analyze the Project's potential viewshed (i.e., the PAPE), and prepare visual simulations are also generally consistent with European and Canadian guidance developed specifically for wind farms (University of New Castle, 2002; Enviros Consulting, 2005; Horner & Maclennan and Envision, 2006, Ministry of Forests, Lands, and Natural Resource Operations, 2016). The specific techniques used to assess potential Project visibility and visual impacts are described in the following section.

4.1 Potential Project Visibility

An analysis of potential Project visibility was undertaken to identify those locations within the visual study area where it may be possible to view the proposed wind turbines from ground-level vantage points. This analysis included identifying potentially visible areas on viewshed maps, preparing technical cross sections, and verifying line of sight conditions in the field. The methodology employed for each of these assessment techniques is described below.

4.1.1 <u>Viewshed Analysis</u>

As mentioned previously, a viewshed analysis was conducted to determine the possible extent of the Project's visibility (the PAPE) within the visual study area utilizing USGS lidar data collected between 2010 and 2014 for Long Island, Rhode Island, Massachusetts, and Connecticut. Using the lidar data, a highly-detailed digital surface model (DSM) of the study area was created at a horizontal resolution of four meters (Image 4.4-1). The DSM includes the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. Additionally, a digital terrain model (DTM) was created, representing bare earth conditions. The DTM was created at the same resolution as the DSM to allow direct comparison of ground elevation with the elevation of surface features (including the ground, buildings, and vegetation) in the DSM. To account for some small lidar data gaps, USGS 10-meter resolution digital elevation model (DEM) and NLCD data were used to complete the DSM lidar model. The DSM was then used as a base layer for the viewshed analysis. The analysis of potential Project visibility was based on 15 points representing the proposed wind turbine locations (using latitude and longitude coordinates provided by DWSF), an assumed maximum blade tip height of 840 feet (see Figure 3 - Sheet 1), and an assumed viewer height of 5.5 feet. Additionally, a separate viewshed analysis was completed to assess the visibility of the aviation obstruction lights at a height of 478 feet (see Figure 3 – Sheet 1). The viewshed analysis was conducted using ESRI ArcGIS® software with the Spatial Analyst extension and considers the curvature of the earth.

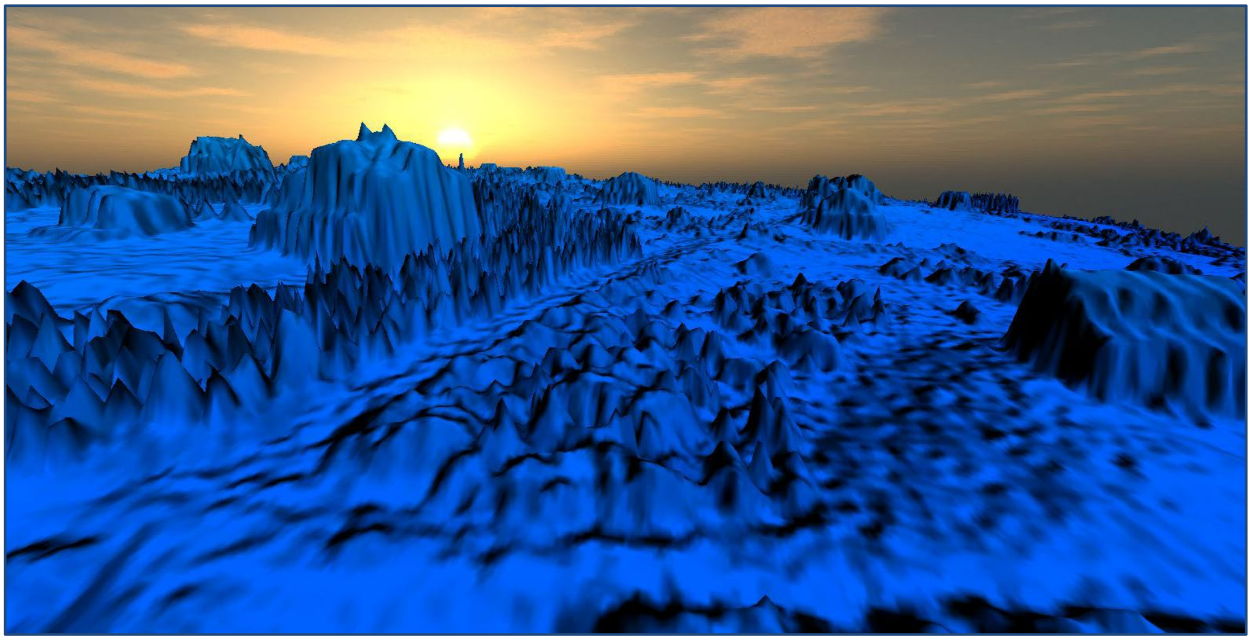


Image 4.4-1 – Demonstration of processed lidar data representation of trees and buildings shown as a grid.

Once the viewshed analysis was completed, a conditional statement was used to set Project visibility to zero in locations where the DSM elevation exceeded the bare earth (DTM) elevation by 6 feet or more. This was done because: 1) without this adjustment in locations where trees or structures are present in the DSM the viewshed would reflect visibility from the tree tops or building roofs, which is not the intent of this analysis; and 2) ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Project.

Because it accounts for the screening provided by buildings/structures and trees, this lidar-based viewshed analysis results in a more accurate and precise representation of probable Project visibility than the standard industry practice. However, because it is possible that very small landscape features may go undetected in the DSM, and/or may have changed since the lidar data were collected, the viewshed is not a definitive assessment of potential Project visibility. In addition, certain characteristics of the wind turbines that may influence visibility (color, low profile, distance from viewer, etc.) are not into taken consideration in the analyses. Therefore, being located within the DSM viewshed does not necessarily equate to actual Project visibility.

4.1.2 Cross Section Analysis

Cross section analysis is typically used to confirm visibility or demonstrate screening from a particular site or resource located within the study area. However, due to the general lack of screening elements at shoreline viewpoints, the large size of the visual study area, and the long distances from land to the Project, cross sections were used in this study to quantify the degree of turbine screening provided by curvature of the earth. At distances beyond 15 miles, curvature of the earth becomes a significant factor in screening views of a turbine, as shown above in Image 3.3-1.

In this study, line of sight cross sections were created from each of the KOPs selected for the creation of visual simulations (see Section 4.2.3). In order to create the cross sections, GIS software was used to sample lidar elevations along a line, which was drawn from each KOP to the nearest and the most distant proposed turbine. The GIS application utilizes an accurate geographic model of the earth to determine how much of the turbine would occur behind the visible horizon, while also considering the effects of refraction under typical clear visibility conditions. Refraction is the bending of light rays resulting from temperature differences in the atmosphere (especially apparent over water), allowing the viewer to receive light from behind the physical limit of the visible horizon. The line of sight cross sections also consider a standard refraction value. Refraction refers to the bending of light rays which could allow visibility beyond the physical limit of the horizon created by curvature of the earth. To account for this, the line of sight model assumes a curve equal to approximately 1/7 of the curve of the earth rather than a straight line to the horizon (Young, 2016). By including both the curvature of the earth and refraction in the line-of-sight calculation, the results accurately reflect how much of each turbine would typically be screened considering the location and elevation of the viewer under clear viewing conditions.

4.1.3 Identification of KOPs

In developing the Wind Energy Areas (WEAs) on the OCS, BOEM commissioned a number of studies to evaluate the potential environmental impacts associated with offshore wind development (BOEM, 2012a and 2012b). These studies identified visually and culturally sensitive sites with views toward the offshore lease areas along the entire Atlantic coast, including all of the coastline that falls within the visual study area for the SFWF. Based on the results of these studies, EDR identified specific viewpoints prior to, and during, the field verification process as candidate KOPs for the development of visual simulations. In addition, DWSF, EDR, and the Public Archaeology Laboratory, Inc. (PAL) had multiple discussions with various agencies and stakeholders, including the Wampanoag Tribe of Gay Head (Aquinnah), the Shinnecock Indian Nation, the Mohegan Tribe of Indians in Connecticut, the Mashantucket Pequot Tribal Nation, the Mashpee Wampanoag Tribe, the MHC, the NYOPRHP, and the Massachusetts Department of Environmental

Protection (MASSDEP), regarding the selection of KOPs of visual and cultural importance. The candidate KOPs identified through this process are listed in Appendix B.

4.1.4 Field Verification

Potential visibility of the proposed Project was evaluated in the field between June 2017 and January 2018. The purpose of this exercise was to verify the existence of direct lines of sight to proposed turbine locations from candidate KOPs and other sites with potential Project visibility, as indicated by viewshed analysis. Field review was also used to obtain photographs from selected KOPs for subsequent use in the development of visual simulations. Fieldwork was completed under a range of sky conditions (overcast to clear), but visibility was recorded as being 10 miles or greater during all field visits.

At each of the KOPs, EDR's field crew selected an appropriate photo location based on the availability of an open view toward the Project site, appropriate composition, lighting, and, if possible, the inclusion of distinctive foreground features that allow recognition of the viewpoint by the public. In some cases, photos were taken from multiple viewpoints at a single KOP to cover a range of compositions and perspectives. At each viewpoint, a series of overlapping photos of the entire visible seascape was obtained in five-degree increments. A tripod-mounted, full frame digital single lens reflex (SLR) camera with a resolution of 30.4 megapixels and a 50-millimeter lens was used for all photos. This focal length is the standard used in VIAs because it most closely approximates normal human perception of spatial relationships and scale in the landscape. Additionally, high-resolution video was taken at each of the simulated KOPs for use in video animations demonstrating the turbines and environment in motion.

For views lacking background alignment features (i.e., identifiable landscape features with known locations), the field crew also utilized global positioning system (GPS) equipment with sub-meter accuracy to document the location of each KOP and foreground reference features (e.g., buildings, fences, flag poles, driven stakes) visible in the photos. Precise locations of these features allow accurate camera alignment during the development of visual simulations. It also assures that the resulting simulations have a high degree of accuracy in terms of turbine location and perceived size relative to other landscape features.

In some cases where foreground reference features were lacking, EDR consulted the Automatic Identification System (AIS) when offshore anchored ships were present in the view. This system automatically documents a vessel's position in a central database that is accessible to the public. If a vessel was determined to be anchored and visible to the photographer, the precise coordinates of the vessel were logged and recorded every five minutes during the photography session (to account for potential anchor drag). If there were no vessels anchored or visible, EDR utilized an unmanned aircraft system (UAS) to provide a visual reference feature in the photographs. The UAS was flown to a specific position, photographed from shore, and its position and altitude were automatically logged on a time-matched flight recorder. The UAS also documented views toward the camera and provided time-tagged and geo-tagged photographs as redundant positional documentation.

For two KOPs, field review was not used to obtain photographs. Nomans Land Island NWR contains dangerous UXO that caused the federal government to ban public access to the island. While this site was requested to be included as a KOP by the Wampanoag Tribe of Gay Head (Aquinnah), the coordination of such a trip would have caused substantial complications and delays. In place of an actual photograph from this location, EDR created a virtual three-dimensional (3D) model of the island. Additionally, EDR included a KOP representing a view from a passenger vessel in a high-traffic location offshore. In order to represent this view, EDR utilized an elevated, open water view with no identifiable elements in the photograph.

Appendix B includes a list and photolog depicting each of the KOP's visited during field review.

4.2 Project Visual Impact

Beyond evaluating potential Project visibility, the VIA also examined the visual impact of the proposed wind turbines on the landscapes and viewers within the PAPE. This assessment involved creating computer models of the proposed turbines, selecting representative KOPs within the PAPE, and preparing computer-assisted visual simulations of the proposed Project. These simulations were then used to characterize the type and extent of visual impact resulting from Project construction. Details of the visual impact assessment procedures are described below.

4.2.1 Visual Resource Management Classification

In this study, the visual impact of the SFWF was evaluated using the USACE Visual Resources Assessment Procedure (VRAP) (Smardon et al., 1988). The VRAP is a two-step process, the first of which is referred to as the Management Classification System (MCS) procedure, and the second of which is referred to as the VIA procedure. The MCS portion of this methodology establishes an assessment framework by defining areas of similar landscape character (LSZs) within the visual study area and evaluating their visual quality/sensitivity to visual impact. Using a scoring system and forms based on those provided in the VRAP Manual (Smardon et al., 1988), this evaluation assigns each LSZ a specific MCS designation (Preservation, Retention, Partial Retention, Modification, or Rehabilitation), each of which has a numerical threshold of acceptable visual change. A project's visual impact is compared to these thresholds in the VIA portion of the VRAP (see discussion in Section 4.2.4).

In accordance with the MCS procedure, the aesthetic quality of each of the LSZs defined within the PAPE was evaluated by a professional panel of four visual professionals (see resumes in Appendix D). Each panel member was given access to digital files including the following information:

1. Representative photos of each of the defined LSZs.
2. Narrative descriptions of each of the defined LSZs (see Section 3.2).
3. A map showing the locations of visually sensitive public resources within the PAPE (see Figure 6).
4. An aerial photo of the PAPE.
5. Rating forms (modified Form 4) from the USACE VRAP Manual.
6. Google Earth Placemarks identifying the KOPs and examples of LSZs within the PAPE.

In addition, all panel members participated in a meeting (in person or by conference call) to review the information provided to them, receive additional information on the location, extent, and aesthetic character of the LSZs (from Project team members who had been on-site), and instructions on completing the evaluation forms they had been provided.

Within each LSZ, the visual quality of six landscape components (landform, water resources, vegetation, land use, user activity, and special considerations) was evaluated by the rating panel as "distinct", "average", or "minimal", and given a numerical score. Definitions of these rating categories are presented in Table 2.

Table 4.2-1. Levels of Visual Quality

Distinct	Something that is considered unique and is an asset to the area. It is typically recognized as a visual/aesthetic asset and may have many positive attributes. Diversity and variety are characteristics in such a resource.
Average	Something that is common in the area and not known for its uniqueness, but rather is representative of the typical landscape of the area.
Minimal	Something that may be looked upon as a liability in the area. It is basically lacking any positive aesthetic attributes and may actually diminish the visual quality of surrounding areas.

The VRAP utilized a total of four forms to complete the MCS portion of the evaluation process. In EDR's experience, completing a large number of forms is taxing on the rating panel and results in a certain degree of fatigue or "burn-out," especially when considering a large number of LSZs. Consequently, EDR reviewed the landscape inventory and assessment framework information addressed in VRAP Forms 1-3 during the meeting described above. In addition, EDR simplified Form 4, expanded the scoring system from a scale of 1-3 to a scale of 1-9, and allowed raters to score in half point (0.5) increments. This “fine-tuning” of the rating system provides a greater degree of differentiation in the visual quality ratings and is allowed under the VRAP to increase the sensitivity of the analysis (Smardon et. al., 1988; page 58). The MCS scores were then converted back to a 1-3 scale to remain consistent with the scoring and impact threshold values established in the VRAP Manual.

The numerical scores from each evaluator were totaled and averaged to generate a composite rating for each LSZ. The composite rating placed each LSZ into one of the five Resource Management Classifications defined by the VRAP. These classifications are described in Table 3, below.

Table 4.2-2. Resource Management Classifications

Preservation Class	These areas are considered to be unique and to have the most distinct visual quality in the region. They are highly valued and are often protected by federal and state policies and laws. These areas may include significant natural areas, portions of wild and scenic rivers, historic sites and districts, and similar situations where changes to existing visual resources are restricted. While limited project activity is not precluded, it should not be readily evident (MCS Score of 17 or more).
Retention Class	These areas are regionally recognized as having distinct visual quality but may not be institutionally protected. Project activity may be evident but should not attract attention (MCS Score of 14 to 16).
Partial Retention Class	These areas are locally valued for above average visual quality but are rarely protected by institutional policies. Project activity may be evident and begin to attract attention. Structures, operations, and use activities associated with the project should remain subordinate to the existing visual resources (MCS Score of 11 to 13).
Modification Class	These areas are not noted for their distinct qualities and are often considered to be of average visual quality. Project activity may attract attention and dominate the existing visual resources. Structures, operations, and use activities may display characteristics of form, line, color, texture, scale, and composition that differ from those of the existing visual resources. However, the project should exhibit good design and visual compatibility with its surroundings (MCS Score of 9 to 10).
Rehabilitation Class	These areas are noted for their minimal visual quality and are often considered blighted areas. Project activity in these areas should improve the existing undesirable visual resources. Structures, operations, and use activities should exhibit good design and display characteristics of form, line, color, texture, scale, and composition that contribute to making the area compatible with the visual character of adjacent higher quality landscapes (MCS Score of less than 8).

4.2.2 Viewpoint Selection

Based on the photo documentation conducted during field verification and a review of data regarding viewer activity and sensitive public resources, EDR selected a total of 29 unique KOP locations for the development of the visual simulations. A total of 44 visual simulations were produced. Daytime simulations were prepared for all 29 of the KOP locations. In order to demonstrate the appearance of the aviation and navigation warning lights, nighttime simulations were prepared for five of the 29 KOPs. In addition, nine locations were also used for the development of sunset simulations, and another location (Southeast Lighthouse) was used for the development of a construction simulation. These 15 additional simulation viewpoints are highlighted with bold text in Table 4, below. KOPs were selected based upon the following criteria:

1. They were identified as KOPs by federal, state, local, or tribal officials/agencies as important visual resources, either in prior studies or through direct consultation.

2. They provide clear, unobstructed views toward the SFWF site (as determined through field verification).

3. They illustrate the most open views available from historic sites, designated scenic areas, and other visually sensitive resources within the PAPE.

4. They are representative of a larger group of candidate KOPs of the same type or in the same geographic area.

5. They illustrate typical views from LSZs where views of the Project are most likely to be available.

6. They illustrate typical views of the proposed Project that will be available to representative viewer/user groups within the PAPE.

7. They illustrate typical views from a variety of geographic locations and under different lighting conditions to illustrate the range of visual change that could occur with the Project in place.

Locations of the selected KOPs are shown in Figure 7. Information regarding each selected viewpoint is summarized in Table 4, below:

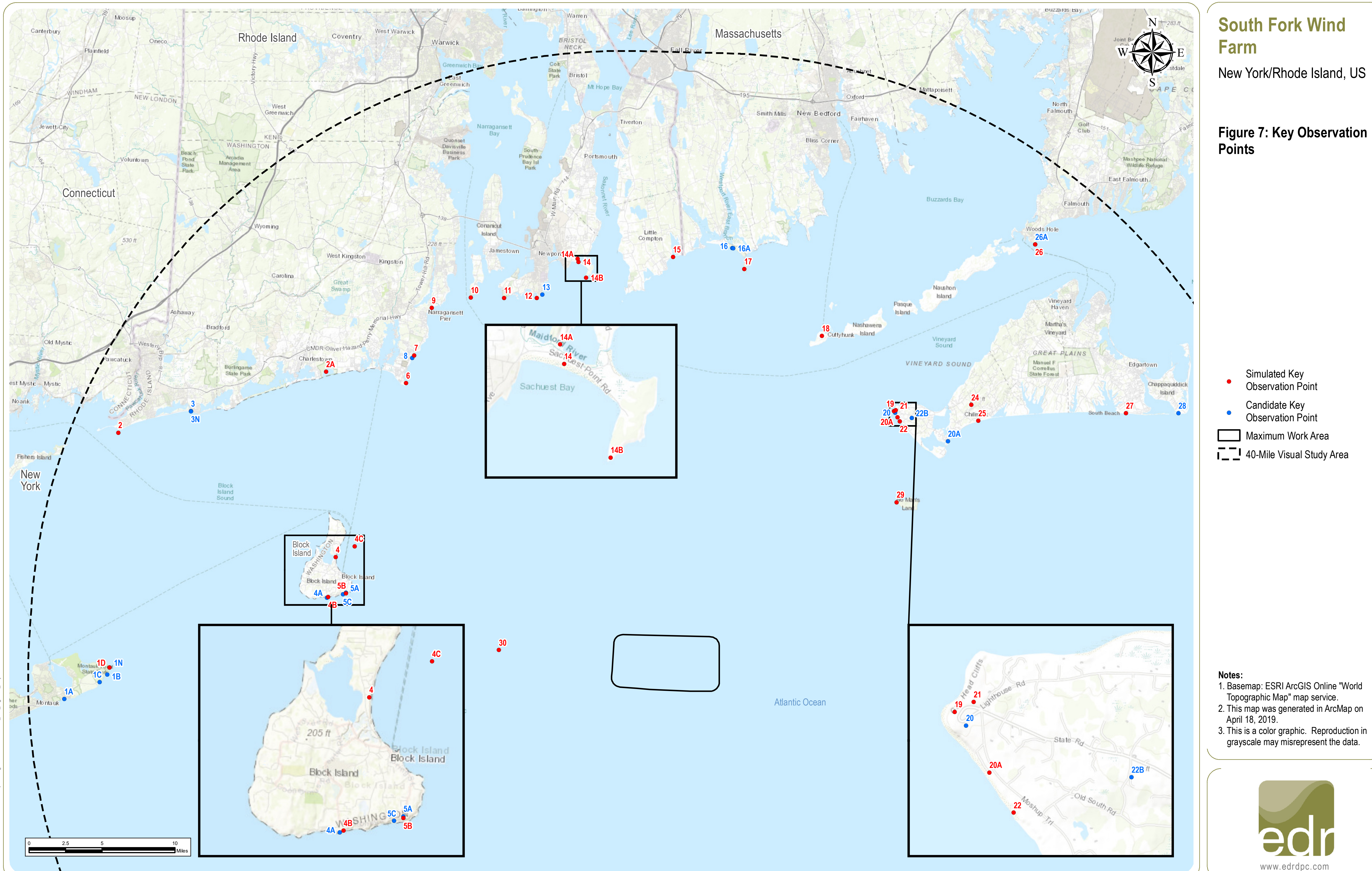
Table 4.2-3. KOPs Selected for Visual Simulation

Viewpoint Number[1]	KOP Name	Distance to Project	Lighting	Weather	Direction	Landscape Similarity Zone	User Group	Elev. (ft)
1D	Montauk Point State Park	35.3	Front-Lit	Clear	ENE	Maintained Recreation Areas	Residents, Tourists	48.0
1N	**Montauk Point State Park Night**	**35.3**	**NA**	**Clear**	**ENE**	**Maintained Recreation Areas**	**Residents, Tourists**	**48.0**
2	Watch Hill Lighthouse	37.7	Back-Lit	Mostly Cloudy	ESE	Maintained Recreation Areas, Shoreline Residential	Residents, Tourists	24.1
2A	Trustom Pond NWR	27.9	Back-Lit	Partly Cloudy	SE	Salt Pond/Tidal Marsh	Residents, Tourists	13.8
4	Fred Benson Beach	20.7	Front-Lit	Scattered Clouds	ESE	Shoreline Beach	Residents, Tourists	10.4
4B	New Shoreham Beach	20.6	Side-Lit	Clear	ESE	Shoreline Bluffs	Residents, Tourists	11.0
4C	Block Island Ferry	19.8	Back-Lit	Clear	SE	Open Water	Residents, Tourists, Through Travelers, Fishing Community	30.0
5B	Southeast Lighthouse	19.4	Side-Lit	Clear	ESE	Maintained Recreation Areas	Residents, Tourists	161.1
5B	**Southeast Lighthouse Construction View**	**19.4**	**Side-Lit**	**Clear**	**ESE**	**Maintained Recreation Areas**	**Residents, Tourists**	**161.1**
5N	**Southeast Lighthouse Night**	**19.4**	**NA**	**Clear**	**ESE**	**Maintained Recreation Areas**	**Residents, Tourists**	**161.1**
6	Point Judith Lighthouse	23.6	Side-Lit	Clear	SSE	Maintained Recreation Areas	Residents, Tourists, Fishing Community	29.6
6N	**Point Judith Lighthouse Night**	**23.6**	**NA**	**Partly Cloudy**	**SSE**	**Maintained Recreation Areas**	**Residents, Tourists**	**29.6**
7	Scarborough Beach	24.8	Back-Lit	Scattered Clouds	SSE	Shoreline Beach	Residents, Tourists	14.8
9	Narragansett Beach	26.9	Back-Lit	Overcast	SSE	Shoreline Beach	Residents, Tourists	10.5
10	Beavertail Lighthouse	26.3	Front-Lit	Clear	SSE	Maintained Recreation Areas, Coastal Bluff	Residents, Tourists	27.5
11	Brenton Point State Park	25.5	Front-Lit	Clear	SSE	Maintained Recreation Areas	Residents, Tourists	33.9
11N	**Brenton Point State Park Nighttime**	**25.5**	**NA**	**Clear**	**SSE**	**Maintained Recreation Areas**	**Residents, Tourists**	**34.9**

Viewpoint Number[1]	KOP Name	Distance to Project	Lighting	Weather	Direction	Landscape Similarity Zone	User Group	Elev. (ft)
12	Newport Cliff Walk	24.8	Side-Lit	Clear	SSE	Maintained Recreation Areas, Shoreline Residential	Residents, Tourists	22.8
14	Sachuest Beach (Second Beach)	26.7	Front-Lit	Partly Cloudy	S	Shoreline Beach	Residents, Tourists	10.2
14A	Hanging Rock (Norman Bird Sanctuary)	26.7	Back-Lit	Clear	SSE	Coastal Scrub/Scrub Forest	Residents, Tourists	67.3
14B	**Sachuest Point NWR**	**25.6**	**Back-Lit**	**Clear**	**SSE**	**Coastal Scrub/Scrub Forest**	**Residents, Tourists**	**21.7**
15	South Shore Beach	27.0	Side-Lit	Clear	SSW	Shoreline Beach	Residents, Tourists	26.6
17	Gooseberry Island	26.2	Back-Lit	Scattered Clouds	SW	Coastal Scrub/Scrub Forest	Residents, Tourists	9.8
17	**Gooseberry Island Sunset**	**26.2**	**Side-Lit**	**Clear**	**SW**	**Coastal Scrub/Scrub Forest**	**Residents, Tourists**	**9.8**
18	Cuttyhunk Island	22.7	Back-Lit	Clear	SSW	Coastal Scrub/Scrub Forest	Residents, Tourists	151.3
19	**Aquinnah Overlook**	**20.4**	**Front-Lit**	**Clear**	**SW**	**Shoreline Bluffs**	**Residents, Tourists**	**145.5**
19	**Aquinnah Overlook Sunset**	**20.4**	**Back-Lit**	**Clear**	**SW**	**Shoreline Bluffs**	**Residents, Tourists**	**145.5**
19N	**Aquinnah Overlook Nighttime**	**20.4**	**NA**	**Scattered Clouds**	**SW**	**Shoreline Bluffs**	**Residents, Tourists**	**145.5**
20A	Moshup Beach	20.1	Back-Lit	Partly Cloudy	SW	Coastal Dunes	Residents, Tourists	23.1
20A	**Moshup Beach Sunset**	**20.1**	**Back-Lit**	**Partly Cloudy**	**SW**	**Coastal Dunes**	**Residents, Tourists**	**23.1**
21	Gay Head Lighthouse	20.4	Front-Lit	Clear with Fog	SW	Maintained Recreation Areas	Residents, Tourists	162.1
22	Philbin Beach	20.2	Back-Lit	Clear	SW	Shoreline Beach	Residents, Tourists	10.5
22	**Philbin Beach Sunset**	**20.1**	**Back-Lit**	**Partly Cloudy**	**SW**	**Shoreline Beach**	**Residents, Tourists**	**10.5**
24	Peaked Hill Reservation	24.2	Back-Lit	Clear	SW	Forest	Residents, Tourists	305.1
24	**Peaked Hill Reservation Sunset**	**24.2**	**Back-Lit**	**Clear**	**SW**	**Forest**	**Residents, Tourists**	**305.1**
25	Lucy Vincent Beach	23.8	Side-Lit	Clear	SW	Coastal Dunes	Residents, Tourists	27.7
25	**Lucy Vincent Beach Sunset**	**23.8**	**Back-Lit**	**Partly Cloudy**	**SW**	**Coastal Dunes**	**Residents, Tourists**	**27.7**

Viewpoint Number[1]	KOP Name	Distance to Project	Lighting	Weather	Direction	Landscape Similarity Zone	User Group	Elev. (ft)
26A	Nobska Lighthouse	35.3	Front-Lit	Clear	SW	Maintained Recreation Areas	Residents, Tourists	53.7
26A	**Nobska Lighthouse Sunset**	**35.3**	**Back-Lit**	**Partly Cloudy**	**SW**	**Maintained Recreation Areas**	**Residents, Tourists**	**53.7**
27	South Beach State Park	32.4	Front-Lit	Clear	WSW	Shoreline Beach	Residents, Tourists	17.0
27	**South Beach State Park Sunset**	**32.4**	**Back-Lit**	**Partly Cloudy**	**WSW**	**Shoreline Beach**	**Residents, Tourists**	**17.0**
29	Nomans Land	15.9	Front-Lit	Clear	WSW	Shoreline Bluffs	No Access, Fishing Community	42.1
29	**Nomans Land Sunset**	**15.9**	**Back-Lit**	**Partly Cloudy**	**WSW**	**Shoreline Bluffs**	**No Access, Fishing Community**	**42.1**
30	Atlantic Ocean	8.6	Back-Lit	Clear	East	Open Water	Tourists, Fishing Community	147.0

[1]Non-sequential viewpoint numbering reflects the fact that not all KOPs or viewpoints documented during field review were selected for the development of visual simulations.



South Fork Wind Farm
New York/Rhode Island, US
Figure 7: Key Observation Points
Simulated Key Observation Point
Candidate Key Observation Point
Maximum Work Area
40-Mile Visual Study Area
Rhode Island
Massachusetts
Connecticut
New York
Block Island
Atlantic Ocean
Buzzards Bay
Vineyard Sound
Sachuest Bay
Block Island Sound
Notes:
1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on April 18, 2019.
3. This is a color graphic. Reproduction in grayscale may misrepresent the data.
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0 2.5 5 10 Miles

4.2.3 Visual Simulations

To show anticipated visual changes associated with the proposed Project, high-resolution, computer-enhanced image processing was used to create realistic photographic simulations of the Project for each of the 29 viewpoints. The photographic simulations were developed by constructing a 3D computer model of the proposed turbines, turbine layout, and offshore substation based on design specifications and coordinates provided by DWSF. As mentioned previously, because the exact turbine model was not yet determined at the time the VIA was being conducted, a hypothetical model using the largest dimensions under consideration was prepared. A diagram of the computer models of the proposed turbine and offshore substation used in this VIA is shown above in Figure 3.

Simulations were created by aligning each photographic viewpoint through a virtual 3D camera, using digitized location data for elements visible in the photograph. This step involves utilizing aerial photographs and GPS data collected in the field to create an AutoCAD® drawing. The 3D AutoCAD data were then imported into 3DS Max®, and additional components (cameras, modeled scene, etc.) were added. These data were superimposed over photographs as seen through the virtual camera from each of the viewpoints, and minor camera changes (height, roll, bearing) were made as necessary to align all known reference points within the view. This process ensures that Project elements are shown in proportion, perspective, and proper relation to the existing landscape elements in the view. Consequently, the alignment, elevation, dimensions, and scale of the modeled Project components are accurate and true in their relationship to other landscape elements in each photo.

The next step involves positioning the turbine layout in each of the aligned views at the appropriate distance in front of, at, or below the horizon (depending on the distance from the viewer). This was done by first determining the distance to the horizon (ocean to sky interface) visible in the photograph. This is accomplished by entering the viewer position and elevation into the Haversine Formula, which uses the radius of the earth (corrected for refractionf[6]) to calculate the mathematical distance to the horizon (D), or the point at which the sky meets the water (see Image 4.2-1, below). This distance is then used to draw a horizontal line (virtual horizon) in the 3D model representing the mathematical horizon line, which is visible through the virtual camera. The virtual horizon is then precisely aligned to the visible horizon (D) in the photograph by making minor adjustments to the virtual camera target on the vertical axis. With the virtual horizon aligned to the photographed horizon, the positions of the individual turbines were all placed relative to this horizon line. The Haversine Formula was then used to determine each turbine's position, relative to the horizon (X). For example, ff the turbine appears in front of the horizon, the returned value is zero and the turbine will be placed at the horizon. If

[6] Refraction values assume "typical" viewing conditions and do not account for atmospheric anomalies such as the mirage effect which is typically rare and of short duration but may temporarily increase turbine visibility.

the turbine appears behind the visible horizon, the returned value will be a negative number (-X). This value was then applied to the turbine's vertical position in the model so that it appears on or below the visible horizon.

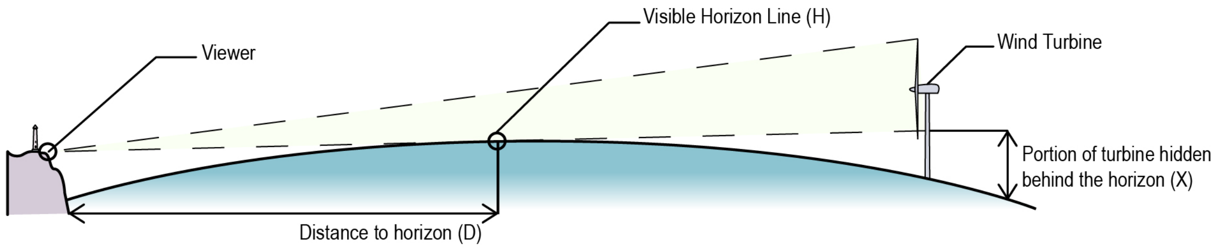
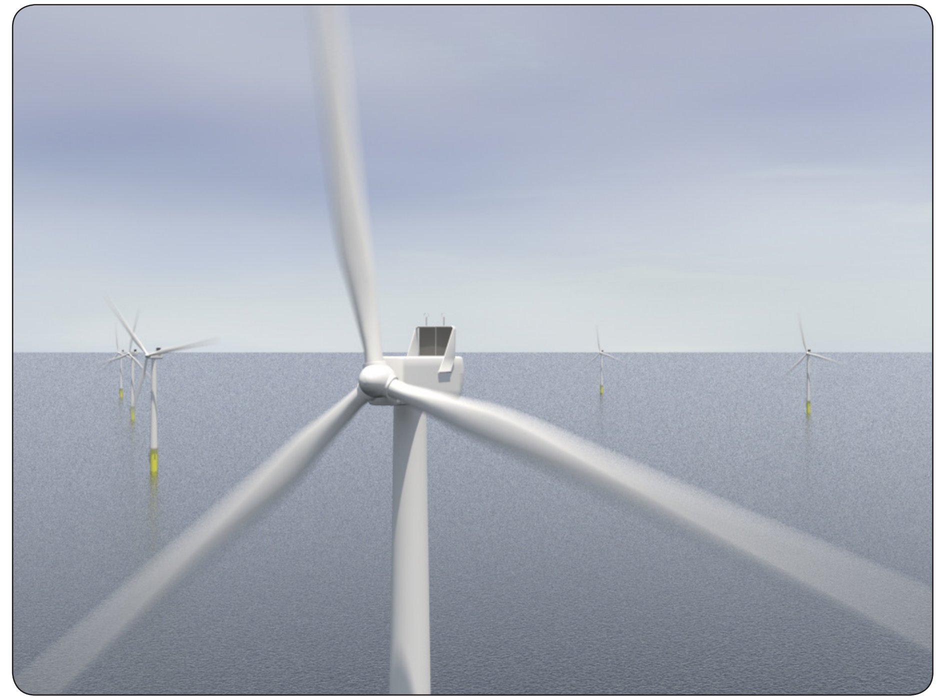


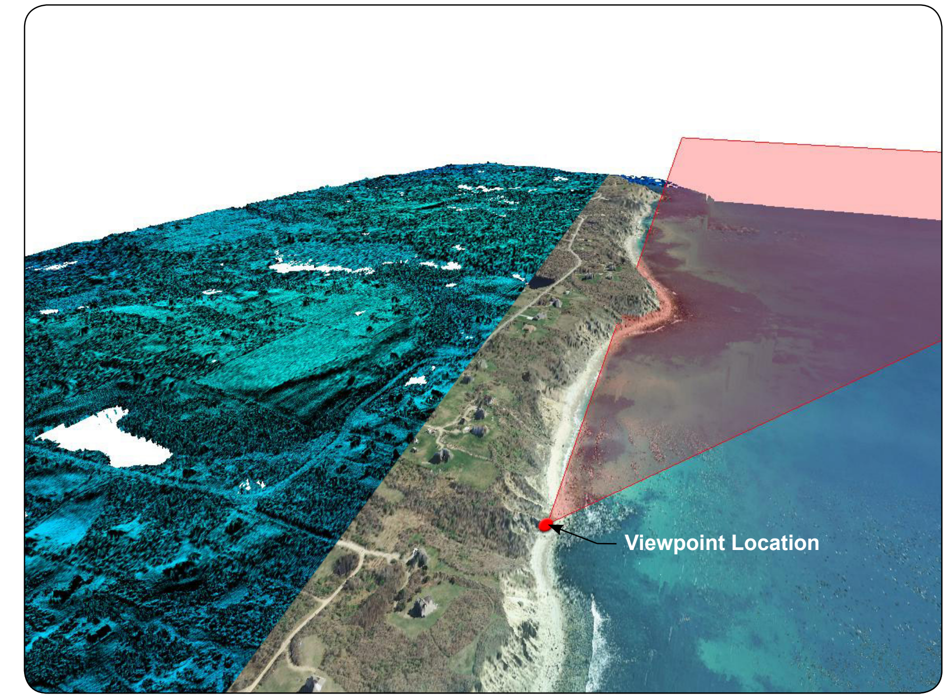
Image 4.2-1 – Curvature of the Earth and Refraction Diagram

At this point, a "wire frame" model of the facility and known reference points are shown on each of the photographs. The proposed exterior color/finish of the turbines was then added to the model, and the appropriate sun angle was simulated based on the specific date, time, and location (latitude and longitude) at which each photo was taken. This information allows the computer to accurately illustrate highlights, shading, and shadows for each individual turbine shown in the view. All simulations show the turbines with rotors oriented toward the southwest, which is generally the prevailing wind direction in the area. Simulation methodology is outlined in Figure 8. All of the simulations show a field of view of 38.7 degrees, which is equivalent to the field of view of a standard 50 mm camera lens. As mentioned previously, this is the standard focal length used in VIAs, because it most closely approximates normal human perception of spatial relationships and scale in the landscape.

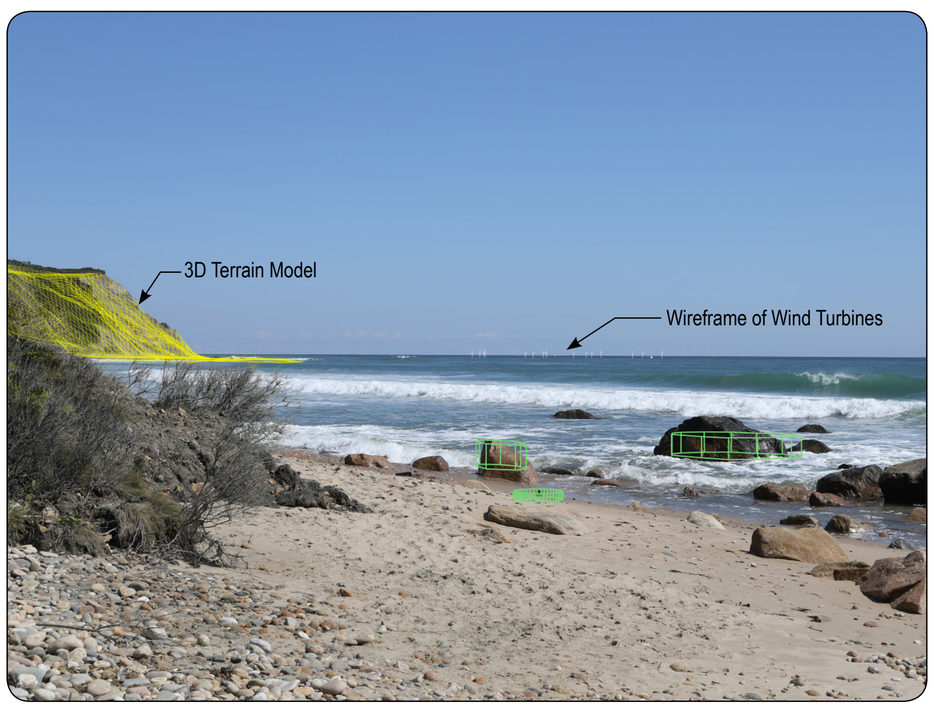
1. Photos are selected to illustrate typical views of the proposed project that will be available to representative viewer/user groups from the major landscape similarity zones and sensitive sites within the visual study area.



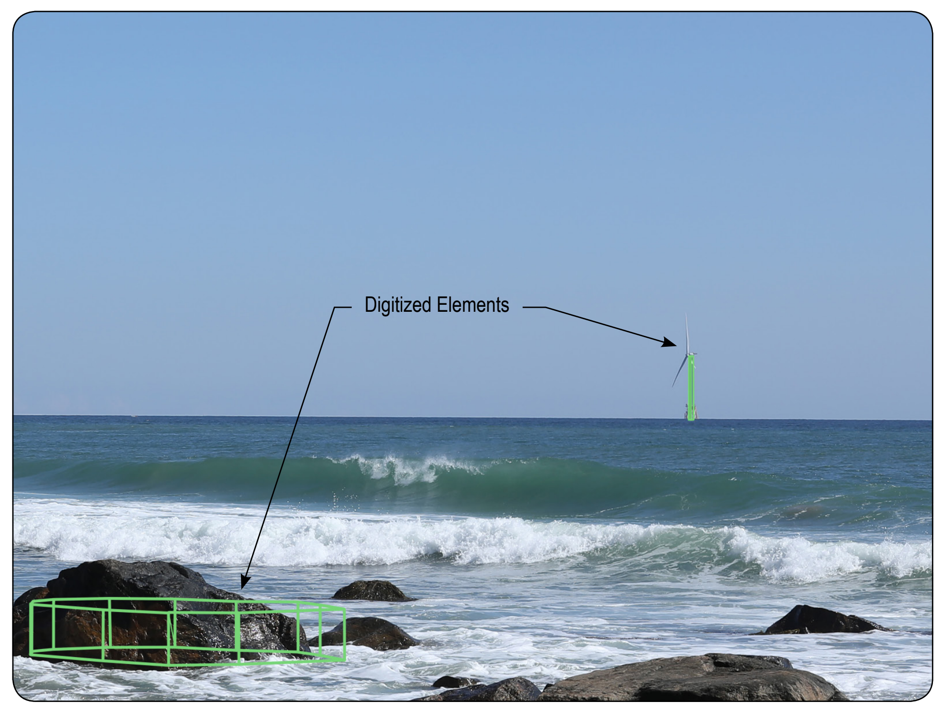
2. A three-dimensional computer model of the project is built based on proposed turbine specifications and coordinates.



3. Aerial photographs, LIDAR data, and GPS data collected in the vicinity of the viewpoints are used to align the photo with the 3D model illustrated in Image 2.



4. These data are superimposed over photographs from each of the viewpoints, and minor camera changes are made to align all known reference points within the view.



5. Digitized landscape features (buildings, structures, etc) from photographs and aerials of the location help increase the accuracy of the camera target position.

6. The proposed exterior color/finish of the turbines and other project components were then added to the model and the appropriate sun angle is simulated based on the specific date, time and location (latitude and longitude) from which each photo was taken.

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Figure 8: Visual Simulation Methodology

Notes: 1. This figure was generated in InDesign on January 2, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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To prepare nighttime simulations, EDR obtained data on the proposed aviation obstruction warning lights from the FAA Advisory Circular 70/7460-1L, which set guidelines for the lighting of wind turbines (FAA, 2016). In addition, EDR documented views of the operational BIWF to determine the appearance of the warning lights at night at distances beyond 20 miles. Computer modeling and camera alignment for the nighttime photos were prepared in the same manner described for the daytime simulations. However, modifications of the nighttime photos (e.g., compositing foreground and background images obtained using different shutter speeds) was required in some cases to create a realistic representation of a nighttime view. These modifications included the reduction of "hotspots" which can be caused by the cameras inability to accurately expose a light source in a very dark scene. Under very dark conditions, the center of a light source may appear light red to white, depending on the camera distance relative to the light source. However, actual observations of the lights suggest that the they appear uniform across the entire source of light. To account for this, a lower exposure photograph was taken to represent the lights at each viewpoint. These lights were then transposed to the evenly exposed night scene.

It was assumed that all lights will flash in a synchronized manner, as currently set forth by FAA guidelines. Nighttime simulations therefore show all turbines with their lights on. Due to the effects of the curvature of the earth and refraction, USCG warning lights on the turbines were only considered in views that had a direct line of sight to the deck at the turbine base, which is approximately where the USCG lights would be located.

In order to demonstrate the highest contrast lighting conditions, sunset simulations were prepared for each KOP where the setting sun would fall behind the Project and backlight the proposed turbines at some time during the year. To prepare sunset simulations, EDR used the original daytime photograph as a base to maintain the documented location and existing conditions at a given viewpoint. Computer modeling and camera alignment were prepared in the same manner described for the daytime simulations. However, to simulate sunset conditions, the Mental Ray Daylight system was adjusted in 3DS Max to represent the maximum visual contrast that might occur during sunset conditions on a single day in 2017 (i.e. sunset directly behind the proposed wind turbines). Once the Daylight System was adjusted, the proposed turbines were rendered to reflect the sunset lighting conditions. Similarly, the exact sun position and atmospheric conditions were generated, and an infinite plane representing the ocean was modeled and materialized to simulate sunset lighting conditions and/or reflections. To alter the original daytime photo to sunset conditions, the 3D generated sunset atmosphere was used as a reference to replace the existing daytime sky. Using this reference, an existing photo of a sunset sky was positioned and overlaid onto the 3D generated sunset atmosphere maintaining the exact location of the sun and atmosphere. The 3D generated ocean representing sunset conditions was overlaid as a blending mode over the existing photo daytime ocean. In a few instances, the existing daytime ocean was replaced by a photo of an ocean in sunset conditions. To reflect sunset conditions, existing foreground elements were darkened and color-corrected. Because a majority of the worst-case sunset conditions occur during the winter months and/or late in the day, existing people were removed from daytime photos to represent normal activity levels under the sunset conditions illustrated. The complete set of photographic simulations developed for this VIA is provided in Appendix C.

In response to BOEM recommendations provided in early Project consultation, EDR also produced three time-lapse videos that depict a time frame spanning 18 hours of daytime and nighttime conditions, and include a variety of lighting conditions, cloud cover, and weather scenarios. As mentioned in Section 4.1.4, during the field review EDR recorded 60 seconds of video to capture the motion and sound present at each KOP. EDR then used this footage to produce animated simulations for three KOPs using the same viewpoint alignment process described above for the daytime simulations. However, rather than rendering a single frame representing a single point in time, multiple frames were rendered while the 3D turbine blades were in motion. Each individual rendering of the turbines was placed in sequence to give the impression of blade rotation. Additionally, the 3D model contained a daylight system which was also animated to show the variable lighting (back lit, front lit, and side lit) that the turbines would receive throughout 18 hours of the day. Additionally, the aviation obstruction lights were animated to flash at a rate of 30 flashes per minute for the nighttime portion of the sequence. The 3D renderings of the Project were then superimposed over the baseline video and the scene was digitally adjusted to demonstrate the lighting conditions from sunrise to nighttime. This was accomplished by adjusting the color, hue, and saturation of the video to achieve the desired lighting condition for the corresponding time of day. To simulate the path of the sun in each scene, a digital lighting system that replicated the sun was placed into the scene and animated to follow the azimuth and altitude of the sun throughout the day. The resulting video illustrates the turbine blades spinning from throughout the day until nighttime when the aviation obstruction lights are activated. Links to the video simulations are provided below in Table 4.2-4.

Table 4.2-4. Video Simulation Links

Viewpoint Number	**Location Description**	**Link**
Viewpoint 14B	Sachuest Point NWR	https://vimeo.com/323546249/2291d30d73
Viewpoint 19	Aquinnah Overlook	https://vimeo.com/331276637/bb44be6d62
Viewpoint 20A	Moshup Beach	https://vimeo.com/323546163/b2b2f4bda5

4.2.4 Visual Impact Evaluation

The visual impact of the proposed SFWF was evaluated using the VIA procedure outlined in the USACE VRAP (Smardon et. al., 1988). The VIA uses representative KOPs within each of the affected LSZs in the visual study area to determine a Project's visual impact. To ensure that the scoring of one individual or one viewpoint does not skew the results, the VRAP requires that multiple rating panel members (minimum of two) be involved, and that multiple viewpoints be evaluated. This evaluation is based on a comparison of existing photos and visual simulations from each viewpoint to quantify the effect of a project using forms and a scoring system provided in the VRAP Manual (Smardon et al., 1988). The scores determined through the VIA procedure are compared to the thresholds established for each LSZ by the MCS procedure (see discussion in Section 4.2.1), to determine the acceptability/compatibility of visual impacts within each LSZ.

The same panel of four visual professionals that completed the MCS procedure for this study also conducted the VIA procedure. As with the MCS evaluation, panel members were provided with digital files of the existing conditions photos and simulations of the proposed Project for each of the 44 simulations, along with a viewpoint information page that provided a viewpoint location map, contextual photographs illustrating a full field of view, and summary information regarding each viewpoint. The distance and direction of the SFWF from each viewpoint, and the LSZ, viewer groups, and sensitive resources represented by each viewpoint were provided to the panel, along with the rating forms to be used for the visual impact assessment (a simplified version of Form 6 from the USACE VRAP). The rating panel members then evaluated the before and after views from each viewpoint and assigned each view quantitative aesthetic quality ratings. The ratings were based on the visual quality of each of the six landscape components (landform, water resources, vegetation, land use, user activity, and special considerations). Because in EDR's experience VRAP Form 6 (Viewpoint Assessment) can be confusing, this form was modified to: 1) create separate forms for the evaluation of the existing view and the view with the proposed Project in place; 2) provide clarity in evaluating Project compatibility, scale contrast, and spatial dominance; and 3) delete items that did not contribute to the assignment of a numerical VIA score to the viewpoint. As with the MCS portion of the evaluation, the standard three-point rating system used in the VRAP does not always allow for sufficient differentiation among ratings for either existing visual quality or the magnitude of visual impact. Consequently, the panel members were allowed to rate the images on an expanded scale of 1 to 9. These scores were then converted back to the scale used on the original Form 6 to remain consistent with the VRAP scoring and threshold values.

Landscape, viewer, and Project-related factors considered by the rating panel in their evaluation of the Project's visual impact included the following:

- *Landscape Composition:* The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Basic landscape components include vegetation, landform, water, and sky. Some landscape compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented, are more vulnerable to modifications than panoramic, canopied, or ephemeral landscapes.

- *Form, Line, Color, and Texture:* These are the four major compositional elements that define the perceived visual character of a landscape, as well as a project. Form refers to the shape of an object that appears unified, often defined by edge, outline, and surrounding space. Line refers to the path the eye follows when perceiving abrupt changes in form, color, or texture, usually evident as the edges of shapes or masses in the landscape. Texture, in this context, refers to the visual surface characteristics of an object. The extent to which form, line, color, and texture of a project are similar to or contrast with these same elements in the existing landscape is a primary determinant of visual impact.

- *Focal Point:* Certain natural or man-made landscape features stand out and are particularly noticeable as a result of their physical characteristics. Focal points often contrast with their surroundings in color, form, scale or texture, and therefore tend to draw a viewer's attention. Examples include prominent trees, mountains, and water features. Cultural features, such as a distinctive lighthouse or steeple, can also be focal points. If possible, a proposed project should not be sited so as to obscure or compete with important existing focal points in the landscape.

- *Order:* Natural landscapes have an underlying order determined by natural processes. Cultural landscapes exhibit order by displaying traditional or logical patterns of land use/development. Elements in the landscape that are inconsistent with this natural order may detract from scenic quality. When a new project is introduced to the landscape, intactness and order are maintained through the repetition of the forms, lines, colors, and textures existing in the surrounding built or natural environment.

- *Scenic or Recreational Value:* Designation as a scenic or recreational resource is an indication that there is broad public consensus on the value of that particular resource. The characteristics of the resource that contribute to its scenic or recreational value provide guidance in evaluating a project's visual impact on that resource.

- *Duration of View:* Some views are seen as quick glimpses while driving along a roadway or hiking a trail, while others are seen for a more prolonged period of time. Longer duration views of a project, especially from significant aesthetic resources, have the greatest potential for visual impact.

- *Atmospheric Conditions:* Clouds, precipitation, haze, and other ambient air-related conditions which affect the visibility of an object or objects. These conditions can greatly impact the visibility and contrast of landscape and project components and the design elements of form, line, color, texture, and scale.

- *Lighting Direction:* Backlighting refers to a viewing situation in which sunlight is coming toward the observer from behind a feature or elements in a scene. Front lighting refers to a situation where the light source is coming from behind the observer and falling directly upon the area being viewed. Side lighting refers to a viewing situation in which sunlight is coming from the side of the observer to a feature or elements in a scene. Lighting direction can have a significant effect on the visibility and contrast of landscape and project elements.

- *Project Scale:* The apparent size of a proposed project in relation to its surroundings can define the compatibility of its scale within the existing landscaping. Perception of project scale is likely to vary depending on the distance from which it is seen and other contextual factors.

- *Spatial Dominance:* The degree to which an object or landscape element occupies space in a landscape and thus dominates landscape composition from a specific viewpoint.

- *Visual Clutter:* Numerous unrelated built elements occurring within a view can create visual clutter, which generally has an adverse effect on scenic quality.

- *Movement:* Moving project components can make them more noticeable but, in the case of wind turbines, have also been shown to make them appear more functional and visually appealing.

Following the panel's evaluation, each panel member's ratings were compiled to determine individual scores for each viewpoint. The four individual ratings were then averaged to generate a composite rating for each viewpoint. Because Project visibility is largely limited to areas on or adjacent to open water, only nine LSZs (Open Water/Ocean, Shoreline Beach, Shoreline Bluffs, Coastal Dunes, Salt Pond/Tidal Marsh, Shoreline Residential, Coastal Scrub/Scrub Forest, Forest, and Maintained Recreational Areas) and two distance zones (Background and Seldom Seen) were represented by the simulations. These KOPs show the full range of facility visibility that will be available from publicly-accessible vantage points within the PAPE for the proposed Project. To evaluate the overall impact of the Project, individual viewpoint ratings were summed and averaged in accordance with the VRAP to determine an overall impact rating for each LSZ. The average difference between the ratings of the existing and proposed views within each LSZ is the basis for the assessment of Project-related changes. Impact ratings were then compared to the thresholds established for each LSZ during the MCS procedure to determine whether impacts had exceeded the allowable thresholds for any of the affected LSZs. According to the VRAP Manual (Smardon et al., 1988), projects in zones with each classification should have the following visual impact assessment values:

Preservation Class – 0
Retention Class – No lower than minus 2
Partial Retention Class – No lower than minus 5
Modification Class – No lower than minus 6
Rehabilitation Class – Greater than 0 (i.e., project should only improve visual quality)

The VIA scores and the completed evaluation forms were also reviewed to discern the basis for the documented visual impact, and to determine the type and level of visual mitigation, if any, that would be appropriate within the affected LSZs.

The VRAP evaluation methodology is considered advantageous because it: 1) provides an assessment of the sensitivity of identified LSZs and viewer groups to visual change; 2) documents the basis for conclusions regarding visual impact in an objective, quantifiable manner; and 3) allows for independent review and replication of the evaluation. The modifications to the methodology made by EDR allow a large number of viewpoints to be evaluated in a reasonable amount of time without "burn-out" of the rating panel.

5.0 Visual Impact Assessment Results

5.1 Project Visibility

5.1.1 Viewshed Analysis

Potential turbine visibility, as indicated by the viewshed analyses, is illustrated in Figure 9 and summarized in Tables 5 through 8. Within the 40-mile radius study area, the lidar-based viewshed analysis indicates that approximately 2% of the land area could have potential views of some portion of the Project, based on the availability of an unobstructed line of sight (Table 5). Visibility will be eliminated in large portions of the study area where buildings/structures and vegetation screen views toward the Project. Forest land is the dominant land use within the mainland portions of study area (covering approximately 53% of the land within a 40-mile radius of the Project) and will significantly reduce potential Project visibility throughout the area. In areas of concentrated human settlement, buildings/structures will also significantly screen outward views. Considering the screening provided by buildings/structures, vegetation, and topography, potential Project visibility is largely restricted to the ocean shoreline and water bodies immediately inland of the shoreline (e.g., salt ponds and bays). Areas of visibility extend up to approximately 700 feet inland from the shoreline, before breaking up into smaller pockets of visibility and then dissipating completely. Consistently throughout the study area, the large concentrated visible areas along the shoreline gradually break up into very small 100-square-foot blocks. Based on the uniform size of the blocks and review of aerial photographs, EDR assumes that most of these small blocks are artifacts resulting from the interpolation of lidar data points in 3D modeling (point cloud conversion) of the lidar, rather than pockets of actual Project visibility.

Table 5.1-1. Turbine Blade Tip Land Area Viewshed Results Summary

Distance from Project Site	40-mile Radius Study Area		
	Total Land Area (sq. miles)	Land Area with Potential Visibility/PAPE[3] (sq. miles)	Percent
0 to 10 Miles[1]	0	0	0.0%
10 to 20 Miles[2]	6.5	1.2	18.5%
20 to 30 Miles	196.9	10.8	5.5%
30 to 40 Miles	551.4	4.1	0.8%
Total 40 Mile Landward Study Area [3]	754.9	16.1	2.1%

[1]There is no significant land area within 10 miles of the Project Site.
[2]Block Island and Nomans Land Island are the only significant land masses within 20 miles of the Project site.
[3]Land area and percent totals may not add up to 100% or equal study area acreage reported elsewhere in this report due to rounding and/or raster-to-vector conversion.

The viewshed analysis suggests that visibility of the Project from Long Island will largely be restricted to the immediate shoreline on the eastern and southern shores of the South Fork. With regard to views from sensitive sites on Long Island, areas of potential Project visibility are indicated within Montauk Point State Park and Camp Hero State Park on the easternmost point of the island. Additionally, the viewshed analysis suggests potential visibility along Ditch Plains Beach and Amsterdam Beach, on the southernmost portion of Long Island. The viewshed analysis suggests that views of the Project from further inland on Long Island will be restricted to very small portions of Prospect Hill and Montauk County Park.

The viewshed analysis results show consistent areas of potential Project visibility from the eastern and southern shores of Block Island, including Fred Benson Town Beach, Ballard's Beach, the Southeast Lighthouse, and Mohegan Bluffs. Some small areas of potential visibility also occur throughout the island’s interior, including the Block Island Airport and Plover Hill. The viewshed results also suggest potential visibility from the shores of Great Salt Pond, including Harbor Neck and Indian Head Neck.

Viewshed results indicate that potential visibility of the Project from Conanicut and Aquidneck Islands is primarily restricted to the immediate south-facing shorelines, with some areas of visibility extending inland around Brenton Point State Park, Easton’s South and North Pond, Gardiner Pond, and Nelson Pond. These areas consist of open, unvegetated land or open water, thus allowing open views that are unscreened by foreground vegetation or buildings/structures.

Visibility from Cuttyhunk Island and the other Elizabeth Islands, as predicted by the viewshed analyses, is largely limited to the southern and western shores. However, several areas of inland visibility were also noted at the high point of Cuttyhunk Island, along with small areas between the highpoint and shoreline where the hills slope downward in the direction of the Project.

The viewshed results suggest that potential Project visibility from Martha’s Vineyard could occur along the western and southern shores and bluffs. Consistent areas of visibility are shown along the western shore around Aquinnah Cliffs, south to Squibnocket Ridge, before diminishing along the southwest shore. On the southern side of Martha’s Vineyard, areas of potential visibility occur at Chilmark Pond and extend east to Chappaquiddick Island. With the proposed Project in place, the Project is visible along the connecting landmass between Martha’s Vineyard and Chappaquiddick Island. The viewshed analysis suggests little visibility in the interior portions of the island. Some very small areas occur in the vicinity of Peaked Hill in Chilmark, around the Martha’s Vineyard Airport, and some of the shoreline visibility extends a short distance inland near ponds and fields on the south side of the island. However, based on viewshed analysis results, Oak Bluffs, Vineyard Haven, and Edgartown will not have any open views of the proposed Project.

Viewshed results suggest some minor areas of potential Project visibility in inland portions of the mainland study area. These areas typically extend inland from undeveloped and unvegetated shorelines, especially along barrier beaches backed by salt marshes and ponds. Examples of this can be found around Trustom Pond NWR in South Kingstown, Rhode Island, Quicksand Pond in Little Compton, Rhode Island, and Allens Pond in Westport, Massachusetts. Additionally, some areas of inland visibility occur at topographic highpoints that are devoid of dense vegetation and buildings/structures (typically agricultural fields). Some examples include the open farm fields along the eastern shore of the Westport River in Massachusetts, and the elevated western shores of Little Compton, Rhode Island.

The aviation warning light viewshed analysis (Figure 9, Sheets 1 through 3) suggests visibility of the warning lights will be available from approximately 1.3% of total land area (Table 6). This reduction in visibility can be attributed to the lower height of the lights (relative to the blade tips) combined with the screening effects of curvature of the earth, as demonstrated by the lack of visibility from beaches that were indicated as visible in the blade tip viewshed analysis. Areas in which the aviation warning lights would be screened by curvature of the earth include Montauk Point and Ditch Plains Beach on Long Island, all of the southcentral and southeastern beaches on Martha's Vineyard, and all of the shoreline in the Town of Westerly, Rhode Island on the mainland. In each of these areas, the blade tip analysis indicated potential visibility, but the aviation warning light viewshed indicated lack of visibility.

Table 5.1-2. Aviation Warning Light Land Area Viewshed Results Summary

Distance from Project Site	40-mile Radius Study Area		
	Total Land Area (sq. miles)	Land Area with Potential Visibility/PAPE[3] (sq. miles)	Percent
0 to 10 Miles[1]	0	0	0.0%
10 to 20 Miles[2]	6.5	1.1	16.9%
20 to 30 Miles	196.9	7.5	3.8%
30 to 40 Miles	551.4	1.2	0.2%
Total 40 Mile Landward Study Area [3]	754.9	9.8	1.3%

[1]There is no significant land area within 10 miles of the Project Site.
[2]Block Island and Nomans Land Island are the only significant land masses within 20 miles of the Project site.
[3]Land area and percent totals may not add up to 100% or equal study area acreage reported elsewhere in this report due to rounding and/or raster-to-vector conversion.

In addition to the land area visibility, Project visibility from water was also considered separately in the viewshed analysis. The blade tip water analysis revealed that up to 93.2% of the water surface in the study area could have some level of Project visibility (Table 7). Screened areas were noted on Block Island Sound, Buzzards Bay, Narragansett Bay, and Vineyard Sound. All of these screened areas resulted from the intervening land masses associated with islands and mainland peninsulas. The aviation warning light analysis reduced visible areas to approximately 64.7% of the water surface (Table 8). This reduction in visibility can be largely attributed to the curvature of the earth, which will screen views of the lights at distances beyond 31.06 miles when viewed from water level.

Table 5.1-3. Blade Tip Water Area Viewshed Results Summary

Distance from Project Site	40-mile Radius Study Area		
	Total Water Area (sq. miles)	Water Area with Potential Visibility/PAPE[3] (sq. miles)	Percent
0 to 10 Miles[1]	549.6	549.6	100%
10 to 20 Miles[2]	1,144.6	1,142.1	99.8%
20 to 30 Miles	1,582.5	1,491.2	94.2%
30 to 40 Miles	1,856.3	1,603.6	86.4%
Total 40 Mile Waterward Study Area [3]	5,133.2	4,786.6	93.2%

[1]There is no significant land area within 10 miles of the Project Site.
[2]Block Island and Nomans Land Island are the only significant land masses within 20 miles of the Project site.
[3]Water area and percent totals may not add up to 100% or equal study area acreage reported elsewhere in this report due to rounding and/or raster-to-vector conversion.

Table 5.1-4. Aviation Warning Light Water Area Viewshed Results Summary

Distance from Project Site	40-mile Radius Study Area		
	Total Water Area (sq. miles)	Water Area with Potential Visibility/PAPE[3] (sq. miles)	Percent
0 to 10 Miles[1]	549.6	549.6	100%
10 to 20 Miles[2]	1,144.6	1,141.4	99.7%
20 to 30 Miles	1,582.5	1,456.6	92.%
30 to 40 Miles	1,856.3	184.8	10.0%
Total 40 Mile Waterward Study Area [3]	5,133.2	3,332.4	64.9%

[1]There is no significant land area within 10 miles of the Project Site.
[2]Block Island and Nomans Land Island are the only significant land masses within 20 miles of the Project site.
[3]Water area and percent totals may not add up to 100% or equal study area acreage reported elsewhere in this report due to rounding and/or raster-to-vector conversion.

It should be noted that the viewshed analysis treats all buildings/structures and vegetation as if they are completely opaque. Therefore, small woodlots and hedgerows are indicated as fully blocking views of the Project. It is possible that views will be available from forest edges and through thin/sparse forest vegetation. However, these views will typically be partially obstructed by branches (even under leaf-off conditions) and would require focused, concentrated viewing to see the turbines. It is likely that at distances beyond 20 miles, even partial screening will be effective in minimizing or eliminating Project visibility. It is also important to note that the lidar data used in this analysis is from multiple years, with the latest being captured in 2014. Therefore, the analysis does not reflect any changes that have occurred since that time. However, any such changes are likely to be minor and could include the addition of new obstructions (new buildings and taller trees) as well as the removal of obstructions (tree cutting).

As mentioned previously, factors such as the acuity of the observer, the effects of distance, the occurrence of overcast and hazy weather conditions, and the slender profile of the turbines (especially the blades, which make up the top 358 feet of each turbine) are not considered in this analysis. Also, at distances beyond 35 miles, even if not fully screened by curvature of the earth, small surface waves and large ocean swells can substantially reduce or eliminate turbine visibility. Therefore, it is unlikely that views exist beyond 35 miles, even under the clearest possible weather conditions. With these factors considered, areas and duration of actual visibility will likely be more limited than indicated by the viewshed analysis.

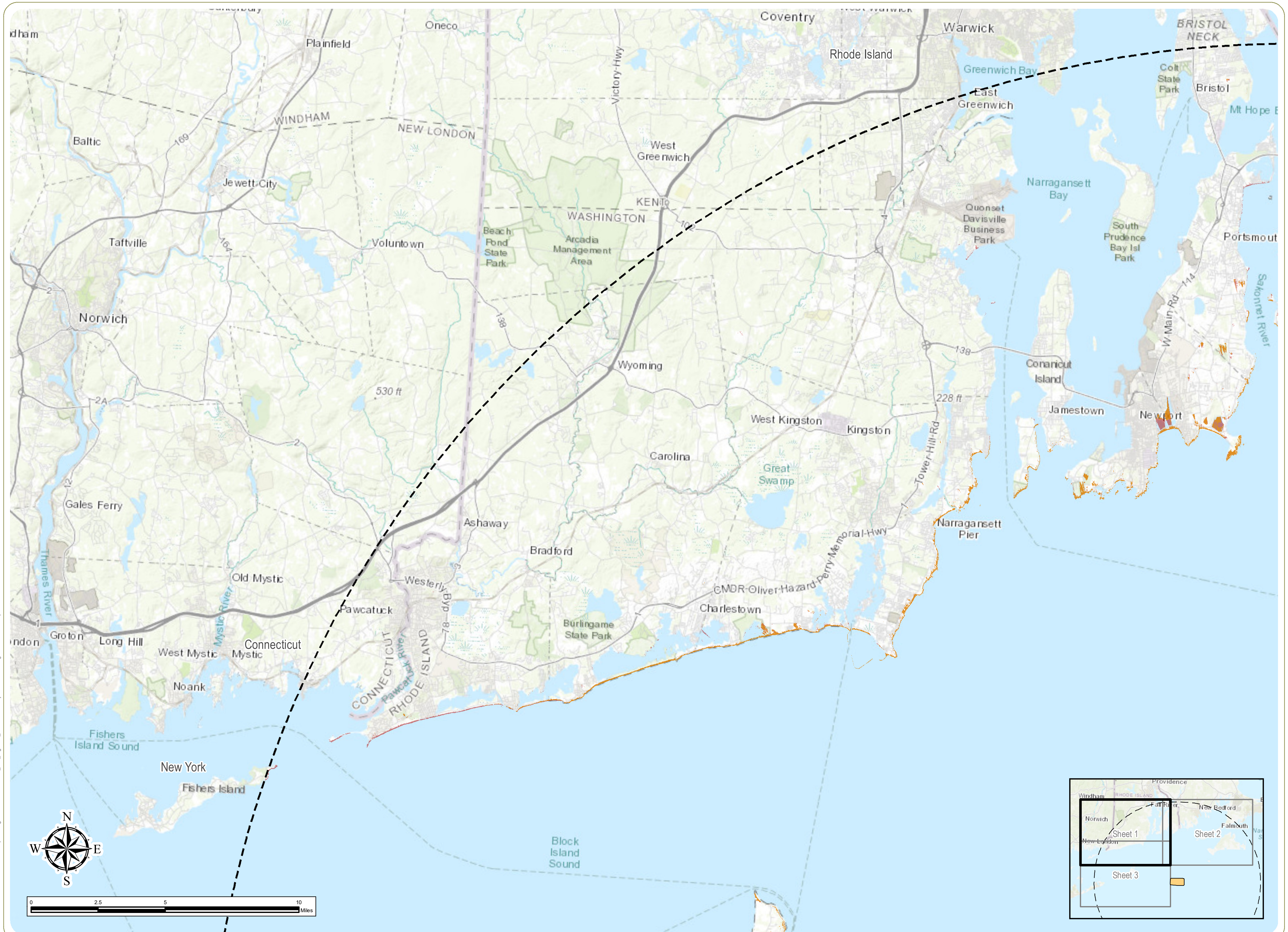

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Figure 9: Viewshed Analysis Considering Turbine Blade Tip and Aviation Obstruction Lights

Sheet 1 of 3

40-Mile Visual Study Area

Preliminary Area of Potential Effect (PAPE)

Aviation Obstruction Lights Potentially Visible

Notes:

1. This map was generated in ArcMap on April 18, 2019.
2. The Project is not anticipated to be visible from areas greater than 40 miles from the proposed turbines due to the combined effects of visibility diminishment over distance and curvature of the earth.
3. The zone of visual influence was determined by GIS viewshed analysis based on a 4-meter resolution Digital Surface Model (DSM) produced from airborne lidar survey. Areas of predicted visibility take into account visual screening that would be provided by topography, buildings, structures, signs, groupings of trees or large individual trees, and other objects that may obstruct visibility from a given vantage point. In small areas of the study area where lidar data is not available, predicted visibility is based on screening effects of topography and mapped forest vegetation.
4. Viewshed analysis based on maximum blade tip height of 256 meters (840 feet).
5. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
6. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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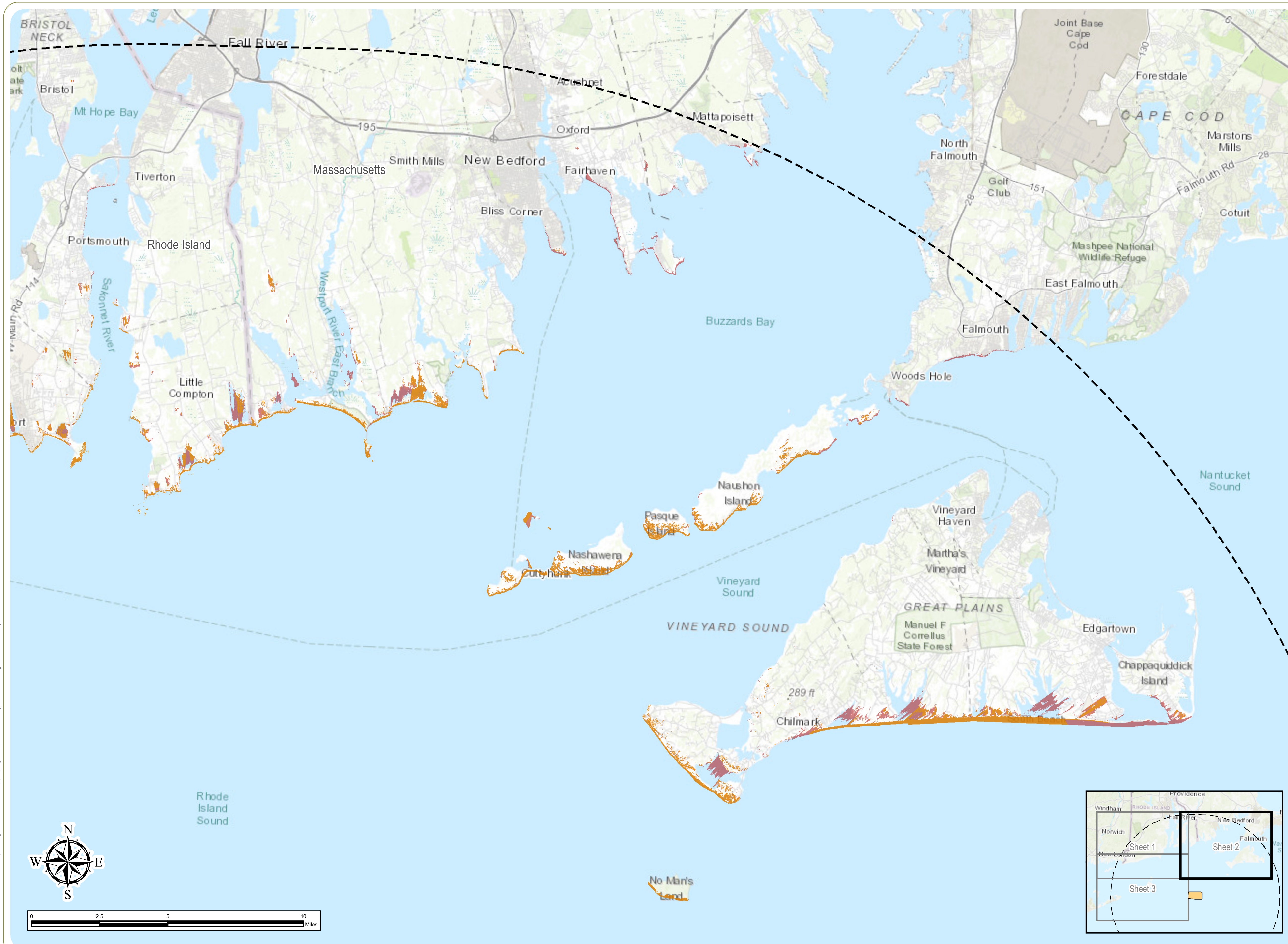

South Fork Wind Farm

New York/Rhode Island, US

Figure 9: Viewshed Analysis Considering Turbine Blade Tip and Aviation Obstruction Lights

Sheet 2 of 3

40-Mile Visual Study Area

Preliminary Area of Potential Effect (PAPE)

Aviation Obstruction Lights Potentially Visible

Notes:

1. This map was generated in ArcMap on April 18, 2019.
2. The Project is not anticipated to be visible from areas greater than 40 miles from the proposed turbines due to the combined effects of visibility diminishment over distance and curvature of the earth.
3. The zone of visual influence was determined by GIS viewshed analysis based on a 4-meter resolution Digital Surface Model (DSM) produced from airborne lidar survey. Areas of predicted visibility take into account visual screening that would be provided by topography, buildings, structures, signs, groupings of trees or large individual trees, and other objects that may obstruct visibility from a given vantage point. In small areas of the study area where lidar data is not available, predicted visibility is based on screening effects of topography and mapped forest vegetation.
4. Viewshed analysis based on maximum blade tip height of 256 meters (840 feet).
5. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
6. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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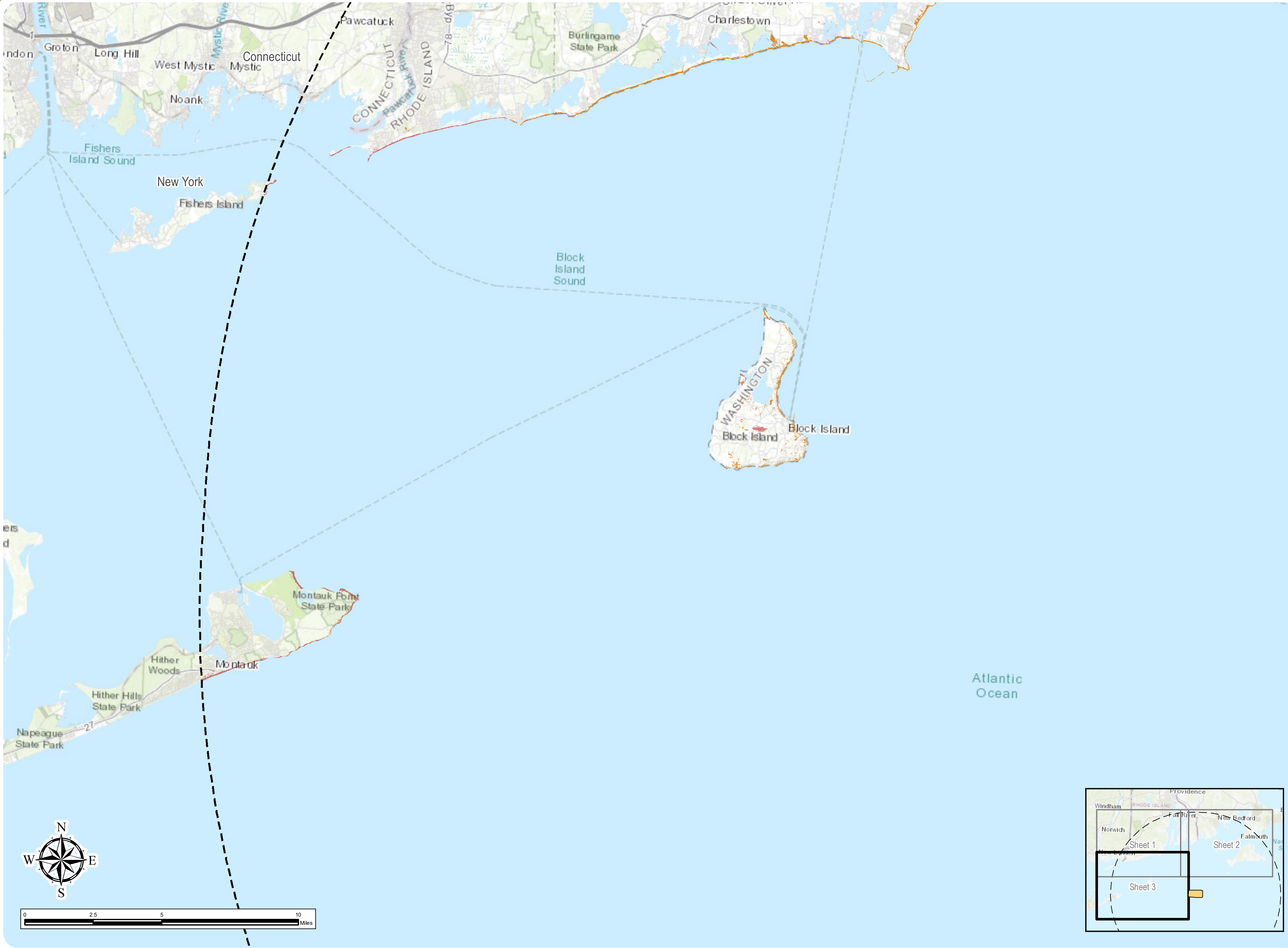

South Fork Wind Farm

New York/Rhode Island, US

Figure 9: Viewshed Analysis Considering Turbine Blade Tip and Aviation Obstruction Lights

Sheet 3 of 3

40-Mile Visual Study Area

Preliminary Area of Potential Effect (PAPE)

Aviation Obstruction Lights Potentially Visible

Notes:

1. This map was generated in ArcMap on April 18, 2019.
2. The Project is not anticipated to be visible from areas greater than 40 miles from the proposed turbines due to the combined effects of visibility diminishment over distance and curvature of the earth.
3. The zone of visual influence was determined by GIS viewshed analysis based on a 4-meter resolution Digital Surface Model (DSM) produced from airborne lidar survey. Areas of predicted visibility take into account visual screening that would be provided by topography, buildings, structures, signs, groupings of trees or large individual trees, and other objects that may obstruct visibility from a given vantage point. In small areas of the study area where lidar data is not available, predicted visibility is based on screening effects of topography and mapped forest vegetation.
4. Viewshed analysis based on maximum blade tip height of 256 meters (840 feet).
5. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
6. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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5.1.2 Line of sight Cross Section Analysis

Cross sections were completed at each of the selected KOPs in order to determine how much of the turbines would be screened by the curvature of the earth at each of these sites. Conclusions that can be drawn as a result of this analysis include the following:

1. From a beach-level view, 41.8 miles is the approximate maximum visibility limit of the Project, as demonstrated in the beach level cross section from the Hither Hills State Scenic Area in Montauk, New York (Image 5.1-1).

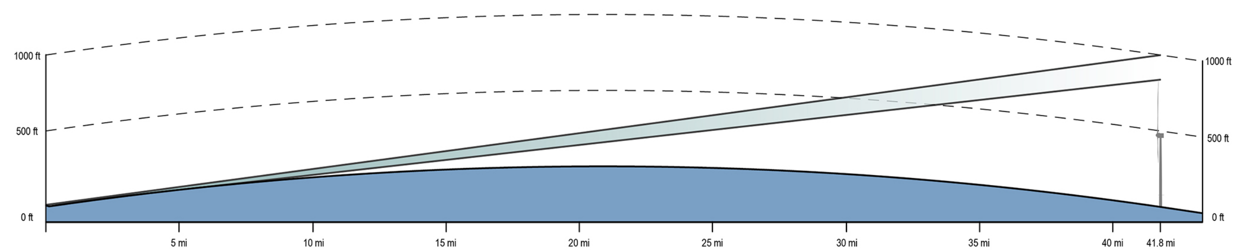

Image 5.1-1. Line of sight cross section from Hither Hills State Scenic Area to the nearest turbine.

2. From a beach-level view, 32.5 miles is the approximate maximum visibility limit of the turbine nacelle and aviation warning lights, as demonstrated in the line of sight cross section from a beach level view at Montauk Point State Park, New York (Image 5.1-2).

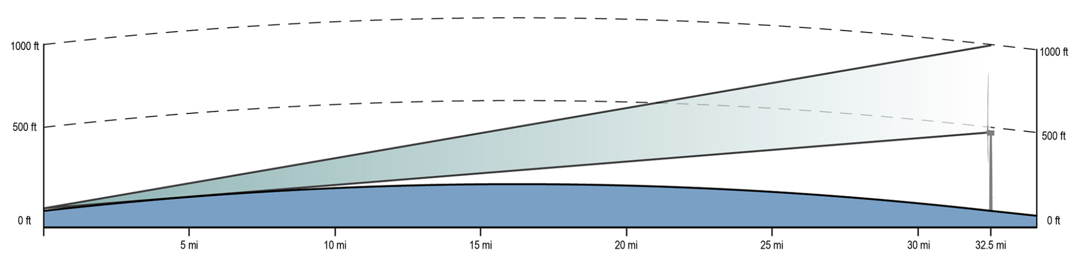

Image 5.1-2. Line of sight cross section from Montauk Point State Park (beach level) to the nearest turbine.

3. The effect of intervening landforms when viewing turbines at long distances is significant in terms of reducing turbine visibility. This is demonstrated in the line of sight from Viewpoint 2, from the Watch Hill Lighthouse. This line of sight shows that Block Island screens views toward the Project. Additionally, the line of sight from Viewpoint 25 from Lucy Vincent Beach in Chilmark, Massachusetts demonstrates substantial Project screening resulting from intervening landforms associated with Aquinnah/Gay Head on Martha's Vineyard (see Appendix C: Sheet 9 and Sheet 119).

4. Elevated views significantly counteract the effects of curvature of the earth. For example, the simulation from Viewpoint 5B - Southeast Lighthouse (Appendix C: Sheet 29) demonstrates that the majority of a turbine structure would be visible from a distance of 19.4 miles when viewed from an elevation of 161 feet AMSL. When considering a similar distance from a beach level view, such as New Shoreham Beach (Appendix C: Sheet 17), up to one half of the turbine structure is screened from view due to curvature of the earth.

5. At the distance proposed (23-40 miles distant), the line of sight cross sections demonstrate that all of the mainland views from Rhode Island and Massachusetts will only include the upper one-third to one-half of the turbines (or less) when viewed from beach-level locations (see Appendix C: Sheets 9, 13, 43,48, 52, 67, 75,78, and 83).

A more detailed assessment of the line of sight results for each selected KOP is provided in Section 5.2.2.

5.1.3 Field Verification

Field review largely confirmed the results of the lidar viewshed analysis. Consistent with the results of this analysis, the majority of the inland portions of the visual study area was found to be screened from view of the Project by vegetation and buildings/structures. Open views toward the Project, as indicated by visibility of the ocean, were concentrated within a mile of the ocean shoreline and were largely restricted to beaches, bluffs, open fields, salt ponds, road corridors, and cleared residential yards, where lack of foreground trees allowed for unscreened views.

Open views from Long Island were only available from within Montauk State Park and Camp Hero State Park on the eastern edge of the South Shore. From within these parks, the most likely views of the Project will be available from the bluff overlooks along portions of the hiking trails or at designated bluff overlook parking areas. Views toward the Project further inland from Montauk Point and Camp Hero State Parks were completely obscured by topography and/or vegetation, confirming the results of the viewshed analysis.

On Block Island, open views toward the Project were largely restricted to beaches and bluffs along the south shore of the island. No views were documented from the North Light, beaches and bluffs along the western and northern shorelines, or the village/town center area of New Shoreham. Similarly, views toward the Project were not available from most interior roads. Even views from higher elevation sites, such as Beacon Hill Road, were generally screened by woody roadside vegetation. However, potential views were documented from beach areas along the eastern shoreline, the northwest side of Great Salt Pond, and the Block Island Ferry in transit. Although private roads, yards, and homes could generally not be accessed, some of these sites on the eastern, southern, and central high point in the southern portion of the island are also likely to have least partial views of the proposed Project.

Open views from Conanicut Island and Aquidneck Island were restricted to the south-facing shorelines of the island, including locations such as Beavertail State Park, Brenton Point State Park, the Newport Cliff Walk, Sachuest Beach, and the Sachuest Point NWR. As suggested by the viewshed analysis results, views toward the Project from inland locations were generally blocked by buildings/structures and vegetation. Exceptions occur at topographic highpoints, such as Hanging Rock at Normans Bird Sanctuary and the inland portions of Brenton Point State Park. The viewshed analysis also suggested potential visibility of the Project from highpoints within the Newport Country Club, near the southern shore of Aquidneck Island. Visibility from this location could not be confirmed during field review, as public access is not available.

Cuttyhunk Island in the Elizabeth Islands could have views of the Project along the southern and western shores, as well as from the topographic highpoint in the central portion of the island. The island reaches a maximum elevation of approximately 150 feet AMSL, which potentially offers views of the full height of the turbines. Shoreline views from the island toward the Project would be partially screened by curvature of the earth.

Views from Martha’s Vineyard were also generally restricted to the shoreline and bluffs on the western and southern sides of the island. Visibility was noted as far east as South Beach State Park but would be fully obscured by curvature of the earth at Wasque Point in Edgartown. The southern beaches of Martha’s Vineyard, such as Lucy Vincent Beach and Squibnocket Beach, had either partially or fully screened views, respectively. Screening at these locations was provided by the western headlands of Martha’s Vineyard and intervening vegetation. Open inland views on Martha’s Vineyard were identified at the Peaked Hill Reservation, which sits atop a substantial topographic highpoint at over 300 feet AMSL. This location offers views framed by dense woodland vegetation in the direction of the Project. However, field review indicated that other open views from inland locations will generally be of short duration, tightly framed, or partially screened due to the screening provided by nearby topography, vegetation, and buildings/structures.

From the mainland, field review confirmed that views toward the Project were screened throughout the vast majority of the visual study area. Views from rural portions of this area (even large, open agricultural fields) were generally screened by surrounding low wooded hills and/or forest vegetation. However, open views on the mainland were consistently documented along the shoreline from Westerly, Rhode Island to Falmouth, Massachusetts. These views were generally restricted to the immediate shoreline. As indicated by line of sight of sight analysis, due to the distance of the Project from the viewer, open views from the shoreline generally will include only the upper one-third to one-half of the turbines. Consequently, as the viewer moves inland, low vegetation, dunes, and buildings/structures will be effective at eliminating visibility completely.

The historic resources with the highest potential for Project visibility were those that were situated to take advantage of panoramic ocean views. Such resources include the Southeast Lighthouse on Block Island, the Gay Head Lighthouse on Martha's Vineyard, the Beavertail Lighthouse in Jamestown, the Newport Cliff Walk on Aquidneck Island, and the Watch Hill Lighthouse in Westerly, Rhode Island. These are examples of NRHP sites and districts with substantial notoriety in the region and confirmed Project visibility.

Appendix B lists each of the locations visited during field review along with their distance to the Project and potential visibility.

5.1.4 Other Factors Affecting Project Visibility

Actual Project visibility will be limited by several other factors not specifically addressed in the visibility analyses conducted as part of this VIA. As mentioned previously, these include weather conditions, waves on the ocean surface, humidity, and air pollution.

Analysis of National Climatic Data Center (NCDC) weather data (Newport and Block Island Stations) for the six-year period from January 1, 2010 through December 31, 2016 indicated that visibility in the region was 10 miles or greater during daylight hours approximately 81% of the year. Visibility greater than 10 miles occurred slightly less frequently during nighttime hours, at approximately 78% of the year. This cumulative data suggests that during approximately 20% of the daylight and nighttime hours in a given year, the turbines would be completely obscured from view.

Since the NCDC only reports visibility to 10 miles, BOEM evaluated visibility at 20 and 30 nautical miles (nm) using the observed visibility out to 10 mile and a relational algorithm based on relative humidity. For data collected at Newport, visibility to 20 nm occurred approximately 61% of the year during daytime hours while visibility to 30 nm occurred approximately 35% of the year during daytime hours. Average daylight and nighttime visibility for clear conditions was 20 nm, with seasonal values ranging from 16 nm in summer to 24 nm in winter (Wood et al., 2017).

Cloudy conditions reduce the average visibility to 12 miles, ranging from 10 nm in summer to 16 nm in winter. Rainy, hazy, and foggy conditions have an average visibility of 8, 4, and 3 nm respectfully. These visibilities were consistent throughout the year. In addition, sky conditions will also affect a viewer's ability to detect the turbines on the horizon.

For example, overcast days will eliminate hard shadows on the turbines created by direct sunlight, which will reduce contrast and minimize the ability to perceive the blades or recognize movement. Additionally, on overcast days the white sky color on the horizon will further reduce turbine visibility due to the lack of contrast against the background sky. Conversely, on clear days, when the turbines are fully front lit or back lit, visibility may be higher. To predict the frequency of each of these conditions, the NCDC data was analyzed and broken down by cloud cover. The results of this analysis suggest that during daylight hours, clear sky conditions occurred approximately 42% of the time, partly cloudy conditions occurred during approximately 4% of daylight hours, and overcast sky conditions occurred about 52% of the time (see Table 9).

Table 5.1-5. Cloud Cover Analysis (Six-Year Average)

Cloud Cover	Percentage of Daylight Hours		
	Newport	Block Island	Average
Clear	43.9	40.1	42.0
Partly Cloudy	4.2	4.6	4.4
Overcast	49.1	55.2	52.2
Obstructed	2.8	0.01	1.4

[1]The NCDC defines cloud coverage as clear (CLR, 00), few clouds (FEW, 01 to 02), scattered clouds (SCT, 03 to 04), broken clouds (BKN, 05 to 07), and overcast (OVC, 08). EDR refined these to include the following:
Clear = CLR and FEW, Partly Cloudy = SCT, Overcast = BKN and OVC.

5.2 Project Visual Impact

5.2.1 Visual Resource Management Classification

The management classification of each LSZ within the Project's visual study area, as determined by the rating panel using the VRAP MCS procedure, is presented in Table 10, below.

Table 5.2-6. Management Classification of LSZs within the SFWF PAPE

	Rating Panel Members				Average Score and Classification	
MCS Zone	Kellie Connelly	Richard Smardon	Jocelyn Gavitt	Walter Kalina	Average	Classification
Shoreline Bluffs	15.7	10.7	16.0	16.3	15	Retention Class
Salt Pond Tidal Marsh	15.0	12.0	15.7	14.0	14	Retention Class
Maintained Recreation Area	11.0	14.0	17.0	14.7	14	Retention Class
Shoreline Beach	14.0	12.7	17.0	12.3	14	Retention Class

	Rating Panel Members				Average Score and Classification	
MCS Zone	**Kellie Connelly**	**Richard Smardon**	**Jocelyn Gavitt**	**Walter Kalina**	**Average**	**Classification**
Inland Lakes and Ponds	13.0	9.3	15.3	12.3	13	Partial Retention Class
Coastal Dunes	12.3	10.0	14.7	12.0	12	Partial Retention Class
Open Water	11.7	7.3	16.0	12.7	12	Partial Retention Class
Rural Residential	11.3	9.0	13.7	13.3	12	Partial Retention Class
Shoreline Residential	9.3	12.7	14.0	11.0	12	Partial Retention Class
Developed Waterfront	8.3	9.7	15.0	11.3	11	Partial Retention Class
Coastal Scrub	11.3	5.7	12.7	14.0	11	Modification Class
Agricultural Open Field	10.0	9.3	14.7	7.7	10	Modification Class
Village or Town Center	9.0	11.0	12.3	8.7	10	Modification Class
Forest	8.7	6.7	11.7	12.0	10	Modification Class
Transportation	9.0	8.7	10.3	8.0	9	Modification Class
Suburban Residential	7.0	8.0	8.7	7.0	8	Rehabilitation Class
Commercial	5.3	5.7	5.7	4.3	5	Rehabilitation Class

A review of the MCS evaluations reveals that one of the four rating panel members placed two zones in the highest MCS Classification; Preservation Class. This includes the Shoreline Beach and Maintained Recreation Area LSZs, and the panel member's comments suggest that these zones are considered particularly sensitive due to the high level of human interest and use they receive. Additionally, this panel member suggested that there is typically a strong level of cultural importance at the land/sea interface at both the Maintained Recreational Areas and the Shoreline Beach zones. At many of the Maintained Recreation Areas, tributes to historical events are often present and receive particular human interest. While other panel members also generally rated these zones highly, several considered features such as land use and vegetation within these zones to be of average, rather than distinct, visual quality/sensitivity. Consequently, the average rating for the Maintained Recreation Area and Shoreline Beach LSZs placed these zones in the Retention Class. This was generally the case for all of the LSZs that received the highest cumulative ratings (i.e., an MCS classification of Retention). These zones (Shoreline Beach, Shoreline Bluffs, Salt Pond/Tidal Marsh, and Maintained Recreation Area) received relatively high scores, often indicating distinct visual quality, in the areas of vegetation, water, and landform. However, evaluations of land use (and in some cases water and vegetation) within these zones were a mix of scores in the average to distinct range.

None of the LSZs in the study area were considered by the full panel to have the unique high-quality visual character and viewer sensitivity required for designation as Preservation Class landscapes. Overall, the Shoreline Bluffs LSZ received the highest cumulative rating due to its distinct combination of dramatic landform, unique environmental and/or cultural resources, and expansive views across the open ocean. The Suburban Residential and Commercial zones received the lowest ratings from the panel, particularly in the areas of land use and user activity, reflecting the relatively low aesthetic quality and/or viewer sensitivity typical of these zones. Of the 17 zones, 10 received scores resulting in classification as either Partial Retention or Modification.

As mentioned previously, the MCS classification ascribed to each LSZ provides guidance as to the degree and nature of visual change (as determined by the VIA procedure) that is acceptable in that landscape.

5.2.2 Analysis of Existing and Proposed Views

To illustrate anticipated visual changes associated with the proposed Project, 44 photographic simulations of the Project (shown in Appendix C) were used to evaluate Project visibility and appearance. As indicated in Section 4.2.2, these KOPs were selected based on input from various stakeholders. In general, they were selected because they provide a clear, unobstructed view of the Project from a visually sensitive site, and represent the various LSZs, user groups, viewing distances, and lighting conditions that occur within the study area. In addition, the selected photos illustrate high visibility conditions where the proposed turbines would not be significantly obscured by atmospheric haze or fog. Consequently, simulations developed from these locations are represent a conservative assessment of Project visibility and potential visual impact within the visual study area. As described in Section 4.2.4, review of these images, along with photos of the existing view, allowed for comparison of the aesthetic character of each view with and without the proposed Project in place. Results of this evaluation are presented in the following section. Numerical impact scores resulting from the VRAP VIA procedure are summarized in Section 5.2.3, and potential mitigation options are reviewed in Section 6.0.

Viewpoint 1D – Montauk Point State Park (Appendix C Sheets 1-4)

Existing View

This view is from the upper parking area at Montauk Point State Park, on Long Island, approximately 35.3 miles west of the nearest proposed SFWF turbine site. The upper parking lot is adjacent to the Montauk Lighthouse, and provides a unique vantage point from which the viewer can enjoy views of the lighthouse, boats on the water, and surfers on the beach. Montauk Point is a popular recreation area/tourist destination that receives high visitation throughout the days and evenings during the summer and fall seasons. The foreground of this view to the east-northeast (toward the proposed Project) is comprised of low scrub-shrub vegetation bisected by a road with a rustic timber guardrail. Block

Island Sound makes up the midground, with relatively calm, dark blue water drawing the viewer's eye to the background where Block Island and the BIWF are barely visible on the horizon. Some boat activity is visible on the water, highlighting the strong nautical character of this location.

Proposed Project

With the proposed Project in place, the blades of the 15 SFWF turbines are barely detectable on the horizon in the center of the view. From this location, the SFWF is between 35 and 38 miles from the viewer, and only portions of the blades would be visible due to the screening effects caused by curvature of the earth. Existing features in this view, including the Montauk Point Lighthouse, the vast expanse of ocean, and the abundant human activity, remain the dominant, character-defining elements of the landscape. A viewer may not be able to see the turbines even on the clearest of days without actively seeking a view of the Project, and/or the aid of binoculars. On multiple occasions during the field verification, the BIWF (at a distance of approximately 16.9 miles) was not visible from this location, confirming that under less than ideal weather/sky conditions, the proposed SFWF would be impossible to see from this vantage point.

<u>Viewpoint 1N – Montauk Point State Park (Appendix C Sheets 5-7)</u>

Existing View

This nighttime view is from the upper parking lot at Montauk Point State Park, in the same location described above. In the absence of light, individual features are unable to be distinguished and the view appears mostly pure black. There are no stars visible in the night sky. In the existing view toward the Project, the dark ocean merges with the dark sky, and the two are only distinguishable due to the lights from distant shoreline homes on the left-hand side of view, and from the cluster of red FAA warning lights and amber USCG warning lights on the existing BIWF. On the right side of the view, the lights from three vessels are discernible along the horizon. Outside the selected field of view, the Montauk lighthouse is illuminated and fully visible.

Proposed Project

With the proposed Project in place, the aviation warning lights are only faintly visible as small red specks dotting the center of the view. The addition of the flashing warning lights on the turbines will increase visual clutter at the horizon, but the existing features in this view, including the lights from shoreline residences, the existing BIWF, and distant ships, remain the dominant, character-defining elements of the landscape. The lights from the proposed Project are subdominant to existing features and will not compromise views of the dark ocean, night sky, or stars overhead. The lights are also consistent with those of the BIWF turbines that are already present in existing views. During the summer tourist season, the increased number of lights at adjacent shoreline residences and on passing boats will further mitigate Project-related lighting impacts.

Viewpoint 2 – Watch Hill Lighthouse (Appendix C Sheets 8-11)

Existing View

This viewpoint is located on the grounds of the Watch Hill Lighthouse, in the Watch Hill Historic District and Watch Hill Scenic Area, in the Town of Westerly on the Rhode Island mainland. This view is representative of both residents and tourists since it is a popular tourist destination and is bordered inland by multiple residences. It is approximately 37.7 miles northeast of the nearest proposed SFWF turbine. The existing view features a grass-covered area in the immediate foreground, backed by a recessed asphalt entry road and a cobblestone and concrete breakwall at the water's edge. These features give the landscape a minimalist/utilitarian character, with the historic elements (the lighthouse) outside the field of view to the right. A broad expanse of ocean occurs immediately behind the breakwall and creates a sense of uninterrupted openness as it extends across the full field of view to the horizon. Boats can be seen on the water in the midground and background, and the low profile of Block Island can be perceived at the horizon line on the right side of the view. Partly overcast sky conditions give the ocean a dark blue/gray color, and the evening sky is beginning to show a hint of orange with the clouds strongly lit on one side. The breakwall and unbroken horizon create strong horizontal lines in this view.

Proposed Project

With the Proposed SFWF in place, the Project would be not visible from this location due largely to the screening effects of curvature of the earth. Atmospheric conditions and wave height would also serve to screen the Project at this distance. While the line of sight cross sections demonstrate that, at 37.5 miles distant, a portion of a few turbine blades may protrude above the visible horizon, at these distances the narrow profile of these blades would be difficult, if not impossible, to discern. Members of the rating panel noted that the turbines are indiscernible from this viewpoint and do not present a visual impact. Only under the most optimal weather and lighting conditions could a small portion of the Project be visible from this location.

Viewpoint 2A: Trustom Pond NWR (Appendix C Sheets 12-15)

Existing View

This view is from Trustom Pond, a National Wildlife Refuge on the coast of South Kingstown, Rhode Island. This viewpoint is located approximately 27.9 miles northwest of the nearest proposed SFWF turbine site. This location is frequented by local residents and tourists engaged in passive recreational activities such as hiking or bird watching. The existing view to the southwest looks out from the shore, across a tidal marsh, to a largely unbroken expanse of open ocean, which is separated from the marsh by a narrow landform in the midground. The dark landform contrasts sharply with the lighter water on either side and presents a focal point that draws the viewer's eye to the horizon. The surface water is coated by a layer of ice, which appears dark grayish-black in the early morning light. The unique texture of the frozen pond provides visual interest. Left of center, the marsh and dark ocean water are illuminated by the rising sun and appear bright yellowish-white. The glowing light smooths and flattens surface details in this view. The sky is mostly light grayish-blue but fades to a soft yellow where it meets the dark blue ocean and creates a strong horizon line. The open view is obscured by partial cloud cover, which streaks across the sky. The clouds are backlit, and their illumination by the sun creates a dappled appearance. The expansive view to the frozen marsh and open ocean beyond is visually dynamic and appealing.

Proposed Project

With the proposed Project in place, the upper portions of the SFWF turbines are perceptible as small gray protrusions above the horizon. Along with the significant screening provided by curvature of the earth, the visibility and visual impact of the turbines are reduced by their gray color, which minimizes contrast with the ocean and sky at the horizon. Although movement of the blades could enhance turbine visibility, their impact on aesthetic quality will be minimal, even under clear conditions, due to the abundance of more dominant foreground features. One member of the rating panel noted that the visual impact of the proposed Project is reduced due to the distraction created by the intervening narrow landform in the midground, which minimizes the Project's impact. Overall, members of the rating panel agreed that the Project is barely visible, and that even under clear conditions viewers will likely not notice the turbines.

Viewpoint 4 – Fred Benson Beach (Appendix C Sheets 16-19)

Existing View

This view is from Fred Benson Town Beach (Crescent Beach) on the eastern shore of Block Island, looking east-southeast toward the proposed Project. This site is a heavily used public beach by both tourists and residents and the summer and to a lesser degree, by year-round residents during the winter months. Fred Benson Beach is located within the Crescent Beach Scenic Area, approximately 20.7 miles west-northwest from the nearest proposed SFWF turbine site. The existing view features a sandy beach in the foreground leading to a vast expanse of ocean that extends to the horizon. The waves breaking on the beach provide a strong horizontal color contrast between the dark blue ocean and the lighter beach sand. People can be seen walking along the beach and the Block Island Ferry is crossing the background portion of the view. The ferry is in direct sunlight, making it contrast strongly with the dark blue ocean and light blue sky. The horizon is well defined where the light sky meets the dark ocean. This view is typical of what recreational users would experience during a late summer afternoon on Block Island's east-facing beaches.

Proposed Project

With the proposed Project in place, the upper portions of all 15 turbines can be seen rising above the horizon in the center of the view. The offshore substation is completely obscured by the curvature of the earth at this distance. The turbines appear bright white against the deep blue sky due to the sun angle at this time of day. While the turbines are clearly visible at this location due the reflected sunlight and contrast against a light blue sky, rating panel comments suggest that they will not be a dominant feature in the view due to the broad expanse of open ocean, beach, and sky that still define the character of the landscape. Blade movement will likely draw viewer attention to the Project, but according to the rating panel, the presence of the turbines may add an element of visual interest to the horizon to an otherwise static view. Since the simulation from Fred Benson Beach represents high visibility/high contrast conditions, it is likely that the turbines would be difficult or impossible to discern during high humidity, overcast conditions, and/or inclement weather

Viewpoint 4B – New Shoreham Beach (Appendix C Sheets 20-23)

Existing View

This view is from New Shoreham Beach and the Lakeside Drive State Fishing Access site on the south shore of Block Island. It is located at the base of the bluffs, approximately 20.6 miles northwest of the nearest proposed SFWF turbine. This site is popular amongst tourists and residents for surfing, fishing, and sightseeing. The beach is accessed via Snake Hole Road and a steep winding trail which traverses the bluff down to the beach. The view is a quintessential rocky New England beach, anchored on the left side by the dramatic rise of the bluffs, the base of which are vegetated with shrubs and grasses. In the center of the view, the beach sand is interrupted by cobbles and boulders, which creates visual interest in the immediate foreground. The crashing of the waves near the beach creates a transition from sand and boulders to a dark blue ocean. On the right side of this view, a single BIWF turbine is visible on the horizon line. The turbine is side lit, which creates a combination of strong shadows and illuminated surfaces that enhance its visibility against the blue sky. As indicated by the contextual photographs, the remainder of the BIWF is also visible from this location, immediately outside the field of view of the selected photo.

Proposed Project

With the proposed Project in place, the SFWF turbines are visible on the horizon in the center of the view. Their white color stands out against the blue sky, but this contrast is not strong under the side-lit conditions illustrated in the view. The Project occupies a small portion of the background horizon and the turbines are much smaller in scale than the existing BIWF turbine in the midground. Rating panel members generally agreed that the cluster of turbines as a whole will be visible to the casual observer, and one panel member suggested that the turbines could detract from the view. However, they are not a dominant feature, and other existing foreground and midground elements remain the focal points of the view.

Viewpoint 4C – View from Block Island Ferry (Appendix C Sheets 24-27)

Existing View

This view is from the Block Island Ferry as it departs Block Island. The viewpoint is approximately 19.8 miles northwest of the nearest proposed SFWF turbine. This is generally as close as the Block Island Ferry gets to the proposed Project site. The Block Island Ferry provides a unique vantage point from which the viewer can enjoy views of the open water and boat activity. This view is also representative of those views typically experienced by the fishing community user group. The existing view features a broad expanse of dark, open water that spans the view and contrasts with the light gray-blue of the sky. The morning sun is reflecting off the water, which illuminates the ocean in the center of the view and silhouettes three ships that are just barely visible on the horizon. The horizontal layering of the broad expanse of open water and sky is visually appealing and draws the viewer's attention toward the horizon. As demonstrated in the contextual photos, the five BIWF turbines and the land mass of Block Island are visible from this location, outside the field of view to the right.

Proposed Project

With the proposed Project in place, the SFWF turbines are visible on the horizon on the left-hand side of the view. Due to the angle of the sun, the turbines are somewhat back-lit, and blend into the grayish sky at the horizon. The effects of distance moderate their scale contrast and prevent them from dominating the scene. All of the rating panel members indicated an impact on aesthetic quality in this view but agreed that the Project does not visually dominate the seascape. It was also noted that the degree to which the Project attracts attention will vary, depending on the number of other objects visible in the view. The turbines are more noticeable when they are the only objects present, but subdominant when the existing BIWF turbines and Block Island are present in the view. However, the addition of the Project will alter this pristine view to some degree. The ferry ride will present a unique perspective of the Project, and the turbines may represent an element of interest to some ferry passengers.

Viewpoint 5B: View from Southeast Light (Appendix C Sheets 28-32)

Existing View

This view is from the Southeast Lighthouse on the south shore of Block Island, within the Mohegan Bluffs Scenic Area. It is approximately 19.4 miles west of the nearest proposed SFWF turbine. With the exception of Nomans Land Island, this represents the nearest available land-based view of the SFWF. This view would typically be experienced by large numbers of residents and tourists in the summer season. The view to the east-southeast, toward the Project, looks over the shoreline bluffs to the open ocean, which extends to the horizon. The foreground of the view is dominated by a wooden fence separating the viewer from the scrub-shrub vegetation at the crest of the shoreline bluffs. The horizon is well-defined by a clear light blue sky contrasting with the still, dark blue ocean. The broad expanse of ocean and sky gives this view an open and expansive feel, although views of the bluffs and shoreline are screened by the dense foreground vegetation. Additionally, an existing antenna presents a focal point that draws the viewers' eye from the horizon. The view features a seemingly endless horizon but, lacking the context of shoreline features, is not exceptionally interesting or scenic. At a distance of approximately three miles, the existing BIWF is a prominent visible feature, immediately outside the field of view to the right.

Proposed Project

With the proposed Project in place, the full height of the turbines is visible on the horizon. However, under the sky/lighting conditions illustrated in the photograph, their visibility and contrast are diminished by the white color of the turbines against the light blue sky. Rating panel members agreed that the turbines will have little impact on scenic quality or landscape character under these conditions, although one panel member noted that the proposed turbines could certainly be more visible under different lighting conditions. However, within the greater site context, the existing BIWF turbines remain the dominant focal points at this location.

In addition to the simulation of the operational Project, the rating panel also evaluated a simulation of construction activities that would be visible from this viewpoint. In this simulation, the construction platform is more noticeable than the turbines due to the contrast of the red and white color at the horizon. However, at this distance, the platform and other construction equipment appear small, and the platform is similar in perceived scale and color to many commercial vessels that occupy the seascape. Any visual impact associated with Project construction would be minor and short-term.

Viewpoint 5N: Nighttime View - Southeast Light (Appendix C Sheets 33-35)

Existing View

This nighttime view is from the Southeast Lighthouse, in the same location described above. In the fading light, the fence separating the viewer from the bluff's edge is dimly visible. In the existing view toward the Project site, the only evidence of light comes from a distant mainland source near the center of the view. The dark ocean merges with the dark sky, and the two are only distinguishable due to the faint light remaining from the sunset. A few stars are also visible in the night sky. The darkness of the view focuses the viewers' attention to the lights on the horizon and the stars. Outside the field of view of the selected photo, the lights from existing shoreline homes and a cluster of lights from the BIWF turbines are visible to the left and right, respectively.

Proposed Project

With the proposed Project in place, the red aviation warning lights and amber USCG warning lights from all 15 proposed turbines can be seen on the horizon in the center of the view. The lights on the turbines add visual clutter at the horizon and compromise views of the dark ocean and night sky. However, the lights are located at the horizon and would not significantly interfere with the appreciation of the dark skies and stars overhead. The lights are also consistent with those of the BIWF turbines that are already present in adjacent views. During the summer tourist season, the increased number of lights at adjacent shoreline residences and on passing boats will further mitigate Project-related lighting impacts.

Viewpoint 6: View from Point Judith Lighthouse (Appendix C Sheets 36-39)

Existing View

This viewpoint is on the grounds of Point Judith Lighthouse, located within the Point Judith Scenic Area in the Town of Narragansett on the Rhode Island mainland, approximately 23.6 miles northwest of the nearest proposed SFWF turbine. The existing view features a small section of lawn (associated with the Point Judith Lighthouse, which is to the right of the viewer) that terminates at the top of a steep bluff. The ocean can be seen at the base of the bluff, where waves are breaking on a cobbled/boulder shoreline and extends to the horizon. This view is representative of views experienced by residents just to the north of this location, tourists, and the fishing community (Point Judith is a major commercial and fishing port). In this view, the ocean feels close to the viewer, and the wave action holds viewer attention. Additionally, multiple boats are visible in the midground. The existing view is interrupted by a sign, a bench, and a large boulder which occur in the foreground on the right side of the view. From this location, the existing BIWF is mostly screened from view due to the security fencing, vehicles, and structures associated with the lighthouse.

Proposed Project

With the proposed Project in place, the SFWF turbines can be seen as faint vertical lines rising above the horizon to the left of center in the view. Under the sky and lighting conditions illustrated in the photo, the cluster of proposed turbines is barely visible and would likely go unnoticed by a casual viewer. It is difficult to perceive the turbine towers or blades, as they present minimal line, color, and scale contrast with the background sky. Members of the rating panel noted that the boats on the horizon are more visually dominant and remain the focal points in the view.

Viewpoint 6N: Nighttime View - Point Judith Lighthouse (Appendix C Sheets 40-42)

Existing View

This nighttime view is from the Point Judith Scenic Area at approximately the same location as the daytime view. In the existing view to the southeast (toward the proposed Project), no lights, or evidence of light, are visible in the foreground. The dark ocean merges with the dark sky, and the only evidence of the horizon is a distant white light on Block Island. In the darkness, it is possible to detect the silhouettes of wispy clouds in the nighttime sky. The darkness of the view focuses the viewers' attention to the light on the horizon. However, moonlight reflected on the water to the left, and lights associated with the lighthouse to the right (both outside the field of view of the selected photo), are more dominant nighttime focal points at this location. Aviation warning lights on the BIWF turbines are screened from view by structures associated with the lighthouse.

Proposed Project

With the proposed Project in place, a row of 15 red lights have been added to the horizon on the left-hand side of view. The lights have an orderly arrangement but, according to the rating panel, feel out of place on the generally dark horizon. Addition of the flashing warning lights on the turbines compromises areas of dark ocean and presents contrast with the night sky. However, the vast majority of the sky overhead remains unaffected, and adjacent views are already impacted by lights coming from Point Judith Lighthouse, which diverts the viewers' gaze from the night sky. During the summer tourist season, the increased number of lights on Block Island and passing boats will further distract from the Project's lighting impacts.

<u>Viewpoint 7: Scarborough Beach State Park (Appendix C Sheets 43-46)</u>

Existing View

This view is from Scarborough Beach State Park in the Town of Narragansett, Rhode Island, approximately 24.8 miles north-northwest of the nearest proposed SFWF turbine. User groups that would experience this view include residents and tourists during the summer months and local residents during the off-season. The existing view features a sandy beach in the immediate foreground, backed by a broad expanse of open ocean that extends to the horizon. A number of beachgoers with associated chairs, umbrellas, and other beach gear are prominent foreground elements in this view. The varying pattern, material, line, and scale of these foreground features creates some visual clutter that focuses viewer attention and distracts from the ocean view. The sky is light blue with scattered thin cloud cover, providing contrast where it meets the darker blue ocean at the horizon. Multiple vessels are visible on the water surface across the full field of view in the background.

Proposed Project

With the proposed Project in place, the SFWF turbines are visible as faint silhouettes on the horizon in the center of the view. At this distance, the turbines appear as a very small cluster of fine vertical lines. They are difficult to perceive and, with the existing cloud cover, blend in with the background sky. Members of the rating panel agreed that, while the proposed turbines are visible as a cluster, they are not a dominant feature of the landscape, and the foreground human activity on the beach and boats on the water remain the focal points in this view.

Viewpoint 9: Narragansett Beach (Appendix C Sheets 47-50)

Existing View

This view is from Narragansett Beach in the Town of Narragansett, Rhode Island, approximately 26.9 miles north-northwest of the nearest proposed SFWF turbine. Narragansett Beach is typically used year-round by local residents and hosts large crowds of tourist in the summer months. The existing view features a broad expanse of sandy beach that extends in both directions from the viewer (see the context photos for this viewpoint). The view oriented toward the proposed Project site features a narrow band of sand in the immediate foreground backed by the water's edge and a vast expanse of ocean. The texture of the sand transitions from rough, where it has been raked, to smooth, where it has been washed by the waves. Under the overcast conditions illustrated in this photo, the ocean appears silvery-gray, with the exception of small white patches created by breaking waves, and blends into the gray sky at the horizon line. Numerous large ships are visible through a morning haze along the horizon. The context photographs show that the headlands south of Narragansett Beach protrude into the ocean to the right of this view.

Proposed Project

With the proposed Project in place, the upper portions of the turbines may be visible along the horizon but, under the conditions illustrated in this viewpoint, they blend into the background sky and cannot be readily perceived. The view of the turbines from this location is unobstructed, but due to their arrangement, the turbines occupy a relatively small portion of the visible seascape. Members of the rating panel agreed that the proposed turbines are subordinate to the shipping and pleasure vessels on the horizon. Additionally, due to the curvature of the earth at this distance, only the top one-quarter to one-third of each turbine would be visible. Because of their distance from the viewer, even under better viewing conditions the visible turbine blades would not present substantial contrast with the existing seascape, and their visual impact would be minimal.

Viewpoint 10: Beavertail Lighthouse (Appendix C Sheets 51-54)

Existing View

This view is from the shoreline at Beavertail Lighthouse in the Town of Jamestown, Rhode Island, approximately 26.3 miles north-northwest of the nearest proposed SFWF turbine. This site is a popular tourist and recreation (fishing, beach combing, etc.) area that occurs immediately west of Beavertail State Park. The lighthouse is a listed on the NRHP and occurs within the Beavertail Point State Scenic Area. The existing view features a jagged, rocky shoreline in the foreground, backed by a broad expanse of open ocean. The rock formations and the waves breaking among them are complex and visually interesting features that focus the viewer's attention on the foreground. Multiple visitors with fishing gear can be seen on the rocks. The sky overhead is clear blue but fades to light pinkish-orange at the horizon due to the setting sun. The horizon line is well-defined where the sky and the dark blue ocean meet. An anchored vessel illuminated by the setting sun is visible as a bright white feature at the horizon, approximately 8.6 miles from this location. The BIWF is barely visible in the context photograph to the south-southwest, at a distance of 23.1 miles from this location.

Proposed Project

With the Project in place, the proposed turbines are barely discernible above the ocean in the center of the view. Although perceivable, the turbines do not compete with the rocks and water in the foreground as focal points in this view. Again, the effects of distance limit views to the upper portions (primarily the blades) of the turbines, and their color blends with the light background sky at the horizon. Despite being illuminated by the sun, the turbines tend to blend with the light background sky due to their slender profile. A member of the rating panel noted that, due to their scale and mass, the existing boats are more visually prominent features than the proposed turbines.

<u>Viewpoint 11: Brenton Point State Park (Appendix C Sheets 55-58)</u>

Existing View

This view is from the grounds of Brenton Point State Park, located in the Newport/Ocean Drive State Scenic Area and Newport Historic District on Aquidneck Island. This location is a popular destination for residents and tourists who enjoy sightseeing, recreating, and sunbathing. This viewpoint is located approximately 25.5 miles north-northwest of the nearest proposed SFWF turbine site. A mowed lawn, intersected by a paved walkway and backed by a narrow roadway along the water's edge, dominates the foreground of this view. To the left of the viewer, an occupied parking area can be seen. A single car is visible driving along the roadway, which contrasts sharply with the broad expanse of open ocean that extends into the midground. The white caps of breaking waves provide spots of color contrast with the uniform dark blue color and rough texture of the ocean. Other minor man-made features (signs, utility structures, landscaping) are visible in this highly managed park area. Some boat activity can be seen along the horizon, which is well-defined by the contrast between the light blue sky and the ocean. The BIWF is 23.8 miles from this location and is visible just above the horizon in the context photographs to the south and southwest.

Proposed Project

With the proposed Project in place, the SFWF turbines are barely discernible, even under the clear conditions illustrated in the viewpoint. Strong side lighting allows the turbines' white color to blend in with the light sky behind them. The contrast between the water and the edge of the road, along with the moving vehicle and breaking waves, continues to be the focus of viewer attention in this view. These foreground features draw viewers' attention away from the greater view of open water and the horizon. The distance of the Project from the viewer and the diverse man-made features in this view minimize the Project's visual impact.

Viewpoint 11N: Nighttime View - Brenton Point State Park (Appendix C Sheets 59-61)

Existing View

This nighttime view is from the grounds of Brenton Point State Park at the same location used to obtain the daytime photographs described for the viewpoint above. This location on Ocean Avenue is a popular place for residents and tourists to visit at night to view the seascape and stars from the multiple parking areas oriented toward the ocean. In the existing view, no lights are visible in the foreground or midground, and the dark ocean merges with the dark sky in the background. No stars are visible in this view, but on the left side of the view a small white light (presumably a vessel or navigation light) is visible in the distance, suggesting the location of the horizon. The BIWF is 23.8 miles from this location, and the lights from the turbines are visible just above the horizon in the context photographs to the south and southwest.

Proposed Project

With the proposed Project in place, a row of 15 evenly spaced red lights have been added to the view. Although these lights compromise the dark skies, at this distance their intensity is subdued, and they do not interrupt the broad, dark expanses of open ocean and sky. Under the nighttime conditions illustrated in the selected photo, the lights suggest a new land use and define the location of the horizon. The lights from the turbines may detract from the existing view during sunset or earlier in the evening when ocean views are available, but at this time of night their presence does not diminish the viewers' appreciation of the ocean or the sky overhead. Lights from passing ships will often be more obvious and distracting than the turbine lights.

Viewpoint 12: Newport Cliff Walk (Appendix C Sheets 62-65)

Existing View

This view is from the southernmost portion of the historic Newport Cliff Walk, a National Recreational Trail in Newport, Rhode Island, approximately 24.8 miles north of the nearest proposed SFWF turbine. The Cliff Walk is also located within a State Scenic Area and the North Light State Historic District and is very popular amongst residents and tourist during the summer. The selected viewpoint is the nearest, most unobstructed view toward the proposed Project site from Newport. The existing view from this location features a rocky outcrop emerging from the dark, open water at the shoreline. The surrounding ocean is relatively still, and along with the rock structure, creates strong horizontal lines in the seascape. The horizon is well-defined where the dark blue ocean meets the sky, which is light blue and free of cloud cover. The low morning lighting illuminates details of the texture and patterns of the rocks. Just beyond the rock structure, a fishing boat can be seen on the right side of the view. No other man-made structures are visible, and the empty expanse of open ocean extends to the horizon, allowing the viewer to experience a sense of solitude. The strong contrast between the rocks, the water, and the sky creates visual interest in this view.

Proposed View

With the proposed Project in place, the SFWF turbines, including portions of the towers, the nacelles and rotors, can be seen rising above the horizon. The offshore substation is screened by curvature of the earth from this location. At this distance, the turbines appear as very delicate vertical lines on the horizon and are difficult to perceive against the light blue sky. As illustrated by this simulation, even under clear conditions, the proposed turbines are barely visible and present minimal color contrast with the background sky. The distance of the observer from the turbines also minimizes their line and scale contrast. Members of the rating panel noted that the Project will not be conspicuous to casual observers, and the more dynamic foreground features will remain the focal points in this view.

Viewpoint 14: Sachuest Beach (Appendix C Sheets 66-69)

Existing View

This typical New England beach view is located in Newport, Rhode Island, approximately 26.7 miles north of the nearest proposed SFWF turbine. The viewpoint is located at Sachuest Beach, adjacent to Narragansett Bay. This view represents views that would be experienced by both residents and tourists. In the existing view, a gently sloping sandy beach in the foreground, backed by a broad expanse of ocean that extends to the horizon, provides long-distance, unobstructed vistas. The distinct horizon line, water's edge, and lines of breaking waves on the shoreline create strong horizontal lines in the view. The sun angle in this late afternoon view results in shadowing of the ocean surface, which gives it a deep blue color. This dark blue color contrasts with the lighter blue sky, creating a well-defined horizon. In the foreground on the beach, several visitors can be seen sunbathing and playing near the water's edge.

Proposed Project

With the proposed Project in place, up to two-thirds of the lower portions of the proposed turbines are screened by the curvature of the earth, leaving only portions of the rotors on all 15 turbines potentially visible above the horizon. However, due to the narrow profile of the turbine components and the effects of distance, the turbines are very difficult to see. There is minimal contrast between the white turbine rotors and the light sky, making the turbines barely visible above the horizon. The rating panel concluded that overall visual impact from this viewpoint was minimal, noting that the turbines would not be distracting to a casual viewer even under the clear conditions illustrated in the viewpoint.

<u>Viewpoint 14A: Hanging Rock - Norman Bird Sanctuary (Appendix C Sheets 70-73)</u>

Existing View

This view is from Hanging Rock overlook on the Norman Bird Sanctuary, accessible via a 1-mile long trail originating at the Norman Bird Sanctuary main office building. The sanctuary hosts a number of tourists and local residents year-round. The overlook is adjacent to the Paradise Avenue and Associated Roads State Scenic Byway on the southern shore of Aquidneck Island. This viewpoint is approximately 26.7 miles north-northwest of the nearest proposed SFWF turbine. The existing view toward the proposed Project features the southwestern corner of Gardiner Pond in the immediate foreground, which is edged by a man-made dike. There is a narrow catwalk on the pond's edge in the lower left side of the view, which provides maintenance access to the pond's engineered outlet structure. Beyond the pond in the midground is the paved parking lot for Second Beach. Gardiner Pond and the parking lot are separated by a ditch that includes reed grass that is medium brown in color. The seed heads of the grasses are illuminated by the low morning light and appear light cream-colored, providing some visual interest. A few cars are parked along the edge of the parking lot adjacent to some man-made structures. Scrubby dune vegetation separates the parking lot from Second

Beach. From this elevated vantage point the beach itself is largely screened by the dunes, but the dark blue ocean extends to the horizon, where it meets a clear blue sky. A landmass protrudes into the water on the left side of the view where the sun is reflecting off the ocean, causing the water to appear white.

Proposed Project

With the proposed Project in place, the SFWF turbines are fully visible on the horizon as small, gray vertical lines. In the low morning light, under clear conditions, the darker turbines present contrast with the pale sky at the horizon. While the turbines are visible along the horizon, they are not dominant in this viewpoint and do not lessen the aesthetic quality of the view. Members of the rating panel agreed that the complex scenery in the foreground related to Gardiner Pond and Second Beach remain the dominant focal points in this view. The man-made character of the dike, parking area, and associated structures also lessen the contrast presented by the man-made form of the turbines.

<u>Viewpoint 14B: Sachuest Point National Wildlife Refuge (Appendix C Sheets 74-77)</u>

Existing View

This view is from Sachuest Point NWR, part of the Sachuest Point State Scenic Area in Middletown, Rhode Island. This viewpoint is located approximately 25.6 miles north-northwest of the nearest proposed turbine and represents views experienced by residents and tourists. The existing view looks out from a rocky shoreline covered in boulders to a largely unbroken expanse of open ocean. The dark shoreline contrasts with the white foam created by waves crashing against the rocks. The ocean is dark blue but appears silvery in areas due to the reflecting sun. In the low morning light, the sky is pale blue and gradually fades to light yellowish-orange where it meets the ocean. There is a strong color distinction between the sky, water, and shoreline that creates strong horizontal lines in the landscape. On the right-hand side of the view, a rocky landform is visible near the horizon. Large ships are faintly perceivable in the far distance. The simplicity of the water as it meets the horizon line and its subtle shades of color in this view are visually appealing.

Proposed Project

With the proposed Project in place, the turbines are barely discernible as faint silhouettes above the ocean in the center of the view. Due to the curvature of the earth, only the upper portions of the towers, nacelles, and rotors are visible above the horizon. As illustrated in this simulation, even under clear conditions, there is minimal contrast between the turbines and the sky. A distant ship on the horizon is larger and darker, and so appears more prominently than the Project. The foreground also provides far more dominant visual features and draws the viewer's eye away from turbines on the horizon.

Viewpoint 15: South Shore Beach (Appendix C Sheets 78-81)

Existing View

This view is from the shore of South Shore Beach in Little Compton, Rhode Island, within the Little Compton Agricultural Lands State Scenic Area. This location attracts local residents year-round for sunbathing the summer and fishing during the fall and winter. The viewpoint is approximately 27.0 miles north-northeast of the nearest proposed turbine. The existing view is from a sandy, lightly pebbled shoreline that provides views across Narragansett Bay, which is the dominant feature in the seascape. The blue-green water is calm and largely unbroken. In the foreground, small white-capped waves break upon the shore, creating a lacework of foam at the water's edge. Beachgoers swim and play in the water just off shore, and additional people are present on the beach outside the field of view to the right. Also, in this direction, the shoreline wraps around, and the mainland protrudes into the horizon on the right side of the selected view. The horizon is well-defined where the dark blue water and light blue sky meet. The landscape includes strong horizontal lines (shoreline, breaking waves, horizon) with large ships faintly visible on the horizon in the distance.

Proposed Project

With the proposed Project in place, only the upper portions of the SFWF turbines are visible above the horizon due to screening provided by curvature of the earth. Because only the nacelle and/or blades are visible, it is very difficult to distinguish individual turbines. Along with the screening provided by the curvature of the earth, the visibility and visual impact of the turbines are reduced by their white color, which minimizes contrast with the sky at the horizon. Although movement of the blades could enhance turbine visibility, their impact on aesthetic quality will be minimal due to the abundance of foreground visual features and high level of human activity already present in this area (as evidenced in context photos). Members of the rating panel agreed that the Project is barely visible, even under clear conditions, and that viewers will likely not see the turbines.

Viewpoint 17: Gooseberry Island (Appendix C Sheets 82-85)

Existing View

This view is from the shore of Gooseberry Island, off the southern coast of Westport, Massachusetts, approximately 26.2 miles northeast of the nearest proposed SFWF turbine. User groups include residents and tourists who frequent this shoreline and the surrounding beaches in the summertime. The viewer is positioned on a sandy hiking trail that cuts through grassy vegetation atop a coastal dune, which dominates the foreground view. The band of shoreline vegetation partially screens views out to the open ocean as one looks to the left (outside the field of view in the selected photo), but otherwise, views across the ocean continue to the horizon. Superior viewer position and intervening vegetation block views of the actual shoreline, but cobbles and boulders extend out into the ocean, providing changes in texture and visual interest in the foreground. The horizon is well-defined where the pale blue sky meets the dark blue ocean. Several boats are visible out at sea near the horizon line.

Proposed Project

With the proposed Project in place, the SFWF turbines can be seen on the horizon. The turbines are mostly screened by the curvature of the earth, with only the upper portions of the tower, nacelle, and rotors visible. The turbines are visible as light gray vertical lines on the horizon. At this distance, the turbines' line and scale are consistent with other vertical features, such as ship masts and sails, which are discernible from this viewpoint. While the proposed turbines are visible, they appear faint and are not dominant features within the landscape. The contrast of the turbines against the sky may increase the perception of visual clutter for some viewers, and a member of the rating panel noted that the turbines will be co-dominant with other seascape features in this view.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project from this viewpoint at sunset. Under sunset conditions, portions of the nacelle are visible along the horizon. They appear light gray in color, which contrasts against the rosy sky. One member of the rating panel noted that the proposed turbines are slightly more noticeable under these lighting conditions. However, the contrast is minimal, and the turbines are not dominant features within the landscape. The scale of the Project components is consistent with other features in the background, and the viewer's eye is far more likely to be drawn to the textured landscape in the foreground.

Viewpoint 18: Cuttyhunk Island (Appendix C Sheets 86-90)

Existing View

This view is from the Town of Gosnold on Cuttyhunk Island, Massachusetts. Cuttyhunk is a remote island which hosts a small number of year-round residents and a large influx of tourists during the summer months. This viewpoint is approximately 22.7 miles north-northeast of the nearest proposed turbine. The view to the west-southwest, toward the Project, looks out from inland towards the shoreline and open ocean, which extends to the horizon. The foreground of the view is dominated by rolling hills densely covered in brownish scrub-shrub vegetation, with sporadic cedars. In the center of the foreground, an existing utility pole presents a focal point that draws the viewer's eye. The horizon is well-defined by the light sky contrasting with the still, dark ocean. The ocean is mostly a uniform dark blue color, except in the center of the midground, where the sun's reflection off the ocean's surface appears bright white. The bright sunlight somewhat backlights the shoreline landforms in the midground, effectively flattening its features. The background is dominated by views of open ocean and a cloudless sky. The sky is a mix of deep and light blue and fades to light yellowish-white at the horizon, where faint wisps of clouds are visible.

Proposed Project

With the proposed Project in place, the SFWF turbines are visible on the horizon in the center of the view as light gray vertical lines with distinguishable blades and nacelles. The turbines are distant, but clearly visible due to the clarity of the sky and position of the sun. The effects of distance limit the turbines' scale contrast and prevent them from dominating the scene. The turbines appear small and do not overwhelm the view. However, one member of the rating panel suggested that the turbines become co-dominant features of the landscape due to their contrast against the light blue sky and the light reflecting off the water. Members of the rating panel differed in their opinions of whether the existing view is distinct but agreed that the introduction of the proposed turbines reduces the aesthetic quality of the view due to interruption of the seascape by the turbines. While the utility pole in the foreground may distract viewer attention from the horizon, it may also direct viewers' sight toward the proposed turbines. It is worth nothing that in the simulation, the turbines' contrast is increased due to the reflective sunlight on the surface of the water, and that views of the proposed Project may be less obvious under different lighting conditions.

Viewpoint 19: Aquinnah Overlook (Appendix C Sheets 91-95)

Existing View

This view is from the Aquinnah Overlook, a State Scenic Area in Aquinnah, Massachusetts on Martha's Vineyard. This viewpoint, located approximately 20.4 miles northeast of the nearest proposed turbine, is a very popular location for tourists and Martha's Vineyard residents who come to experience the elevated views of the ocean and the

Massachusetts mainland coastline. The existing view is from the edge of an elevated bluff on the southwestern shore of Martha's Vineyard. The view is dominated by an open sky and a broad expanse of ocean that extends uninterrupted to the horizon. Two pleasure boats can be seen in the midground on the central right side of the view. A wooden fence separates the viewer from the scrub-shrub dominated edge of the overlook. Native grasses and undulating shrubby slopes are visible in the immediate foreground below the viewer. The vegetation provides a foreground edge and contributes to the viewer's sense of elevation above the water. A strong vertical horizon line is created where the dark ocean meets the light blue sky. The foreground fence rails and clouds above the horizon (the reflection of which is also visible on the water's surface) also contribute strong horizontal lines to the view. The broad stretch of ocean and sky gives this view an open and expansive feel.

Proposed Project

With the proposed Project in place, a cluster of white turbines is visible above the central left portion of the horizon line. Due to the elevated viewing position, the majority of the turbine structures as well as the offshore substation are visible. The substation appears as a darker object within the turbine array. The turbines interrupt the horizon, but this effect is softened by their light color and distance from the viewer. The Project would likely be visible to a casual viewer from this vantage point under clear conditions but does not dominate the view.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the turbines are more visible due to backlighting, and become a focal point in the view. Under these lighting conditions, the turbines' contrast with the natural conditions are accentuated. Although the setting sun itself is a co-dominant feature, the rating panel indicated that the character of the sunset is altered by the presence of the Project, even though some viewers may feel that the presence of the turbines creates visual interest and a unique sunset-viewing opportunity.

<u>Viewpoint 19N: Aquinnah Overlook Nighttime (Appendix C Sheets 96-98)</u>

Existing View

This nighttime view is from the Aquinnah Overlook, at the same location where the daytime and sunset photos described above were obtained. In the foreground, the silhouette of the fence is barely visible in the low evening light. The view is dominated by an open sky and a broad expanse of dark ocean that extends uninterrupted to the horizon. Closer to the viewer, portions of the ocean appear grayish due to the reflection of the dimly-lit sky. A horizon line is created where the dark ocean meets the sky, although dark bluish-gray clouds on the horizon diminish the level of contrast. In the early evening conditions illustrated in the selected photo, the sky glows reddish orange behind the clouds and gradually fades to shades of blue further from the horizon. The sky is streaked with dark gray wispy clouds.

Proposed Project

With the proposed Project in place, a row of 15 evenly spaced red lights have been added to the view. These lights compromise the dark skies/open ocean, as no other sources of light are visible in this view. The lights define the position of the horizon, are similar in color to the reddish sky, and would be less apparent against the fading sunset with reduced cloud cover. The intensity of the lights and their extent across the field of view is reduced as a result of their distance from the viewer. Although they do not diminish the sense of openness in this view, they do alter the uniformly dark conditions that characterize the existing scene.

<u>Viewpoint 20A: Moshup Beach (Appendix C Sheets 99-103)</u>

Existing View

This view is from Moshup Beach on the southwestern shore of Martha's Vineyard, within the Gay Head West Tisbury State Scenic Area. Moshup Beach is open to residents and tourists and is a popular destination in the summertime. It is approximately 20.1 miles northeast of the nearest proposed SFWF turbine site. The existing view features a beach grass-covered dune in the immediate foreground, backed by the adjacent ocean. The ocean is a mix of blue and green colors, with white caps and foam denoting the presence of breaking waves. The dark ocean contrasts sharply with the light blue sky, creating a well-defined horizon line. Along with the horizon line, the bands of shoreline vegetation, breaking waves, and clouds in the sky create strong horizontal lines in the view. In the foreground, a wooden signpost is visible on the shore. It appears to be the only man-made feature in the view, although other signs are present immediately outside the field of view. The breaking waves create a sense of motion, and the broad expanse of ocean and sky gives this view an open and expansive feel.

Proposed Project

With the proposed Project in place, the SFWF turbines can be seen projecting above the horizon in the central portion of the view. The white cloud cover at the horizon contrasts with the grayish turbines, which are somewhat back-lit in this view. The turbines are noticeable above the open water but are faint, even under clear conditions. The grassy dune and breaking waves in the foreground provide a unique texture that contrasts with the broad expanse of open ocean and draw the viewer's eye. However, even with the turbines present, these foreground features remain the focal points of this view.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the turbines are backlit and the full nacelles are visible against the sky along the horizon. The proposed Project components are the only man-made structures in the selected viewpoint and become a new focal point in the view. Under these lighting conditions, the turbines' contrast with the natural conditions are accentuated. Although the setting sun itself is a co-dominant feature, the character of the sunset is altered by the presence of the Project, though some viewers may feel that the presence of the turbines creates visual interest and a unique sunset-viewing opportunity.

<u>Viewpoint 21: Gay Head Lighthouse (Appendix C Sheets 104-107)</u>

Existing View

This view is from Gay Head Lighthouse, a NRHP listed lighthouse located at the westernmost point of Martha's Vineyard, approximately 20.4 miles northeast of the nearest proposed SFWF turbine. The viewpoint is a heavily visited recreational and tourist area, and provides a unique vantage point from which the viewer can enjoy views of the adjacent land and seascape. The foreground of this view is composed of scrub-shrub vegetation and open fields bisected by a road. Multiple cars are parked along the road, which is lined by light posts and other man-made utility structures. The midground includes the Aquinnah Shop at the Aquinnah Cliffs Overlook. Beyond the shop, a vast expanse of ocean is visible. The ocean includes a mix of colors, including blues, grays, and purples. It is lightly foggy, but still possible to distinguish the horizon line where the ocean meets the light blue sky. As illustrated in the context photos, partial fog/cloud cover to the left of the selected view obscures views to the horizon in that direction.

Proposed Project

With the proposed Project in place, the SFWF turbines and offshore substation are faintly visible above the horizon in the left-hand portion of the view. Under the sky conditions illustrated in the selected photo, the Project is partially obscured by the hazy conditions. From the superior vantage point, almost the entirety of the turbines is visible, so under clearer conditions when they present greater contrast with the background sky, the Project components will likely be more visible. More expansive and attractive views are available from the Gay Head Lighthouse in other directions, such as views toward the expansive bluffs to the north and northeast. The view southwest is not particularly interesting nor dynamic, and viewers will be distracted by the busy foreground, which draws attention away from the ocean view.

Viewpoint 22: Philbin Beach (Appendix C Sheets 108-112)

Existing View

This view is from Philbin Beach, located along the western shore of Martha's Vineyard, approximately 20.1 miles northeast of the nearest proposed SFWF turbine. Philbin Beach is a private, resident only destination and therefore represents the local residents user group. The existing view from the water's edge is dominated by an open sky and a broad expanse of dark blue ocean that extends uninterrupted to the horizon. The foreground features a sandy beach with multiple boulders at the water's edge. Small breaking waves create white foam, which contrasts with the dark ocean water and creates strong horizontal lines in the view. In the right-hand portion of view, the ocean appears silvery-white due to the reflection of the sun. A strong horizon line is created where the dark ocean meets the light blue sky. The uninterrupted ocean view creates an open, expansive feel.

Proposed Project

With the Project in place, a cluster of turbines is visible as light gray vertical lines protruding above the horizon. The curvature of the earth partially screens portions of the turbines, but most of the rotors and nacelles are fully visible. Their vertical lines present contrast with the existing seascape and, due to the lack of other features on the water's surface, they become distant focal points in the view. However, even under clear conditions, the turbines do not dominate the view. Although back-lighting creates some contrast, when more directly illuminated and/or under more overcast conditions, the turbines' white color would blend well with the background sky.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. The somewhat hazy cloud conditions in this view reduce the contrast of the turbines against the sky. Although, the proposed Project may be more prominent under clearer conditions, the low setting sun is the dominant feature in the view, and its position to right of the Project on the horizon distracts the viewer's gaze away from the turbines. The turbines are the only manmade features in the selected view and may alter the character of the sunset. Members of the rating panel noted that the turbines are more noticeable against the sky under these lighting conditions but are not intrusive.

Viewpoint 24: Peaked Hill (Appendix C Sheets 113-117)

Existing View

This view is from Peaked Hill in Chilmark on Martha's Vineyard, Massachusetts. The viewpoint is approximately 24.2 miles northeast of the nearest proposed SFWF turbine. Peaked Hill is owned by the Martha's Vineyard Land Bank Commission and is generally frequented by residents who walk the trails and enjoy the views of the ocean. This location is one of a few places on Martha's Vineyard that offers views of ocean from the inland portion of the island. The existing view from this elevated location toward the Project site includes an expanse of mature tree tops in the immediate foreground and midground. Deciduous forest dominates the foreground, while the midground appears to give way to a mix of coniferous and deciduous trees. Beyond the forest, a landlocked body of water can be seen, backed by additional forest, fields, and buildings. A sliver of the ocean is visible on the left-hand side of view in the distant background, while intervening forest on the right side blocks open views of the ocean. The horizon is visible where the somewhat darker ocean meets the lighter edge of the sky, but the horizon line is not well-defined due to hazy conditions over the water.

Proposed Project

With the proposed Project in place, the turbines can be seen rising above the horizon, although it is not possible to distinguish individual turbines due to haze which partially obstructs the horizon in the existing view. Under the conditions illustrated in this photo, although screened by haze, the turbines are still visible and in contrast with the surrounding natural landscape. One member of the rating panel noted that backlighting and less haze would increase contrast between the sky and the Project and therefore increase Project visibility. However, the existing view is not particularly interesting nor dynamic, and the addition of the Project does not degrade the scenic quality of the viewpoint.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the turbines are more clearly visible above the horizon. The Project is backlit, and the turbines appear dark gray against a reddish sky. Hazy clouds near the horizon somewhat diminish the contrast between the turbines and the sky, but the turbines may be more visible under clearer conditions or earlier in the evening when the sun is higher in the sky. Despite the visibility of the turbines, the setting sun is the dominant feature in the scene and its position on the horizon draws the viewer's eye away from the proposed Project.

<u>Viewpoint 25: Lucy Vincent Beach (Appendix C Sheets 118-122)</u>

Existing View

This view is from Lucy Vincent Beach in the Town of Chilmark on Martha's Vineyard. This site is a popular recreation (swimming, sunbathing, beach combing, etc.) area that occurs within the Gay Head West Tisbury Unit State Scenic Area, approximately 23.8 miles northeast of the nearest proposed turbine. The beach has restricted access for the residents of the Town of Chilmark and therefore represents the resident user group. The existing view features a grassy path surrounded by scrub-shrub vegetation on both sides. The path descends to a sandy beach in the midground, which is crowded with beachgoers and their associated beach gear. The area behind the beach includes a mix of herbaceous and shrub vegetation on the right side of the view, while the left side of the view includes the ocean shoreline where several people can be seen wading in the water. In the background, the shoreline includes a largely uninhabited sandy beach, backed by coastal bluffs which rise to a height of land that form the visible horizon. The coastal landform obscures views of the ocean at the horizon and includes occasional built structures. The sky is light blue and clear above the darker land masses and blue ocean, and under the conditions illustrated in the photo, colors and contrast are softened by atmospheric haze.

Proposed Project

With the Project in place, the proposed turbines are not readily visible in this view. Most of the turbines are fully screened by the intervening land masses, and the visible portions of those that extend above the land at the horizon are limited to the tops of the nacelles and blades. Under the conditions illustrated in the selected photo, the proposed turbines are not visible. Although the rotors may be observable under clearer conditions, the turbines will be a very minor component of this view, and will not compete with the ocean, beach, bluffs, and human activity, which remain the focal points in this view.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, portions of the nacelles are visible above the rocky outcrop, but they blend in with the rough texture of the landform. The sun has disappeared behind the landmass, illuminating the sky a light yellow. The backlit turbines appear dark gray against the light sky and the position of the sun behind the coast serves as a focal point, drawing the viewer's eye toward part of the proposed Project. One member of the rating panel noted that the turbines contrast with the horizontal landform and become part of the sunset viewing experience.

Viewpoint 26A: Nobska Lighthouse 2 (Appendix C Sheets 123-127)

Existing View

This view is from the publicly accessible grounds of the Nobska Lighthouse, a NRHP listed lighthouse in the Town of Falmouth on the Massachusetts mainland. This picturesque location draws tourists and residents during the summer vacation season. This viewpoint is located approximately 35.3 miles northeast of the nearest proposed SFWF turbine. The foreground of the view toward the Project is dominated by a paved road, parking lot enclosed by a fence, and two parked cars. On the right-hand side of view, the backside of a signpost is visible outside of the fence. The far side of the road (Nobska Road) is backed by a band of scrub-shrub vegetation. The vegetation provides a foreground edge and contributes to the sense of drop to the ocean below. The vegetation screens views of the shore and is backed by an expanse of dark blue ocean. Distant points of land create the visible horizon on the right and left side of the view, but in the center the horizon line is well-defined where the ocean meets the pale blue sky. On the right-hand side of view, wispy clouds streak the otherwise clear sky. Several vessels and buoys can be seen in the water, reinforcing the nautical character of the view.

Proposed Project

With the proposed Project in place, only the tops of the turbine rotors are potentially visible due to the screening provided by curvature of the earth. Even though the viewpoint is elevated, at a distance of over 35 miles, only the blade tips could be visible over the horizon. In the selected photo, the proposed turbines are not visible, even under clear conditions. Members of the rating panel noted that the turbines would not likely be visible to most observers, and even if they were, foreground elements in the view would remain dominant features that draw viewer attention away from the horizon. Landforms in the distance are also likely to attract viewer attention away from the small portions of the proposed Project that could be visible in the distant background.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the sky fades to light yellow near the horizon. The light sky offers appreciable contrast with the turbine blades, which appear as small dark gray lines protruding above the horizon. The vertical blades of the turbines contrast with the line of the horizon. However, the dark turbines blend with the dark ocean and do not substantially detract from the view. The turbines are also subdominant to other features in the view, such as the buoys and ships in the ocean. The viewer's eye is more likely to be drawn to these features or to the setting sun. The presence of the turbines does not change the character of the sunset in this view.

Viewpoint 27: South Beach State Park (Appendix C Sheets 128-132)

Existing View

This view is from South Beach State Park in the Town of Edgartown on Martha's Vineyard. This viewpoint is approximately 32.4 miles east-northeast of the nearest proposed SFWF turbine. South Beach is the most popular public beach on Martha's Vineyard and draws large numbers of tourist during the summer months. Nearby residents also frequent the beach year-round. In the existing view toward the Project, a sloping sandy beach dominates the foreground. The beach is dotted with brown seaweed along the wrack line, and below that line, the sand is slightly darker, indicating the reach of the lapping waves. White-capped waves break against the shore, but in the background the ocean appears bluish-green and calm. The sky is light blue and clear of cloud cover, and the horizon line is well-defined where the ocean and sky meet. There is strong color contrast between the beach, water, and sky. On the right-hand side of the view, beachgoers relax on the upper portion of the beach near grassy dunes that are just outside the field of view to the right.

Proposed Project

With the proposed Project in place, the SFWF turbines don't appear visible. Due the screening provided by the curvature of the earth, only the rotor tips of the nearest turbines project above the horizon. However, given the effects of distance, even under the ideal viewing conditions represented in this photo, the turbines are completely undetectable on the horizon. Members of the rating panel noted that, if noticed, the barely visible turbine tips could be confused for distant boats.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the turbines are slightly more visible along the horizon due to backlighting. The turbines are subdominant to the sun, but the sun's position directly behind the turbines may draw the viewer's gaze in this direction. However, only the blade tips are visible above the horizon and they offer little to no contrast with the dark ocean. Under less clear conditions, the turbines may not be visible at all. Members of the rating panel agreed that the proposed turbines are not visible enough to impact the existing view.

Viewpoint 29: Nomans Land Island (Appendix C Sheets 133-137)

Existing View

This is a simulated view from Nomans Land Island, an NWR off the coast of Massachusetts. This viewpoint is located approximately 15.9 miles east-northeast of the nearest proposed SFWF turbine. The existing elevated view from the island bluffs to the west-southwest looks out over a broad expanse of open ocean. The edge of the bluff is dominated by brownish-green vegetation, which provides a foreground edge and contributes to the sense of height above the shore. It contrasts sharply with the sky, which is mostly yellow at the horizon and deepens into a grayish-blue. The horizon line is well-defined where the ocean and sky meet, and the contrast between the vegetation and water reinforce the strong horizontal lines in the scene. Despite being an elevated view, this type of expansive ocean view is similar to the types of views experienced by the fishing community.

Proposed Project

With the proposed Project in place, the SFWF turbines can be seen on the horizon in the center of the view. The turbines appear as faint gray vertical lines against the yellow backdrop of the sky and are out of character with the vast extent of open water. The lower portions of the towers are screened from view by curvature of the earth, but the bulk of the turbines, including full rotors and nacelles, are visible. While the line and form of the turbines are distinguishable against the sky, they are not dominant in the scene. The contrast between the existing vegetation, water, and sky is dramatic and creates more visual interest than the distant turbines on the horizon. Members of the rating panel observed that under different viewing conditions, the turbines may not be visible at all on the horizon. Conversely, the contrast of the turbines may increase when viewed against a darker sky, or when backlighting or direct illumination by the sun cause the turbines to become more apparent. Since Nomans Land Island is not open to the public, few viewers will experience the view represented in this simulation.

In addition to the daytime simulation of the Project, the rating panel also evaluated a simulation of the proposed Project at sunset. Under sunset conditions, the turbines are more prominent due to backlighting and become more of a focal point in the view. The position of the sun behind the proposed Project further draws the viewer's eye to the turbines. Under these lighting conditions, the turbines' contrast with the natural conditions are accentuated. The presence of the Project alters the character of the sunset, but some viewers may feel that the presence of the provides visual interest and a unique sunset-viewing opportunity.

Viewpoint 30: Atlantic Ocean (Appendix C Sheets 138-142)

Existing View

This simulated view is from the Atlantic Ocean, approximately 8.6 miles west of the nearest visible Project component. The view is representative of what a viewer positioned on the top deck of a typical cruise ship or fishing vessel would see from a high-traffic passenger vessel channel at its closest point to the proposed Project. The view looks east toward the Project and offers an unobstructed view of open ocean. The expansive view creates a feeling of openness and allows the viewer to experience a sense of solitude. The ocean is dark greenish-blue and calm, stretches uninterrupted to the horizon. The horizon line is clearly defined by the contrast in color and texture presented by the dark water and the light sky. The sky is pale blue and clear of clouds but fades to light orange where it meets the water. To the right of center, the dark form of a ship is barely visible near the horizon but presents minimal contrast against the ocean. The open water viewpoint is devoid of any intrusion by land or vegetation.

Proposed Project

With the proposed Project in place, the SFWF turbines are visible on the horizon in the center of the view. The turbines rise out of the open water, and all components are visible from this distance. The white, sunlit turbines contrast with the dark ocean, but their contrast with the sky is somewhat muted by the brightness of the sky under these viewing conditions. The proposed Project is the only visible feature of the ocean, and thus becomes a focal point that dominates the view from this vantage point. However, one member of the rating panel noted that addition of the turbines to the view does not distract, but rather adds something interesting to the view, as the existing view is not particularly dynamic. This viewpoint offers a unique perspective of the Project to the viewers, who in most cases could be considered through-travelers. To these passengers on commercial vessels, the turbines may represent an element of interest. Therefore, while the Project visually dominates the seascape, it may not reduce the aesthetic quality or viewer enjoyment of this view.

5.2.3 Impact Evaluation

The simulations described in the previous section are representative of the most open views of the Project that will be available to the public within the visual study area. As indicated previously by the PAPE definition, such open views are almost exclusively restricted to views from the water and shoreline locations with open, often expansive, views of the ocean. The simulations evaluated by the rating panel include a relatively narrow field of view (consistent with the

50 mm lens setting), and thus represent focused views of the Project from within the PAPE. They also typically occur in the LSZs with the highest baseline scenic quality. Therefore, evaluation of the Project's effect from these viewpoints represents a conservative assessment of potential visibility and visual impact.

As indicated below in Table 11, the difference between the aesthetic quality of the existing views and the same views with the Project in place (Rating Panel Impact Scores or VIA) varied by viewpoint and individual rating panel member. Individual scores for specific KOPs ranged from minus 4.0 (indicating a strong adverse visual impact) to plus 1.0 (indicating a slight improvement in visual quality). Composite scores (i.e., the average score of all four rating panel members) for individual viewpoints ranged from minus 1.8 to 0.0 (indicating no visual impact) and averaged minus 0.59. Overall, eight simulations received an average score of 0.0, indicating that, with the Project in place, the view was unaffected. An additional 15 views received an average score of minus 0.1 to minus 0.5, indicating that the impacts were minor to negligible from those locations. Generally, the more distant views on the islands and mainland, where the turbines were barely perceptible on the horizon, received the lowest impact scores. The highest impact scores (lowest numerical scores) were received by the sunset and nighttime views, which scored between minus 0.1 and minus 1.8, and minus 1.6 and 0.0, respectively. The highest impact scores associated with daytime views were received by views in which the turbines were closer to the viewer, such as in the Atlantic Ocean (Viewpoint 30 – see Appendix C, Sheet 141) and when the Project was heavily backlit against a light-colored sky at sunset (Viewpoint 18 and 19 - see Appendix C, Sheets 90 and 95). A summary of the VIA scores received by each viewpoint is summarized in Table 11, below.

Table 5.2-7. Aesthetic Impact Scoring Summary

Viewpoint	Location	Landscape Similarity Zone	KAC	RMS	JMG	WLK	Average Score
Daytime Simulations							
1D	Montauk Lighthouse	Maintained Recreation Areas	0.0	0.0	0.0	0.0	0.0
2	Watch Hill Light	Shoreline Residential	0.0	0.0	0.0	0.0	0.0
2A	Trustom Pond NWR	Salt Pond/Tidal Marsh	0.0	0.0	-0.3	-0.7	-0.3
4	Fred Benson Beach	Shoreline Beach	-0.3	0.0	-1.3	-0.7	-0.6
4B	New Shoreham Beach	Shoreline Bluffs	-1.0	-0.7	-1.0	-1.3	-1.0
4C	Block Island Ferry	Open Water	0.0	-1.0	-1.3	-1.0	-0.8
5B	Southeast Lighthouse	Maintained Recreation Areas	-0.3	-1.3	0.0	-0.7	-0.6
Daytime Simulations							

Viewpoint	Location	Landscape Similarity Zone	KAC	RMS	JMG	WLK	Average Score
5B	Southeast Lighthouse Construction	Maintained Recreation Areas	-0.3	0.3	0.0	0.0	0.0
6	Point Judith Lighthouse	Maintained Recreation Areas	0.0	0.0	-0.3	-0.7	-0.3
7	Scarborough Beach	Shoreline Beach	0.0	-0.3	-0.7	-0.3	-0.3
9	Narragansett Beach	Shoreline Beach	0.0	0.0	-0.7	0.0	-0.2
10	Beavertail Lighthouse	Maintained Recreation Areas	0.0	0.0	0.0	0.0	0.0
11	Brenton Point State Park	Maintained Recreation Areas	0.0	0.0	0.0	0.0	0.0
12	Newport Cliff Walk	Maintained Recreation Areas	0.0	0.3	0.0	-0.3	0.0
14	Sachuest Beach (Second)	Shoreline Beach	0.0	0.0	0.0	0.0	0.0
14A	Hanging Rock	Coastal Scrub/Scrub Forest	0.0	1.0	-0.3	-1.3	-0.2
14B	Sachuest NWR	Coastal Scrub/Scrub Forest	-0.3	-0.7	-0.3	0.0	-0.3
15	South Shore Beach	Shoreline Beach	0.0	-0.7	-0.2	0.0	-0.2
17	Gooseberry Island	Coastal Scrub/Scrub Forest	-0.7	-0.7	-1.0	-1.0	-0.8
18	Cuttyhunk Island	Coastal Scrub/Scrub Forest	-1.7	0.0	-1.3	-2.7	-1.4
19	Aquinnah Overlook	Shoreline Bluffs	-1.0	-0.3	-1.0	-2.3	-1.2
20A	Moshup Beach	Coastal Dunes	-0.7	0.0	-1.0	-1.0	-0.7
21	Gay Head Lighthouse	Maintained Recreation Areas	0.0	0.0	-0.3	-1.0	-0.3
22	Philbin Beach	Shoreline Beach	0.0	-0.3	-0.7	-1.0	-0.5
24	Peaked Hill	Forest	0.0	-0.3	0.0	-4.0	-1.1
25	Lucy Vincent Beach	Coastal Dunes	-0.3	0.0	0.0	0.0	-0.1
26A	Nobska Lighthouse	Maintained Recreation Area	0.0	-0.3	0.0	0.0	-0.1
27	South Beach State Park	Shoreline Beach	0.0	0.0	0.0	-1.5	-0.4
29	Nomans Land Island	Shoreline Bluffs	-0.3	0.0	-1.0	-1.3	-0.7
30	Atlantic Ocean	Open Water/Ocean Zone	0.0	0.0	-2.7	-2.3	-1.3
Sunset Simulations							
17	Gooseberry Island Sunset	Coastal Scrub/Scrub Forest	-0.7	0.0	-1.3	-1.0	-0.8
19	Aquinnah Overlook Sunset	Shoreline Bluffs	-2.0	-0.3	-2.7	-2.0	-1.8
20A	Moshup Beach Sunset	Coastal Dunes	-0.7	0.0	-3.0	0.0	-0.9
22	Philbin Beach Sunset	Shoreline Beach	-1.0	0.0	-2.3	-0.3	-0.9
24	Peaked Hill Sunset	Forest	-0.3	0.0	-0.7	-1.0	-0.5
25	Lucy Vincent Beach Sunset	Coastal Dunes	-1.0	0.0	0.0	-2.3	-0.8
26A	Nobska Lighthouse Sunset	Maintained Recreation Area	0.0	0.0	-0.3	-0.3	-0.2
27	South Beach State Park Sunset	Shoreline Beach	0.0	0.0	0.0	-0.3	-0.1

Viewpoint	Location	Landscape Similarity Zone	KAC	RMS	JMG	WLK	Average Score
29	Nomans Land Island Sunset	Shoreline Bluffs	-0.7	0.0	-1.7	-1.0	-0.8
Nighttime Simulations							
1N	Montauk Point State Park Night	Maintained Recreation Areas	0.0	0.0	0.0	0.0	0.0
5N	Southeast Lighthouse Night	Maintained Recreation Areas	-0.3	-0.7	-2.2	-2.3	-1.4
6N	Point Judith Lighthouse Night	Maintained Recreation Areas	-0.3	-1.0	-1.8	-2.3	-1.4
11N	Brenton Point State Park Night	Maintained Recreation Areas	-0.3	-1.0	-2.7	-2.0	-1.5
19N	Aquinnah Overlook Night	Shoreline Bluffs	-0.7	-1.0	-1.0	-3.7	-1.6

The Shoreline Bluff LSZ received the highest impact scores, averaging an overall score of minus 1.3. However, this score does not exceed the threshold of minus 2.0 for this Retention Class landscape. When considering individual scores within the rating panel, several views within this LSZ received individual ratings that exceeded the threshold for visual impact. Examples of such views include the Aquinnah Overlook sunset simulations (Appendix C, Sheet 95), in which multiple rating panel member applied a score of minus 2.0 or lower. The Aquinnah Overlook nighttime simulation (Appendix C, Sheet 98) received a score of minus 3.7 from one rating panel member, and the Aquinnah Overlook daytime simulation (Appendix C, Sheet 94) received a score of minus 2.3 from one rating panel member (See Table 9). However, once the composite scores were averaged for all viewpoints within this zone, and for all rating panel members, the overall score was well below the impact threshold of minus 2.0.

Additional instances of individual ratings exceeding the impact threshold occurred within the Maintained Recreation Areas LSZ. The nighttime simulation from Brenton Point State Park (Appendix C, Sheet 61) received scores from two rating panel members that met or exceeded minus 2.0 (minus 2.7 and minus 2.0), but the overall composite score for this viewpoint was minus 1.5. Similarly, the nighttime view from the Southeast Lighthouse (Appendix C, Sheet 35) received individual scores of minus 2.2 and minus 2.3, but when averaged amongst all the rating panel members, the score averaged to minus 1.4 (See Table 9). The composite score for all viewpoints within the Maintained Recreation Area LSZ was minus 0.4.

As indicated below in Table 12, with the proposed Project in place, the threshold of acceptable visual impact was not exceeded for any of the LSZs identified within the visual study area.

Table 5.2-8. LSZ Impact Assessment Summary

Viewpoint	Location	User Group	Average Score/Threshold
Coastal Dunes Zone : Partial Retention Class			
20A	Moshup Beach	Residents and Tourists	-0.7
20A	Moshup Beach Sunset	Residents and Tourists	-0.9
25	Lucy Vincent Beach	Residents	-0.1
25	Lucy Vincent Beach Sunset	Residents	-0.8
Average LSZ Score			**-0.6**
Threshold			**-5.0**
Coastal Scrub/Scrub Forest Zone : Modification Class			
14A	Hanging Rock	Residents and Tourists	-0.2
14B	Sachuest NWR	Residents and Tourists	-0.3
17	Gooseberry Island	Residents and Tourists	-0.8
17	Gooseberry Island Sunset	Residents and Tourists	-0.8
18	Cuttyhunk Island	Residents and Tourists	-1.4
Average LSZ Score			**-0.7**
Threshold			**-6.0**
Forest Zone : Modification Class			
24	Peaked Hill	Residents	-1.1
24	Peaked Hill Sunset	Residents	-0.5
Average LSZ Score			**-0.8**
Threshold			**-6.0**
Maintained Recreation Areas : Retention Class			
1D	Montauk Lighthouse	Residents and Tourists	0.0
1N	Montauk Point State Park Night	Residents and Tourists	0.0
2	Watch Hill Light	Residents and Tourists	0.0
5B	Southeast Lighthouse	Residents and Tourists	-0.6
5B	Southeast Lighthouse Construction	Residents and Tourists	0.0
5N	Southeast Lighthouse Night	Residents and Tourists	-1.4
6	Point Judith Lighthouse	Residents, Tourists, and Fishing Community	-0.3

Viewpoint	Location	User Group	Average Score/Threshold
6N	Point Judith Lighthouse Night	Residents, Tourists, and Fishing Community	-1.4
10	Beavertail Lighthouse	Residents and Tourists	0.0
11	Brenton Point State Park	Residents and Tourists	0.0
11N	Brenton Point State Park Night	Residents and Tourists	-1.5
12	Newport Cliff Walk	Residents and Tourists	0.0
21	Aquinnah Lighthouse	Residents and Tourists	-0.3
26A	Nobska Lighthouse	Residents and Tourists	-0.1
26A	Nobska Lighthouse Sunset	Residents and Tourists	-0.2
Average LSZ Score			**-0.4**
Threshold			**-2.0**
Open Water/Ocean Zone : Partial Retention Class			
4C	Block Island Ferry	Residents, Tourists, Through Traveler, and Fishing Community	-0.8
30	Atlantic Ocean	Tourists and Fishing Community	-1.3
Average LSZ Score			**-1.1**
Threshold			**-5.0**
Salt Pond/Tidal Marsh Zone : Retention Class			
2A	Trustom Pond NWR	Residents and Tourists	-0.3
Average LSZ Score			**-0.3**
Threshold			**-2.0**
Shoreline Beach Zone : Retention Class			
4	Fred Benson Beach	Residents and Tourists	-0.6
7	Scarborough Beach	Residents and Tourists	-0.3
9	Narragansett Beach	Residents and Tourists	-0.2
14	Sachuest Beach (Second)	Residents and Tourists	0.0
15	South Shore Beach	Residents and Tourists	-0.2
22	Philbin Beach	Residents and Tourists	-0.5
22	Philbin Beach Sunset	Residents and Tourists	-0.9
27	South Beach State Park	Residents and Tourists	-0.4
27	South Beach State Park Sunset	Residents and Tourists	-0.1

Viewpoint	Location	User Group	Average Score/Threshold
Average LSZ Score			**-0.4**
Threshold			**-2.0**
Shoreline Bluff Zone : Retention Class			
4B	New Shoreham Beach	Residents and Tourists	-1.0
10	Beavertail Lighthouse	Residents and Tourists	0.0
19	Aquinnah Overlook	Residents and Tourists	-1.2
19	Aquinnah Overlook Sunset	Residents and Tourists	-1.8
19N	Aquinnah Overlook Night	Residents and Tourists	-1.6
29	Nomans Land Island	Fishing Community	-0.7
29	Nomans Land Island Sunset	Fishing Community	-0.8
Average LSZ Score			**-1.3**
Threshold			**-2.0**
Shoreline Residential Zone : Partial Retention Class			
2	Watch Hill Light	Residents and Tourists	0.0
12	Newport Cliff Walk	Residents and Tourists	0.0
Average LSZ Score			**0.0**
Threshold			**-5.0**

In reviewing the rating panel results, it is apparent that the degree of Project visibility and visual contrast was directly correlated with scores received by the daytime views. Specifically, if the turbines appeared back-lit against a relatively light horizon or heavily front-lit against a darker horizon, the impact scores generally reflected a greater impact. This is apparent in the Aquinnah Overlook sunset simulation (Appendix C, Sheet 95), which received a score of minus 1.8, while a daytime simulation of the same view from Aquinnah (Appendix C, Sheet 94) received a score of minus 1.2. Overall, daytime views of the turbines in this back-lit or front-lit condition, received lower composite scores when viewed from 20 to 24 miles, suggesting that both the lighting condition and proximity of the Project to the viewer may present a slightly greater visual impact than more distant views or views in which the lighting is indirect (side lit turbines, or overcast conditions).

As indicated in the preceding tables, individual scores for the five nighttime views ranged from minus 3.7 to 0.0. Composite (average) ratings for each viewpoint ranged from minus 1.6 to 0.0, and averaged minus 1.2. These composite scores did not exceed the threshold of acceptable visual impact for any of the affected LSZs within the visual study area. However, the degree of visual impact noted for the nighttime views was generally greater than indicated for to corresponding daytime views. The magnitude of nighttime visual impact from a given viewpoint will depend on distance of the turbines from the viewer, how many lighted turbines are visible, what other sources of lighting are present in the view, the extent of screening provided by structures and trees, and nighttime viewer activity/sensitivity.

Panel members indicated that the greatest nighttime impact was the effect of the proposed aviation warning lights considering perceived land use (i.e., lack of development in the view) and their spatial dominance, particularly in relationship to water resources (i.e., the open ocean). Night lighting could be perceived negatively by shoreline residents and vacationers that currently experience dark nighttime skies. However, it should be noted that from viewpoints where the lights would be visible, substantial areas of dark open ocean will also be visible in the panoramic views available at these sites (i.e., beyond the limits of a 50 mm photograph). In addition, inland from the immediate shoreline, nighttime visibility/visual impact will be limited by the abundance of structures and/or trees that screen portions of the Project from many homes, and the concentration of residences in areas where existing lights already compromise dark skies and compete for viewer attention. It was also noted during field review that an abundance of lighted vessels are generally present on the water at night. Because this presented a challenge in photo documentation due to long exposure time and vessel movements, nighttime views that included lighted vessels were not used in the development of simulations. The presence of these vessels, especially during the spring, summer, and fall, will likely detract attention from the Project's aviation warning lights.

As indicated previously, even for those viewpoints where more appreciable visual impact was noted, there was generally a high degree of variability among the scores of individual rating panel members. In some cases, certain panel members indicated no impact for the same viewpoints where other panel members noted an adverse effect. This reflects the individual variability in the way people perceive landscapes and react to wind turbines.

Wind turbines are unlike most other energy/infrastructure facilities, such as transmission lines or conventional power plants, that are almost universally viewed as aesthetic liabilities. Wind turbines have a clean sculptural form that is considered attractive by some viewers (Pasqualetti et al., 2002). As indicated by rating panel comments, in several instances, the turbines were considered to enhance aesthetic quality or add elements of interest to the view. Operating wind power projects in a variety of settings have been documented as receiving a generally positive public reaction following construction (Jefferson Community College, 2008, Warren et al., 2005; Haggett, 2011).

A study in Denmark (Ladenburg, 2008), where the population has considerable experience with wind power, revealed a generally positive attitude toward offshore wind farms, even among respondents who can see operating offshore installations from their residence or summer house. This study also indicated that offshore wind farms are preferred to on-land developments, and only 5% of the respondents indicated a negative attitude toward development of more offshore wind farms (Ladenburg, 2008). However, various U.S. and European studies indicate that viewer attitude toward offshore projects varies widely according to age, gender, income, education, length of residence, frequency of exposure, and experience with operating wind projects (Firestone and Kempton, 2007; Ladenburg, 2008; Ladenburg, 2010).

The National Survey of Attitudes of Wind Power Project Neighbors is the largest survey its kind regarding neighbors' attitudes toward wind power projects. This survey included 1,705 homeowners living within 5 miles of one of 250 wind farms throughout the United States. The preliminary results suggest that overall attitudes regarding wind turbines are generally positive, even amongst individuals living as close as 0.5 mile from turbines. Only about 8% of the respondents had negative attitudes toward wind turbines within 5 miles of their home (Firestone et al. 2017).

6.0 Mitigation

6.1 General Mitigation

In accordance with the USACE VRAP methodology, because the threshold of acceptable visual impact was not exceeded for any of the identified LSZ's within the visual study area, no mitigation is required to reduce or offset the visual impact of the SFWF. In fact, several mitigation measures that will reduce or mitigate visual impact have already been incorporated into the design of the SFWF, resulting in a negligible to minimal visual impact determination from many of the simulated views. The mitigation measures incorporated into the Project design include the following:

- The Project will be located in the area identified by the BOEM as suitable for offshore wind power development.
- The turbines' location approximately 19 miles from Block Island, 20 miles from Martha's Vineyard, and 35 miles from Montauk restricts available views from visually sensitive public resources and population centers to the "seldom seen" distance zone.
- All turbines will have uniform design, speed, height, and rotor diameter.
- The white color of the turbines generally blends well with the sky at the horizon and eliminates the need for daytime FAA warning lights or red paint marking of the blade tips.

The results of the VIA concluded that the visual impacts associated with the Project will be minimal, and no additional visual mitigation is necessary. However, the nighttime simulation evaluations (Section 5.2.3) resulted in slightly elevated visual impacts associated with the aviation obstruction lights. Therefore, if mitigation is required, DWSF will consider implementing technically feasible mitigation measures, such as Aircraft Detection Lighting Systems (ADLS), which allows for the obstruction lighting to be active only as necessary when aircraft are approaching and within the airspace[7] of the wind farm during nighttime hours.

A recent study completed by Capitol Airspace Group used historical aircraft tracking data to determine the frequency of aviation obstruction light activation. This activation occurs as an aircraft enters the airspace of the Project. This study concluded that the aviation obstruction lights would be active for approximately 3 hours and 49 minutes per year. Analyzed on a monthly basis, the activation times ranged from 2 minutes to 46 minutes per month (Capitol Airspace, 2018). Review of the Capitol Airspace Group study suggests that if an ADLS was implemented on the SFWF, broadly

[7] The Project airspace is defined as 3 nautical miles from the obstruction or perimeter of a group of obstructions and vertically 1000 feet above the highest part of the group of obstructions.

comparable reductions in the activation time of the aviation obstruction lights would be achievable. Use of the SFWF airspace is expected to be less frequent than along the southern perimeter of Nantucket Island and over the northern sections of Block Island (e.g. Capitol Airspace, 2018: Figure 5).

Additional mitigation measures would likely have a limited or no effect on Project visibility and visual impact, and therefore are not under consideration by DWSF. The feasibility and possible benefits of such measures are described below:

- Relocation: Project site and/or individual turbine relocation is not under consideration. The Project is already located far offshore from all island and mainland veiwpoints, reflecting the substantial effort that has been expended in identifying a suitable Project envelope for development of the SFWF. It is unlikely that changes to the orientation or arrangement of the turbines would substantially reduce visual impact given the distance of the Project site from most viewers. It is important to note that, from most of the identified KOPs, the wind farm, in its current configuration, would be barely perceivable to viewers on the mainland and large portions of the islands within the 40-mile visual study area.

- Camouflage: Alternate color selection or attempts at camouflaging the turbines are not effective or feasible in mitigating visual impacts of offshore wind turbines. Under most conditions, the white color of the turbines generally minimizes contrast with the sky and the yellow foundation is barely perceivable or not visible due to screening provided by the curvature of the earth. This is demonstrated by simulations prepared under a variety of sky conditions and distances from the Project. Additionally, the white color of the turbines is necessary for aviation safety.

- Scale: At the distances under consideration, a reduction in turbine size would have a minimal effect on visual impact. While a reduction turbine height could lessen scale contrast, this reduction would have to be considerable before it would be perceived from shoreline viewpoints. In addition, the line, form, and texture of shorter turbines (which contribute to their contrast with the existing seascape) would remain essentially the same.

- Lighting: Based on rating panel evaluation of nighttime simulations, aviation (and in some cases USCG) warning lights on the turbines would introduce some visual impact. However, such lighting is a required safety measure, and cannot be eliminated. Beyond 19 miles, the turbine platforms where the USCG lights would be mounted will be fully screened by curvature of the earth from sea level vantage points. Beyond 35 miles, the turbine platform and its associated lights would no longer be visible from elevated (50 feet AMSL) locations onshore. Due to the minimal visibility of the marine navigation lights from shore, no mitigation is considered necessary to reduce the visibility of these lights to onshore communities.

- Offset Mitigation: Correction of an existing aesthetic problem within the viewshed is a viable mitigation strategy for projects that result in significant adverse visual impact. However, the visual impact assessment presented herein indicates that adverse visual impact, if any, will generally be minor to mainland and island locations. Therefore, based on the results of the Visual Resources Assessment, no offset mitigations are necessary.

6.2 Project Alternatives

In addition to the currently proposed Project utilizing 12 MW turbines, EDR also evaluated the visual impact of the proposed Project using smaller, 10 MW turbines. The 10 MW design was evaluated using the same protocol as previously described in this report and the differences in visual impact between the turbine sizes are described below (see Table 13).

When considering the daytime simulations, 80% of the aesthetic impact scores were unaffected by the change in turbine size. For the impacted viewpoints, differences in impact scores between the 10 MW and 12 MW turbines ranged from minus 0.4 to minus 0.3 points, with an average of minus 0.08. For the majority of the viewpoints where the change in turbine size made a difference, the 12 MW turbines had lower aesthetic impact scores (i.e. greater negative impact to the existing view) than the 10 MW turbines. However, the score of one viewpoint (Hanging Rock) increased by 0.3 when considering the larger turbine model, suggesting that the presence of turbines may improve and add visual interest to views that lack focal points or are not particularly dynamic. Notably, switching to a larger turbine size did not cause any of the aesthetic impact scores to exceed the impact threshold for their given LSZ. Viewpoints from elevated positions or that offered broad, open views towards the Project were most likely to be impacted by a change in turbine size and Project layout.

Sunset simulations of the Project were typically rated more negatively than daytime or nighttime simulations, regardless of turbine site. All but one of the sunset simulations' impact scores decreased when considering the larger turbine model, with the decrease in scores ranging from minus 0.1 to minus 0.5, with an average of minus 0.3 points. This is likely due to the fact that sunset lighting conditions often backlight the turbines, creating more contrast between the Project and the sky, and causing the turbines to appear more prominent on the horizon. In other lighting conditions where the turbines are less visible, it may not be as easy to distinguish differences in size between the two models.

Despite the decrease in aesthetic impact score, none of the scores for either model exceeded the impact threshold for any given LSZ.

Twenty percent of the evaluated nighttime simulations were impacted by a change in turbine size. Differences in aesthetic impact scores between the two turbine models ranged from minus 0.1 to minus 0.3 points, with an average of minus 0.2. Impact associated with nighttime views of the Project are mostly dependent upon visibility of the turbines' aviation warning lights and their height above the horizon. Viewpoints where the viewer is closer to the Project and where there is an absence of other light sources will be the most impacted by an increase in Project size. In general, lights from the existing BIWF, residential shoreline homes, and passing ships distract the viewer from focusing solely on lighting associated with the proposed Project. None of the nighttime impact scores exceeded the impact threshold for their given LSZ with the increase in turbine size.

Overall, aesthetic impact scores decreased on average by 0.2 points when considering the 12 MW Project layout over the smaller turbine size. This is a minor change that would not alter the conclusions of this study.

Table 6.2-1. Comparison of Aesthetic Impact Scorings

Viewpoint	Location	Landscape Similarity Zone	Average Score 10 MW	Average Score 12 MW	Difference
Daytime Simulations					
2A	Trustom Pond NWR	Salt Pond/Tidal Marsh	-0.1	-0.3	-0.2
12	Newport Cliffwalk	Maintained Recreation Areas	0.1	0	-0.1
14A	Hanging Rock	Coastal Scrub/Shrub Forest	-0.5	-0.2	0.3
18	Cuttyhunk Island	Coastal Scrub/Shrub Forest	-1.3	-1.4	-0.1
19	Aquinnah Overlook	Shoreline Bluffs	-0.9	-1.2	-0.3
20A	Moshup Beach	Coastal Dunes	-0.6	-0.7	-0.1
21	Aquinnah Lighthouse	Maintained Recreation Areas	-0.1	-0.3	-0.2
22	Philbin Beach	Shoreline Beach	-0.4	-0.5	-0.1
24	Peaked Hill	Forest	-0.7	-1.1	-0.4
27	South Beach State Park	Shoreline Bluffs	0	-0.4	-0.4
29	Nomans Land Island	Shoreline Bluffs	-0.5	-0.7	-0.2
30	Atlantic Ocean	Open Water/Ocean Zone	-1	-1.3	-0.3
Sunset Simulations					
17	Gooseberry Island Sunset	Coastal Scrub/Shrub Forest	-0.7	-0.8	-0.1
19	Aquinnah Overlook Sunset	Shoreline Bluffs	-1.3	-1.8	-0.5
20A	Moshup Beach Sunset	Coastal Dunes	-0.6	-0.9	-0.3
22	Philbin Beach Sunset	Shoreline Beach	-0.7	-0.9	-0.2
24	Peaked Hill Sunset	Forest	-0.1	-0.5	-0.4
25	Lucy Vincent Beach Sunset	Coastal Dunes	-0.3	-0.8	-0.5
26A	Nobska Lighthouse Sunset	Maintained Recreation Areas	0.0	-0.2	-0.2
27	South Beach State Park Sunset	Shoreline Bluffs	0.0	-0.1	-0.1
Nighttime Simulations					
6N	Point Judith Lighthouse Night	Maintained Recreation Areas	-1.3	-1.4	-0.1
19N	Aquinnah Overlook Night	Shoreline Bluffs	-1.3	-1.6	-0.3

EDR completed analyses for two layouts in response to ongoing survey and engineering modifications since the initiation of the original VIA in 2017. Each of the layouts are described in this section, and illustrated in images 6.2-1 through 6.2-3, below.

The first layout, which was evaluated in the original VIA (Image 6.2-1) consisted of 15 turbine locations and a single OSS within an approximate 3 mile by 3 mile Project area. Simulations of this layout considering the 12 MW turbine were completed and provided to the rating panel for visual impact assessment.

The layout investigated in this revised VIA (Image 6.2-2) also consists of 15 turbines and a single OSS. However, project components occur within an approximate 6.5 mile by 2.2 mile area representing a wider spacing between WTGs expanding across the full Maximum Work Area (MWA). Revised simulations of this layout considering the 12 MW turbine were completed and provided to the rating panel for review. It was determined that the expanded layout had a negligible effect on visual impact, and most of the rating panel scores remained unchanged from the original layout investigated.

The most recent layout modification included in the COP revised in February 2020 (Image 6.2-3), includes the same Project components, but within a 5.8 mile by 2.3 mile area. The layout includes up to 15 WTG, plus 2 alternate positions arranged in a grid with approximately 1.15 mile (1 nautical mile) by 1.15 mile spacing, which aligns with other proposed adjacent offshore wind projects in the RI-MA WEA. The most recent layout is essentially a hybrid of those previously analyzed. The most recent layout falls within the design envelope fully evaluated in the revised VIA. Rating panel scores only varied slightly between the layouts previously investigated. Therefore, it was determined that additional analysis of the most recent layout was not necessary. The analysis in this revised VIA is robust and representative of the most recent layout proposed.

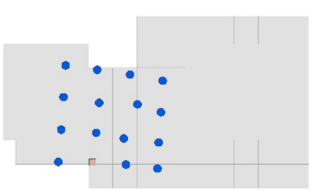

Image 6.2-1. Layout considered in the Original VIA

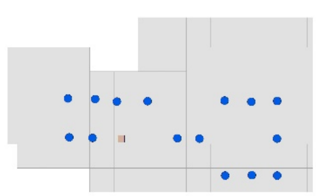

Image 6.2-2. Layout considered in this VIA Report

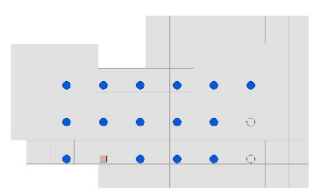

Image 6.2-3. Currently proposed layout

7.0 Conclusions

An important consideration in visual impact assessment is to avoid the assumption that visibility automatically equates to an adverse visual impact. The degree of project visibility will vary greatly depending on the distance of the viewer from the Project; meteorological conditions; degree of screening from structures, vegetation, and curvature of the earth; visual acuity of the viewer; and the ability of the viewer to recognize the Project. Projects that are located great distances from the viewing public often go completely unrecognized, due to the fact that they are perceived as secondary to the larger visual landscape. Water, trees, lighthouses, and other natural and built features become the focus of attention. Results from a study in which offshore wind farms were viewed at various distances and conditions in Europe, suggest that small to moderately-sized offshore wind farms (such as the proposed Project) may be visible to the unaided eye at distances greater than 26 miles (the maximum distance considered in that study). However, these same facilities were determined to be the focus of viewer attention when viewed at distances within 10 miles, noticeable to casual observers at distances of up to 18 miles, and only visible after concentrated viewing when viewed from greater than 25 miles (Sullivan et. al. 2012). This last viewing distance (which equates to the distances at which the SFWF will most often be viewed) also suggests that the viewer may need to be told where to look or would have to actively seek out the wind farm on the horizon before noticing it. Typically, viewers such as tourists, residents, through-travelers, and the fishing community would be concentrated on other activities unless genuinely interested in finding the Project. In instances such as this, the visual impact would be negligible.

The following additional conclusions can be drawn from the SFWF VIA:

1. Visibility analyses indicate that the Project has the potential to be visible from a relatively small portion of the land area within the 40-mile radius visual study area. The lidar viewshed analysis suggests that views of the Project will be available from approximately 2% of the land area within the 40-mile study area. The visible areas are concentrated along the immediate shoreline and rarely extend greater than 700 feet inland, except where open, elevated land areas exist. Areas with inland visibility include small areas of upland agricultural lands on mainland Rhode Island and Massachusetts and maintained recreational areas on Block Island and Martha's Vineyard. When considering on-water visibility, approximately 93.2% of the Atlantic Ocean and associated bays and sounds within the 40-mile study area will likely have some level of Project visibility. Lack of visibility on the open water typically occurs when views are blocked by islands such as Block Island, Martha's Vineyard, and the Elizabeth Islands. Additionally, mainland headlands and peninsulas are often effective screens for on-water views.

In most locations in which potential Project visibility is indicated by viewshed analysis, some portion of each of the 15 turbines could be visible. However, all populated locations with land-based views will be beyond 19 miles from the Project site, and the closest mainland viewpoints will be over 20 miles away. It is worth noting that significant visual effects of land-based wind power projects are generally concentrated within 3.5 miles of a project site (Eyre, 1995; Bishop, 2002). Based on viewer reaction to simulations of turbines at various distances (albeit substantially smaller turbines than those proposed for the SFWF), Bishop (2002) concluded that, in the absence of atmospheric reduction in contrast, turbine detection or recognition occurred for only about 5% of people at a distance of 18.6 miles and just 10% at 12.4 miles. Most of the drop-in detection rates occurred between 5 and 7.4 miles in clear conditions, and between 4.3 and 5.6 miles in light haze. Guidance for offshore wind projects in the United Kingdom suggests visual effects will be minor at distances over 15 miles, and that a distance of 22 miles generally represents the limit of visual impact (Enviros Consulting, 2005). EDR's observations of the existing BIWF indicates that under clear, high-visibility conditions, views of the wind turbines will likely be available from certain daytime viewpoints over 20 miles from the Project site. However, visibility and visual impact at these distances is minimal.

2. The lidar viewshed suggests that views of the FAA warning lights on the turbines will be available from approximately 1.3% of the land area within the 40-mile study area. This reduction in visibility is largely the result of the lower height of the lights (as compared to the blade tips), combined with the screening effects of curvature of the earth. Several areas at beach level showed substantially reduced areas of visibility, but visibility from elevated locations showed relatively little reduction in visibility.

3. Weather conditions will also serve to reduce actual Project visibility. The NCDC data indicate that visibility will not extend beyond 10 miles during approximately 19% of daylight hours in a given year and approximately 22% of nighttime hours in a given year. Additionally, only 42% of the days are characterized as clear, and up to 52% of daylight hours in a given year consist of overcast conditions. These conditions will substantially reduce turbine visibility and color contrast with the background sky. Given the distance of the Project from most viewers, along with the white color of the turbines, visibility will be difficult under overcast conditions. Although data on the frequency of ocean fog and summer haze are not available, these weather conditions occur frequently in coastal settings, and will serve to further reduce actual Project visibility, especially from mainland and more distant viewpoints.

4. The BOEM meteorological report completed in 2017 for the MA/RI Lease Areas, suggests that visibility to 20 nm occurred approximately 61 percent of the year during daytime hours while visibility to 30 nm occurred approximately 35 percent of the year during daytime hours (Wood et al., 2017).

5. As mentioned previously, at the distances proposed, screening provided by curvature of the earth can be substantial. As demonstrated in the line of sight cross sections and simulations, beach/sea level views greater than 41.8 miles from the wind farm would be fully screened from views of the turbines. Nighttime beach-level views of the aviation obstruction warning lights would be fully screened at a distance of 32.5 miles, and none of the mainland views would have visibility of the USCG obstruction lights on the turbine platform, due to curvature of the earth. The majority of mainland views will only offer visibility of the upper one-third to one-half of the turbines.

6. In terms of existing visual quality and sensitivity to visual impact, results of the MCS portion of the VRAP indicate that none of the LSZs within the study area meet the criteria of "Preservation Class" landscapes (see MCS definitions in Table 2). This is due to the fact that, although various landscape features (i.e., water resources, land form, land use, and user activity) were at times considered "distinct", these features, were more often rated as "average" (see visual quality definitions in Table 3). The highest quality landscapes within the study area were the Shoreline Bluffs, Salt Pond Tidal Marsh, Maintained Recreation Areas, and Shoreline Beach LSZs. These zones were classified as "Retention Class" landscapes, with a VIA mitigation threshold of minus 2.0.

7. Simulations of the proposed Project indicate that the daytime visibility and visual contrast of the wind turbines will generally be minimal. In many of the simulations, the turbines were very difficult to perceive due to their distance from the viewer and screening provided by curvature of the earth. Evaluation of the proposed Project by a panel of visual professionals revealed that the most appreciable visual impact generally occurred at viewpoints that were closest to the Project, provided an elevated view, offered largely unobscured views of the proposed turbines, and included few other man-made/developed features. Views in which strongly front-lit turbines were viewed against a darker sky or strongly back-lit turbines were viewed against a light sky tended to receive higher impact scores, suggesting that time of day may have some bearing on potential visual impact. Such viewpoints are generally on the southern shoreline of Block Island, western bluffs of Martha's Vineyard, and some of the southern shores of mainland Rhode Island. In these higher impact viewpoints, the turbines' contrast with water resources (open ocean), user activity (residential and tourist-related), land use (undeveloped land and ocean), and/or appreciation of other cultural or aesthetic features generally were the greatest contributors to Project impact. However, impact evaluation results indicated no appreciable impact on the majority of mainland/more distant viewpoints.

8. In the rating panel's quantitative evaluation of daytime visual impact, composite scores (i.e., average scores of the four rating panel members) did not exceed the threshold of acceptable visual impact for any of the LSZs identified within the visual study area. Mainland and more distant viewpoints received composite scores ranging from 0.0 to minus 0.8 (average minus 0.2), while composite scores from the islands and nearer water views ranged from minus 1.8 to 0.0 (average 0.6). The highest impact scores were received by simulations from viewpoints in the

Shoreline Bluffs, Coastal Scrub/Shrub Forest, and Open Water/Ocean LSZs. While scores for certain individual viewpoints, from certain rating panel members, did exceed thresholds established by the MCS procedure, cumulative scores for these LSZs did not exceed these thresholds.

9. As with daytime viewpoints, the rating panel's evaluation of nighttime visual impacts was variable depending on what other sources of lighting are present in the view, the extent of screening provided by buildings/structures and trees, and nighttime viewer activity/sensitivity. Composite scores for nighttime simulations ranged from minus 1.6 to 0.0 and averaged minus 1.2. These composite scores did not exceed the threshold of acceptable visual impact for any of the affected LSZs within the visual study area but were substantially higher than the daytime scores. While night lighting could potentially have an effect on residents and vacationers in settings where they currently experience dark nighttime skies, in many places nighttime visibility/visual impact will be limited due to: 1) the abundance of trees that screen all or portions of the Project from the majority of homes within the study area; 2) the existing shoreline and offshore light sources that already impact nighttime ocean views; 3) the distance of the Project from mainland viewpoints; and 4) the concentration of residences in villages, town centers, and neighborhoods, or along highways, where existing lights already compromise dark skies and compete for viewer attention.

10. Based on the variability of scoring by the rating panel, and research on public acceptance of operating wind power projects elsewhere, public reaction to the project is likely to be variable. Not all viewers see wind turbines as having an adverse visual impact. As Stanton (1996) notes, although a wind power project is a man-made facility, what it represents "may be seen as a positive addition" to the landscape. A recent survey of 1,705 respondents living near wind turbines suggests that overall attitudes of wind turbines are positive, and only 8% had a negative opinion of living within 5 miles of a project.

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Appendix A

Publicly Accessible Visually Sensitive Resources

Within the Preliminary Area of Potential Effect

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible	
				Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Natural Historic Landmark					
Battle Of Rhode Island Historic District	Town of Portsmouth, RI		35.2	V	V
Block Island South East Light	Town of New Shoreham, RI	5B, 5N	19.2	V	V
Bellevue Ave. Historic District	Town of Newport, RI	12	24.8	V	V
Marbel House	City of Newport, RI		25.4	V	V
Ocean Drive Historic District	Town of Newport, RI	11, 12	25.0	V	V
The Breakers	Town of Newport, RI		25.9	V	V
Montauk Point Lighthouse	Town of East Hampton, NY	1, 1N	35.1	V	V
Properties Listed on or Determined Eligble for the National or State Registers of Historic Places					
Spring Street	Town of New Shoreham, RI		19.1	V	V
Capt. Mark L. Potter House	Town of New Shoreham, RI		19.1	V	V
WWII Lookout Tower at Spring Street	Town of New Shoreham, RI		19.3	V	V
Caleb W. Dodge Jr. House	Town of New Shoreham, RI		19.6	V	V
Capt. Welcome Dodge Sr. House	Town of New Shoreham, RI		19.6	V	V
Spring House Hotel Cottage	Town of New Shoreham, RI		19.6	V	V
Pilot Hill Road and Seaweed Lane	Town of New Shoreham, RI		19.6	V	V
Old Harbor Historic District	Town of New Shoreham, RI		19.7	V	V
Spring House Hotel	Town of New Shoreham, RI		19.7	V	V
WWII Lookout Tower at Sands Pond	Town of New Shoreham, RI		20.0	V	V
Old Town and Center Roads	Town of New Shoreham, RI		20.4	V	V
Vaill Cottage	Town of New Shoreham, RI		20.5	V	V
Gay Head Light	Town of Aquinnah, MA	20A	20.5	V	V
Bayberry Lodge	Town of New Shoreham, RI		20.5	V	V
Beach Avenue	Town of New Shoreham, RI		20.5	V	V
Corn Neck Road	Town of New Shoreham, RI		20.6	V	
Lakeside Drive and Mitchell Lane	Town of New Shoreham, RI		20.6	V	V
Nathaniel Littlefield Farm	Town of New Shoreham, RI		20.6	V	V
Indian Head Neck Road	Town of New Shoreham, RI		20.6	V	V
Gay Head - Aquinnah Town Center Historic District	Town of Aquinnah, MA		20.7	V	V
Mohegan Cottage	Town of New Shoreham, RI		20.7	V	V
Mitchell Farm	Town of New Shoreham, RI		20.8	V	V
Samuel HaV House	Town of New Shoreham, RI		20.8	V	
Lewis Farm and Dickens Farm Road	Town of New Shoreham, RI		20.9	V	V
Narragansett Inn	Town of New Shoreham, RI		21.0	V	V
African American Settlement	Town of New Shoreham, RI		21.2	V	V
Beacon Hill Road	Town of New Shoreham, RI		21.2	V	V
Nathan Mott Park	Town of New Shoreham, RI		21.3	V	V
West Side Road (NVrth)	Town of New Shoreham, RI		21.6	V	V
Champlin Farm	Town of New Shoreham, RI		21.6	V	V
WW II Lookout Tower on Beacon Hill	Town of New Shoreham, RI		21.7	V	V
West Side Road (South)	Town of New Shoreham, RI		21.7	V	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible	
				Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Hippocampus Boy's camp	Town of New Shoreham, RI		21.8	NV	V
U.S. Coast Guard Station	Town of New Shoreham, RI		21.9	V	V
U.S.Coast Guard Brick House	Town of New Shoreham, RI		22.0	V	V
Block Island North Light	Town of New Shoreham, RI		22.1	NV	V
Point Judith Lighthouse	Town of Narragansett, RI	6	23.5	NV	V
Sakonnet Light Station	Town of Little Compton, RI		24.1	NV	V
Stone House Inn	Town of Little Compton, RI		25.0	V	V
Ocean Rd. Historic District	Town of Narragansett, RI	9	25.2	V	V
Rosecliff	City of Newport, RI		25.6	V	V
Beavertail Light	Town of Jamestown, RI	10	26.3	V	V
Clambake Club of Newport	Town of Middletown, RI		26.4	V	V
The Towers Historic District	Town of Narragansett, RI		26.5	V	V
The Towers	Town of Narragansett, RI		26.5	V	V
Narragansett Pier Life Saving Station	Town of Narragansett, RI	9	26.6	V	V
SmithNVGardinerNVNorman Farm Historic District	Town of Middletown, RI		26.8	V	V
Kay St.NVCatherine St.NVOld Beach Rd. Historic District	Town of Newport, RI		26.9	V	V
The Dunes Club	Town of Narragansett, RI	9	26.9	V	V
Brownings Beach Historic Distric	Town of South Kingston, RI		27.0	V	V
HorseheadNVNVMarbella	Town of Jamestown, RI		27.5	V	V
Stonybrook Estate Historic District	Town of Middletown, RI		27.8	V	V
Westport Point Historic District	Town of Westport, MA		28.3	V	V
Bailey Farm	Town of Middletown, RI		29.0	V	V
Tarpaulin Cove Light	Town of Gosnold, MA		29.6	V	V
Plum Beach Lighthouse	Town of North Kingston, RI		31.5	NV	V
Fort Taber District	City of New Bedford, MA		34.5	V	V
Hazelwood Park	Town of New Bedford, MA		35.3	NV	V
Hazelwood Park Benches	Town of New Bedford, MA		35.3	NV	V
Butler Flats Light Station	City of New Bedford, MA		35.3	V	V
Nobska Point Light Station	Town of Falmouth, MA		35.3	NV	V
Watch Hill Historic District	Town of Westerly, RI	2	36.8	V	V
Montauk Association Historic District	Town of East Hamton, NY		37.6	V	V
Ditch Plains Artillery Fire Control Stations	Town of East Hampton, NY		38.9	V	V
National Natural Landmarks					
Gay Head Cliffs NNL	Town of Aquinnah, MA	19, 21, 20	20.2	V	V
Sites, Areas, Lakes, Reservoirs or Highways Designated or Eligible as Scenic					
State Scenic Areas					
Southeast Road	Town of New Shoreham, RI		19.3	V	V
Mohegan Bluffs	Town of New Shoreham, RI	5A, 5B, 5C, 5N	19.4	V	V
Old Harbor	Town of New Shoreham, RI		19.5	V	V
Gay Head West Tisbury Unit	Towns of Aquinnah, Chilmark, Edgartown, Tisbury, and West Tisbury, MA	19, 21, 20, 25, 22, 20A, 22A	19.7	V	V
Crescent Beach	Town of New Shoreham, RI	4	20.4	V	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible	
				Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Clayhead Trail	Town of New Shoreham, RI		20.6	V	V
Great Salt Pond	Town of New Shoreham, RI		20.6	V	V
Peckham/Fresh Ponds	Town of New Shoreham, RI		20.8	V	V
Rodmans Hollow	Town of New Shoreham, RI		20.8	V	V
Corn Neck Road	Town of New Shoreham, RI		20.9	V	V
West Side Road	Town of New Shoreham, RI		21.2	NV	V
Black Road and Point	Town of New Shoreham, RI		21.2	V	V
Sachem Pond	Town of New Shoreham, RI		21.2	V	V
Lewis/Dickens Farm	Town of New Shoreham, RI		21.6	V	V
Beach Plum Neck/North Light	Town of New Shoreham, RI		21.7	V	V
The Elizabeth Islands	Town of Gosnold, MA		21.7	V	V
Point Judith	Town of Narragansett, RI	6, 6N	23.4	V	V
Little Compton Agricultural Lands	Town of Little Compton, RI	15	24.1	V	V
Newport/Ocean Drive	Town of Newport, RI	13, 12, 11	24.7	V	V
Galilee	Town of Narragansett, RI		24.7	V	V
Ocean Road	Town of Narragansett, RI		24.7	V	V
Snug Harbor/Jerusalem	Towns of Narragansett and South Kingston, RI		25.3	V	V
Sachest Point	Town of Middletown, RI	14B	25.5	V	V
Westport South Dartmouth Unit	Towns of Dartmouth and Westport, MA	17	26.0	V	V
Beavertail Point	Town of Jamestown, RI	10	26.2	V	V
Pettaquamscutt Cove/Narrow Drive	Towns of Narragansett and South Kingston, RI		26.6	V	V
Norman Bird Sanctuary/Greg Craig	Town of Middletown, RI	14A	26.9	V	V
Trustom Pond/Matunuck	Town of South Kingston, RI	2A	26.9	V	V
Tiverton Main Road	Towns of Little Compton and Tiverton, RI		27.3	V	V
Little Compton Historical Center	Town of Little Compton, RI		27.7	V	V
Mitchell Lane	Towns of Middletown and Portsmouth, RI		28.2	V	V
Perryville	Town of South Kingston, RI		28.3	NV	V
Sandy Point Road	Towns of Middletown and Portsmouth, RI		28.3	V	V
Fox Hill Pond	Town of Jamestown, RI		28.4	V	V
Quonochontaug and Ninigret Ponds	Towns of Charlestown, South Kingston, and Westerly, RI		29.0	V	V
Jamestown Brook/Windmill Hill	Town of Jamestown, RI		29.3	NV	V
Eldridge Avenue	Town of Jamestown, RI		30.5	NV	V
Casey Farm	Town of North Kingston, RI		30.5	V	V
Bissel Cove/Rome Point	Town of North Kingston, RI		32.0	NV	V
Winnipaug Pond	Town of Westerly, RI	3, 3N	33.3	V	V
Montauk Point SASS	Town of East Hampton, NY	1C, 1D, 1B, 1N	35.1	V	V
Watch Hill	Town of Westerly, RI	2	36.2	V	V
Napatree Beach	Town of Westerly, RI		38.1	NV	V
Mount Hope	Town of Bristol, RI		38.8	V	V
Hither Hills SASS	Town of East Hampton, NY		40.3	V	V
State Scenic Overlook					

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible: Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Purgatory Chasm D.O.T.	Town of Middletown, RI		26.7	V	V
Boston Neck Overlook NV D.O.T.	Town of Narragansett, RI		28.0	V	V
National Wildlife Refuges, State Game Refuges and State Wildlife Management Areas					
National Wildlife Refuge					
Nomans Land Island National Wildlife Refuge	Town of Chilmark, MA	29	15.9	V	V
Block Island National Wildlife Refuge	Town of New Shoreham, RI		21.2	V	V
Sachuest Point National Wildlife Refuge	Town of Middletown, RI	14B	25.6	V	V
John H. Chafee National Wildlife Refuge	Towns of Narragansett and South Kingston, RI		26.2	NV	V
Trustom Pond National Wildlife Refuge	Town of South Kingston, RI	2A	27.1	V	V
Ninigret National Wildlife Refuge	Town of Charlestown, RI		29.6	V	V
State Wildlife Management Area					
Gosnold WMA	Town of Gosnold, MA		22.0	V	V
South Shore Management Area	Towns of Charlestown, Narragansett, South Kingston, and Westerly, RI		23.5	V	V
Penikese Island Sanctuary	Town of Gosnold, MA		24.6	V	V
Succotash Marsh Management Area	Towns of Narragansett and South Kingston, RI		25.6	V	V
Tarpaulin Cove Sanctuary	Town of Gosnold, MA		29.6	NV	V
Katama Plains WMA	Town of Edgartown, MA		32.5	NV	V
Wasque Point WMA	Town of Edgartown, MA	27	36.0	NV	V
Ram Island Sanctuary	Town of Mattapoisett, MA		37.7	NV	V
National or State Parks					
National Resources					
None in Study Area					
State Parks					
Fishermens Memorial State Park	Town of Narragansett, RI		24.6	V	V
Brenton Point State Park	Town of Newport, RI	11	25.4	V	V
Horseneck Beach State Reservation	Town of Westport, MA	16, 17, 16A	25.9	V	V
Beavertail State Park	Town of Jamestown, RI	10	26.3	V	V
Fort Wetherill State Park	Town of Jamestown, RI		27.3	V	V
Demarest Lloyd State Park	Town of Dartmouth, MA		29.0	NV	V
South Beach State Park	Town of Edgartown, MA	27	32.3	V	V
Montauk Point State Park	Town of East Hampton, NY	1D, 1N	34.1	V	V
West Island State Reservation	Town of Fairhaven, MA		35.2	NV	V
Camp Hero State Park	Town of East Hampton, NY	1C, 1B	35.3	V	V
Amsterdam Beach State Park	Town of East Hampton, NY		37.2	V	V
Nasketucket Bay State Reservation	Towns of Fairhaven and Mattapoisett, MA		37.7	NV	V
Shadmoor State Park	Town of East Hampton, NY		38.7	V	V
State Nature and Historic Preserve Areas					
John H. Chafee State Nature Preserve	Town of North Kingston, RI		32.4	NV	V
National or State Recreation Aras, and/or Seashores					
National Resources					
None in PAPE					

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
State Beaches					
Roger Wheeler State Beach	Town of Narragansett, RI		24.4	V	V
Scarborough State Beach	Town of Narragansett, RI	7, 8	24.6	V	V
Salty Brine State Beach	Town of Narragansett, RI		25.3	V	V
East Matunuck State Beach	Towns of Narragansett and South Kingston, RI		25.6	V	V
Charlestown Breachway State Beach	Town of Charlestown, RI		29.3	V	V
East Beach State Beach	Town of Charlestown, RI		29.4	V	V
Misquamicut State Beach	Town of Westerly, RI		35.3	NV	V
Highways Designated or Eligible as Scenic					
Paradise Avenue and Associated Roads	Town of Middletown, RI	14A	26.8	V	V
Rhode Island Route 1	Towns of Charlestown, South Kingston, and Westerly, RI		30.0	V	V
Federal and State Designated Trails					
National Historic Trail					
None in PAPE					
National Recreation Trail					
Cliff Walk	Town of Newport, RI	13, 12	24.8	V	V
State Bike Route					
State Bike Route 27	Town of East Hampton, NY		35.1	V	V
State Fishing and Boating Access					
South East Light Stairway	Town of New Shoreham, RI		19.6	V	V
Old Harbor Breakwater	Town of New Shoreham, RI		19.9	V	V
Lakeside Drive	Town of New Shoreham, RI	4B	20.6	V	V
East Beach	Town of New Shoreham, RI		20.6	V	V
Coast Guard Station Access	Town of New Shoreham, RI		22.0	NV	V
Camp Cronin	Town of Narragansett, RI		23.8	V	V
Sakonnet Harbor Fishing Access	Town of Little Compton, RI		24.8	V	V
Kings Beach	Town of Newport, RI		25.5	V	V
Brenton Point	Town of Newport, RI		25.6	V	V
Monahan's Dock (State Pier #5)	Town of Narragansett, RI		26.1	V	V
Deep Hole Access	Town of South Kingston, RI		26.1	V	V
Cliff Walk	Town of Newport, RI		26.3	V	V
South Shore	Town of Little Compton, RI		26.9	V	V
Charlestown Breachway	Town of Charlestown, RI		29.4	NV	V
Sandy Point	Town of Portsmouth, RI		31.0	V	V
McCorey Lane	Town of Portsmouth, RI		32.7	NV	V
Katama Bay	Town of Edgartown, MA		33.9	NV	V
Clarks Cove	City of New Bedford, MA		35.2	NV	V
State Conservation Areas					
Lapham	Town of New Shoreham, RI		20.6	V	V
Hemenway	Town of New Shoreham, RI		20.7	V	V
Clay Head Swamp/TNCNVBall	Town of New Shoreham, RI		20.7	V	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Mitchell Farm	Town of New Shoreham, RI		20.8	V	V
Risom	Town of New Shoreham, RI		21.1	V	V
Rodman's Hollow	Town of New Shoreham, RI		21.2	V	V
Ball / O'Brien Park	Town of New Shoreham, RI		21.2	NV	V
Bonnell Beach	Town of New Shoreham, RI		21.6	V	V
Lewis	Town of New Shoreham, RI		21.6	V	V
Lewis/Mott	Town of New Shoreham, RI		21.7	V	V
Haffenreffer I	Town of Little Compton, RI		24.6	V	V
Sakonnet Point	Town of Little Compton, RI		24.6	V	V
Sakonnet Harbor Fishing Access	Town of Little Compton, RI		24.8	V	V
Kings Beach Access	Town of Newport, RI		25.4	V	V
Ballard	Town of Newport, RI		25.5	V	V
Bogle	Town of Little Compton, RI		25.7	V	V
State Pier No. 5	Town of Narragansett, RI		26.0	V	V
Southworth Farm	Town of Little Compton, RI		26.1	V	V
Weeden Farm \ South Kingstown	Town of South Kingston, RI		26.6	V	V
Purgatory Chasm	Town of Middletown, RI		26.7	V	V
Whale Rock	Town of Narragansett, RI		26.8	V	V
Marvell	Town of Little Compton, RI		26.8	V	V
Norman Bird NV Third Beach	Town of Middletown, RI		26.8	V	V
SmithNVGardinerNVNorman Farm Historic District	Town of Middletown, RI		26.8	V	V
Goosewing Beach	Town of Little Compton, RI; Town of Westport, MA		27.0	V	V
Gray Craig	Town of Middletown, RI		27.4	V	V
Nunes Farm	Town of Middletown, RI		28.8	V	V
Dutch Island Light	Town of Jamestown, RI		29.4	V	V
Dutch Island	Town of Jamestown, RI		29.4	NV	V
NIP, LLC	Town of Charlestown, RI		29.5	V	V
Blue Shutters	Town of Charlestown, RI		31.2	V	V
Weekapaug Fishing Area/Breachway	Town of Westerly, RI	3, 3N	33.9	V	V
State of New York Lands	Town of East Hampton, NY		35.1	V	V
Armenakes	Town of Westerly, RI		35.2	NV	V
Hope Island	Town of Portsmouth, RI		35.4	NV	V
Douglas	Town of Westerly, RI		38.4	NV	V
Lighthouses					
Buzzards Bay Entrance Lighthouse	Town of Gosnold, MA		20.1	V	V
Cuttyhunk Lighthouse	Town of Gosnold, MA	18	22.1	V	V
Menamsha Creek Entrance Jetty Lighthouse	Towns of Chilmark and Aquinnah, MA		22.9	V	V
Cuttyhunk Harbor North Jetty Lighthouse	Town of Gosnold, MA		23.3	V	V
Westport Harbor Entrance Lighthouse	Town of Westport, MA		27.7	V	V
Tarpaulin Cove Lighthouse	Town of Gosnold, MA		29.6	V	V
Dumpling Rock Lighthouse	Town of Dartmouth, MA		30.7	V	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible: Potential FAA Warning Light Visibility	Project Visibility V=Visible NV=Not Visible: Potential Blade Tip Visibility
Padanaram Breakwater Lighthouse	Town of Dartmouth, MA		32.9	V	V
Lake Tashmoo East Jetty Lighthouse	Town of Tisbury, MA		33.5	V	V
Vineyard Haven Ferry Slip Lighthouse	Town of Tisbury, MA		34.1	V	V
Vineyard Haven Breakwater Lighthouse	Town of Tisbury, MA		34.3	V	V
Woods Hole Passage Lighthouse	Towns of Falmouth and Gosnold, MA		34.6	V	V
Clark's Point Lighthouse	City of New Bedford, MA		34.6	V	V
Grassy Island Ledge Lighthouse	Town of Falmouth, MA		35.0	V	V
Juniper Point Lighthouse	Town of Falmouth, MA		35.0	V	V
Edgartown Lighthouse	Town of Edgartown, MA		35.1	NV	V
Great Harbor Ferry Slip Lighthouse	Town of Falmouth, MA		35.2	V	V
Great Harbor Range Lighthouse	Town of Falmouth, MA		35.2	V	V
Oceanographic Pier Lighthouse	Town of Falmouth, MA		35.3	V	V
Oak Bluffs Ferry Slip Lighthouse	Town of Oak Bluffs, MA		35.9	NV	V
Oak Bluffs North Breakwater Lighthouse	Town of Oak Bluffs, MA		35.9	NV	V
New Bedford West Barrier Lighthouse	City of New Bedford, MA		36.7	V	V
New Bedford East Barrier Lighthouse	Town of Fairhaven, MA		36.7	V	V
Watch Hill Lighthouse	Town of Westerly, RI		37.7	V	V
Falmouth Harbor Lighthouse	Town of Falmouth, MA		38.2	NV	V
Cape Poge Lighthouse	Town of Edgartown, MA		38.4	NV	V
Warwick Lighthouse	Town of Warwick, RI		40.1	NV	V
Public Beaches					
Ballard's Beach	Town of New Shoreham, RI		19.6	V	V
Philbin Beach	Town of Aquinnah, MA	22	19.9	V	V
Moshup Beach	Town of Aquinnah, MA	22A	19.9	V	V
Frederick Benson Town Beach	Town of New Shoreham, RI		20.3	V	V
Mosquito Beach	Town of New Shoreham, RI	4	20.6	V	V
Squibnocket Beach	Town of Chilmark, MA	20A	21.0	V	V
Menemsha Beach	Towns of Aquinnah and Chilmark, MA		22.8	NV	V
Lucy Vincent Beach	Town of Chilmark, MA	25	23.4	V	V
Chilmark Pond Preserve Beach	Town of Chilmark, MA		23.9	V	V
Third Beach	Town of Middletown, RI		26.3	V	V
South Kingstown Town Beach	Town of South Kingston, RI		26.3	V	V
Gooseberry Beach	Town of Westport, MA		26.4	V	V
Second Beach	Town of Middletown, RI	14, 14A	26.5	V	V
South Shore Beach	Town of Little Compton, RI		26.6	V	V
Narragansett Town Beach	Town of Narragansett, RI	9	26.6	V	V
Roy Carpenter's Beach	Town of South Kingston, RI		26.6	V	V
Hanging Rock Road Beach	Town of Middletown, RI		26.6	V	V
Easton's Beach	Town of Newport, RI		26.8	V	V
Atlantic Beach	Towns of Middletown and Newport, RI		26.8	V	V
Campground Beach	Town of Westport, MA		26.8	V	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible	
				Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
Long Point Beach	Town of West Tisbury, MA		27.1	V	V
C & K Club Beach	Town of Westport, MA		27.1	V	V
Howland Beach	Town of Westport, MA		27.2	V	V
Beach Avenue Beach	Town of Westport, MA		27.3	V	V
Elephant Beach	Town of Westport, MA		27.3	V	V
East Beach	Towns of Dartmouth and Westport, MA		27.3	V	V
Boathouse Row Beach	Town of Westport, MA		27.5	V	V
Baker's Beach	Town of Westport, MA		27.5	V	V
Sepiessa Point Beach	Town of West Tisbury, MA		27.6	V	V
Cherry & Webb Beach	Town of Westport, MA		27.6	V	V
Spindle Rock Beach	Town of Westport, MA		27.8	V	V
Town Beach	Town of Westport, MA		27.9	V	V
Yacht Club Beach	Town of Westport, MA		27.9	V	V
Marina Beach	Town of Westport, MA		27.9	V	V
Barney's Joy Beach	Town of Dartmouth, MA		27.9	V	V
Mackerel Cove Beach	Town of Jamestown, RI		28.2	V	V
Charlestown Town Beach	Towns of Charlestown and South Kingston, RI		28.8	V	V
Edgartown Great Pond Beach	Towns of Edgartown and West Tisbury, MA		28.9	V	V
Mishaum Beach	Town of Dartmouth, MA		29.1	V	V
Salter's Point South Beach	Town of Dartmouth, MA		29.6	V	V
Little River Beach	Town of Dartmouth, MA		29.8	V	V
Salter's Point East Beach	Town of Dartmouth, MA		29.9	V	V
Moses Smith Creek Beach	Town of Dartmouth, MA		30.2	V	V
Round Hill Beach	Town of Dartmouth, MA		30.3	V	V
Round Hill Condos Beach	Town of Dartmouth, MA		30.4	V	V
Sandy Point Beach	Town of Portsmouth, RI		30.7	V	V
Blue Shutters Town Beach	Town of Charlestown, RI		30.9	V	V
Norton Point Beach	Town of Edgartown, MA		32.9	V	V
The Dunes Trailer Park Beach	Town of Westerly, RI	3, 3N	33.7	V	V
Tabor South Beach	City of New Bedford, MA		34.5	V	V
Tabor North Beach	City of New Bedford, MA		34.6	V	V
East Beach	City of New Bedford, MA		34.7	V	V
Westerly Town Beach	Town of Westerly, RI		34.8	V	V
Squid Beach	City of New Bedford, MA		34.8	NV	V
O'Tools Beach	City of New Bedford, MA		34.9	NV	V
West Island Town Beach	Town of Fairhaven, MA		34.9	NV	V
Nobska Beach Association Beach	Town of Falmouth, MA	26A, 26	35.0	V	V
Wasque Swim Beach	Town of Edgartown, MA	28	35.0	V	V
J. Beach	City of New Bedford, MA		35.0	NV	V
South Pier Beach	City of New Bedford, MA		35.1	NV	V
Kids Beach	City of New Bedford, MA		35.2	NV	V

Visually Sensitive Resource[1]	Location	VP Number[2]	Distance[3] Miles from Nearest Turbine	Project Visibility V=Visible NV=Not Visible	
				Potential FAA Warning Light Visibility	Potential Blade Tip Visibility
West Island Causeway Beach	Town of Fairhaven, MA		35.5	NV	V
Teddy's Beach	Towns of Portsmouth and Tiverton, RI		35.7	NV	V
Fay Road Beach	Town of Falmouth, MA		36.0	NV	V
Bikepath Beach	Town of Falmouth, MA		36.5	NV	V
FBBC Beach	Town of Falmouth, MA		37.0	NV	V
Falmouth Associates Beach	Town of Falmouth, MA		37.0	NV	V
Manhattan Avenue Beach	Town of Fairhaven, MA		37.1	NV	V
Mill Road Beach	Town of Falmouth, MA		37.4	NV	V
Brant Beach	Town of Mattapoisett, MA		37.5	NV	V
Surf Drive Beach	Town of Falmouth, MA		37.7	NV	V
Howard Beach	Town of Mattapoisett, MA		37.8	NV	V
Liesure Shores Beach	Town of Mattapoisett, MA		37.9	NV	V
Mattapoisett Land Trust Beach	Town of Mattapoisett, MA		37.9	NV	V
Antasawomak Beach	Town of Mattapoisett, MA		38.0	NV	V
Ditch Plains Beach	Town of East Hampton, NY	1A	38.2	NV	V
South Edison Beach	Town of East Hampton, NY		39.6	NV	V
Kirk Beach	Town of East Hampton, NY		39.9	NV	V
Ferry Routes					
Newport NV Block Island Ferry	Towns of New Shoreham and Newport, RI		19.5	V	V
Quonset Point NV Martha's Vineyard Ferry	Town of North Kingston, RI; Towns of Tisbury and Oak Bluffs, MA		19.7	V	V
Point Judith NV Block Island Ferry	Towns of New Shoreham and Narragansett, RI	4C	19.8	V	V
New London NV Block Island Ferry	Town of New Shoreham, RI; Town of Southold, NY		19.9	V	V
Montauk NV Block Island Ferry	Town of New Shoreham, RI; Town of East Hampton, NY		21.4	V	V
New Bedford NV Cuttyhunk Ferry	City of New Bedford and Town of Gosnold, MA		22.9	V	V
New Bedford NV Martha's Vineyard Ferry	City of New Bedford and Towns of Tisbury and Oak Bluffs, MA		32.9	NV	V
Woods Hole NV Vineyard Haven Ferry	Towns of Falmouth and Tisbury, MA		34.1	NV	V
FalmouthNVEdgartown Ferry	Towns of Edgartown and Falmouth, MA		34.7	NV	V
Woods Hole NV Oak Bluffs Ferry	Towns of Falmouth and Oak Bluffs, MA		34.9	NV	V
Falmouth NV Oak Bluffs Ferry	Towns of Falmouth and Oak Bluffs, MA		35.6	NV	V
Montauk NV New London Ferry	Towns of East Hampton and Southold, NY		39.4	NV	V

[1] Resources located within 40 miles of nearest turbine.

[2] If no viewpoint (VP) number is indicated, no photo was obtained during fieldwork.

[3] For large areas and linear sites, approximate distance to the nearest turbine was measured from the respective area's closest point.

Appendix B

KOP Photolog

Viewpoint 1A

View from Ditch Plains Beach

Town of East Hampton, Suffolk County, New York

Location: Long Island

38.1 Miles From Project

Viewpoint 1B

View from Camp Hero State Park Overlook

Town of East Hampton, Suffolk County, New York

Location: Long Island

35.2 Miles From Project

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* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 1C

View from Camp Hero State Park, Bluff Overlook

Town of East Hampton, Suffolk County, New York

Location: Long Island

35.7 Miles From Project

Viewpoint 1D*

View from Montauk Point State Park

Town of East Hampton, Suffolk County, New York

Location: Long Island

35.0 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 1N*

View from Montauk Point State Park (Night)

Town of East Hampton, Suffolk County, New York

Location: Long Island

35.0 Miles From Project

Viewpoint 2*

View from Watch Hill Lighthouse

Town of Westerly, Washington County, Rhode Island

Location: Mainland, RI

37.3 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 2A*

View from Trustom Pond NWR

Town of South Kingstown, Washington County, Rhode Island

Location: Mainland, RI

27.3 Miles From Project

Viewpoint 3

View from Weekapaug Breechway (The Dunes Trailer Park Beach)

Town of Westerly, Washington County, Rhode Island

Location: Mainland, RI

33.6 Miles From Project

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* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 3N

View from Weekapaug Breechway (The Dunes Trailer Park Beach, Night)

Town of Westerly, Washington County, Rhode Island

Location: Mainland, RI

33.6 Miles From Project

Viewpoint 4*

View from Fred Benson Town Beach (Crescent Beach)

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

20.5 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 4A

View from New Shoreham Beach

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

20.5 Miles From Project

Viewpoint 4B*

View from New Shoreham Beach

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

20.4 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 4C*

View from Block Island Ferry

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

19.4 Miles From Project

Viewpoint 5A

View from Southeast Lighthouse

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

19.2 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 5B*

View from Southeast Lighthouse

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

19.2 Miles From Project

Viewpoint 5N*

View from Southeast Lighthouse (Night)

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

19.2 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 5C

View from Mohegian Bluffs

Town of New Shoreham, Washington County, Rhode Island

Location: Block Island

19.5 Miles From Project

Viewpoint 6*

View from Point Judith Lighthouse

Town of Narragansett, Washington County, Rhode Island

Location: Mainland, RI

22.9 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 6N*

View from Point Judith Lighthouse (Night)

Town of Narragansett, Washington County, Rhode Island

Location: Mainland, RI

22.9 Miles From Project

Viewpoint 7*

View from Scarborough Beach

Town of Narragansett, Washington County, Rhode Island

Location: Mainland, RI

24.0 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 8

View from Scarborough Beach (Lookout Tower)

Town of Narragansett, Washington County, Rhode Island

Location: Mainland, RI

24.3 Miles From Project

Viewpoint 9*

View from Narragansett Beach

Town of Narragansett, Washington County, Rhode Island

Location: Mainland, RI

26.1 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 10*

View from Beavertail Lighthouse

Town of Jamestown, Newport County, Rhode Island

Location: Conanicut Island

25.5 Miles From Project

Viewpoint 11*

View from Brenton Point State Park

Town of Newport, Newport County, Rhode Island

Location: Aquidneck Island

24.6 Miles From Project

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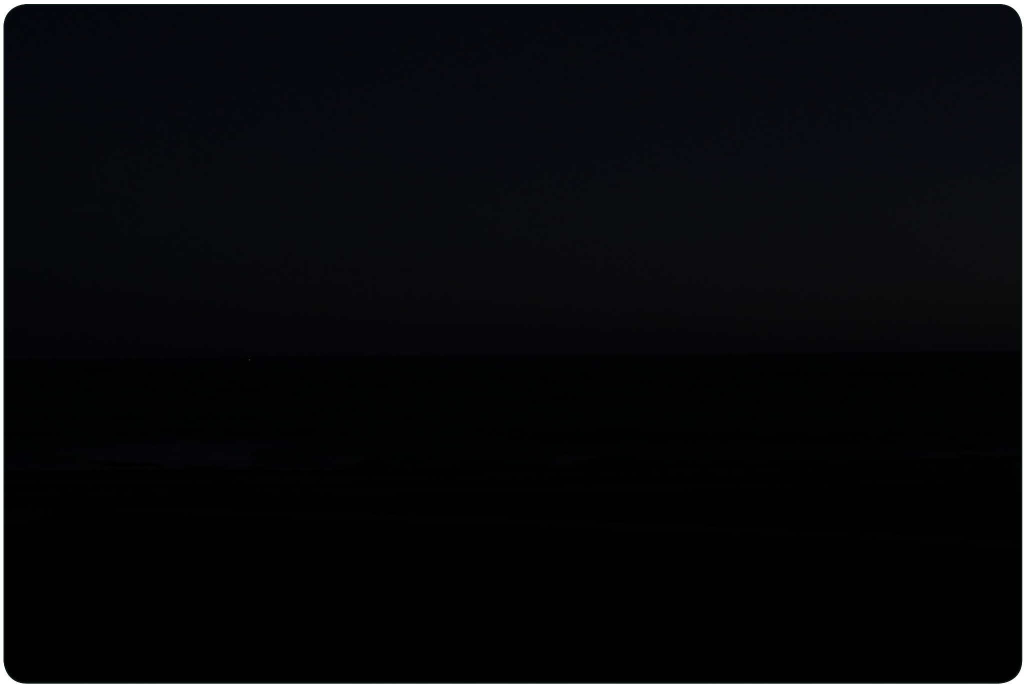

Viewpoint 11N*

View from Brenton Point State Park (Night)

Town of Newport, Newport County, Rhode Island

Location: Aquidneck Island

24.6 Miles From Project

Viewpoint 12*

View from Newport Cliff Walk

Town of Newport, Newport County, Rhode Island

Location: Aquidneck Island

23.9 Miles From Project

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Viewpoint 13

View from Rough Point Mansion

Town of Newport, Newport County, Rhode Island

Location: Aquidneck Island

24.5 Miles From Project

Viewpoint 14*

View from Sachuest Beach (Second Beach)

Town of Middletown, Newport County, Rhode Island

Location: Aquidneck Island

25.8 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 14A*

View from Hanging Rock, Norman Bird Sanctuary

Town of Middletown, Newport County, Rhode Island

Location: Aquidneck Island

26.1 Miles From Project

Viewpoint 14B*

View from Sachuest Point National Wildlife Refuge

Town of Middletown, Newport County, Rhode Island

Location: Aquidneck Island

24.7 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 15*

View from South Shore Beach

Town of Little Compton, Newport County, Rhode Island

Location: Mainland, RI

26.2 Miles From Project

Viewpoint 16

View from Horseneck Beach

Town of Westport, Bristol County, Massachusetts

Location: Mainland, MA

27.7 Miles From Project

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* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 16A

View from Horseneck Beach (Winter)

Town of Westport, Bristol County, Massachusetts

Location: Mainland, MA

27.7 Miles From Project

Viewpoint 17*

View from Gooseberry Island

Town of Westport, Bristol County, Massachusetts

Location: Gooseberry Island

26.2 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 18*

View from Cuttyhunk Island

Town of Gosnold, Dukes County, Massachusetts

Location: Cuttyhunk Island

23.6 Miles From Project

Viewpoint 19*

View from Aquinnah Overlook

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.3 Miles From Project

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* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 19*

View from Aquinnah Overlook (Sunset)

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.3 Miles From Project

Viewpoint 19N*

View from Aquinnah Overlook (Night)

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.3 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 20

View from Edwin D Vanderhoop House

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.6 Miles From Project

Viewpoint 20A*

View from Moshup Beach

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.1 Miles From Project

Viewpoint 21*

View from Aquinnah Lighthouse (Gay Head)

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.4 Miles From Project

Viewpoint 22*

View from Philbin Beach

Town of Aquinnah, Dukes County, Massachusetts

Location: Martha's Vineyard

22.1 Miles From Project

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* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 22A

View from Squibnocket Farm Beach

Town of Chilmark, Dukes County, Massachusetts

Location: Martha's Vineyard

24.1 Miles From Project

Viewpoint 22B

View from Gay Head Community Baptist Church

Town of Chilmark, Dukes County, Massachusetts

Location: Martha's Vineyard

23.1 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 24*

View from Peaked Hill Reservation (Martha's Vineyard Land Bank Commission)

Town of Chilmark, Dukes County, Massachusetts

Location: Martha's Vineyard

26.5 Miles From Project

Viewpoint 25*

View from Lucy Vincent Beach

Town of Chilmark, Dukes County, Massachusetts

Location: Martha's Vineyard

26.2 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 26

View from Nobska Lighthouse

Town of Falmouth, Barnstable County, Massachusetts

Location: Mainland, MA

37.2 Miles From Project

Viewpoint 26A*

View from Nobska Lighthouse

Town of Falmouth, Barnstable County, Massachusetts

Location: Mainland, MA

37.2 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Viewpoint 27*

View from South Beach State Park

Town of Edgartown, Dukes County, Massachusetts

Location: Martha's Vineyard

35.2 Miles From Project

Viewpoint 28

View from Wasque Point

Town of Edgartown, Dukes County, Massachusetts

Location: Martha's Vineyard

38.9 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

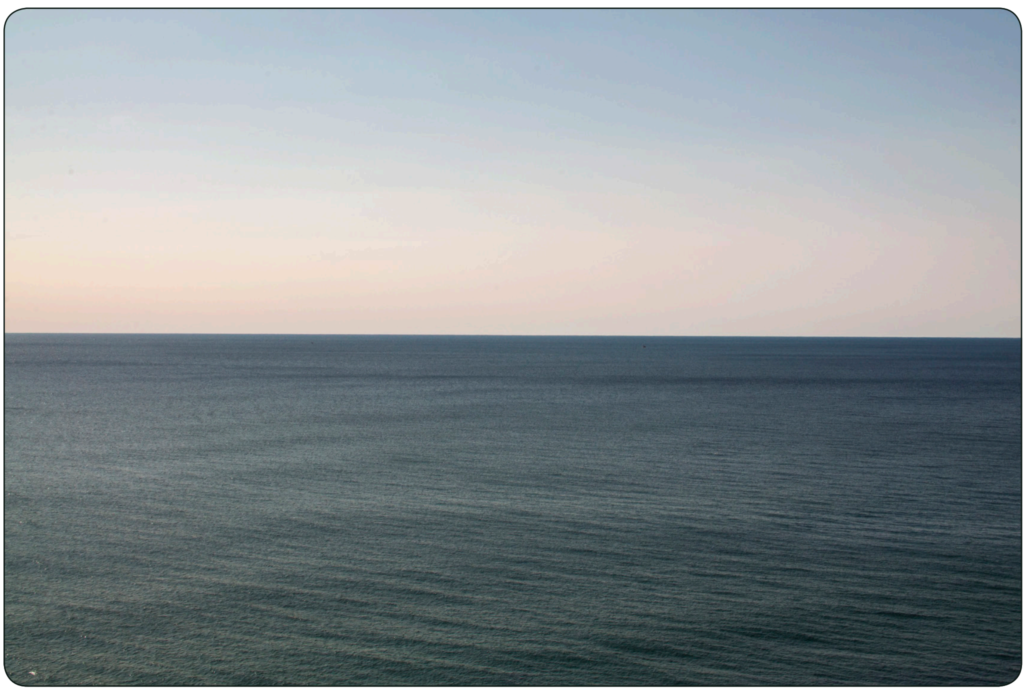
Viewpoint 29*

View from Nomans Land

Town of Chilmark, Dukes County, Massachusetts

Location: Nomans Land Island

18.5 Miles From Project



Viewpoint 30*

View from Atlantic Ocean

Town of N/A, N/A County, N/A

Location: N/A

8.5 Miles From Project

* Key Observation Point used in the creation of a visual simulation.

Notes: 1. This figure was generated in InDesign on February, 2018.
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

Appendix C

Visual Simulations and Line of Sight Cross Sections

Montauk Point State Park

Viewpoint Information

County: Suffolk

Town: East Hampton

State: New York

Location: Long Island

Latitude: 41.07207888° N

Longitude: 71.85900660° W

Direction of View: East-Northeast (86.1°)

Distance to Nearest Visible Turbine: 35.3 miles

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

User Group: Resident, Tourist, Fishing Community

Aesthetic Resource: Montauk Point State Park, National Register Historic Site, Scenic Area of Statewide Significance

Notes: Block Island Wind Farm visible from this location at a distance of 16.9 miles.

Environmental Data

Date Taken: 9/11/2017

Time: 7:01 PM

Temperature: 62.6 °F

Humidity: 82%

Visibility: >10 miles

Wind Direction: Calm

Wind Speed: Calm

Conditions Observed: Clear

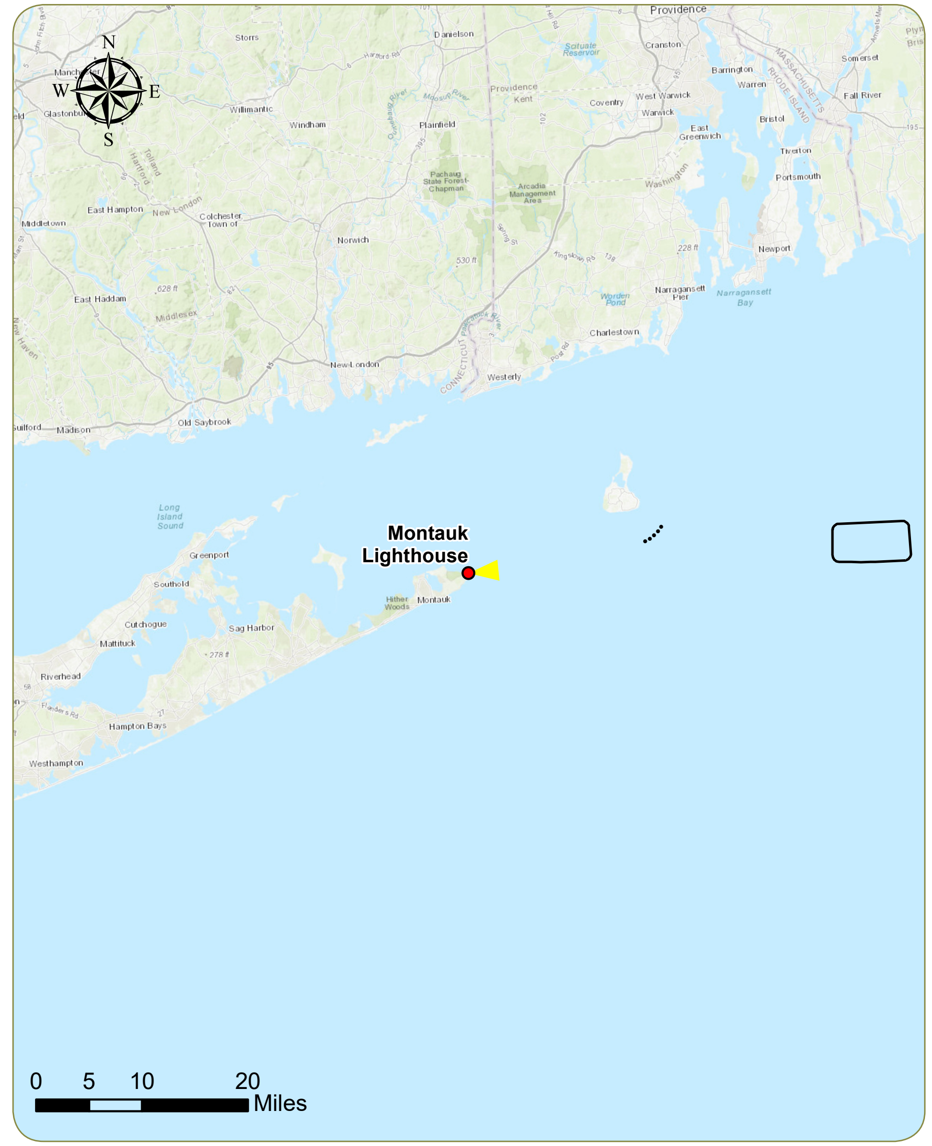
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 48 feet AMSL



Context Photo: View to the East-Northeast

Simulation Photo: View to the East-Northeast

Context Photo: View to the Southeast

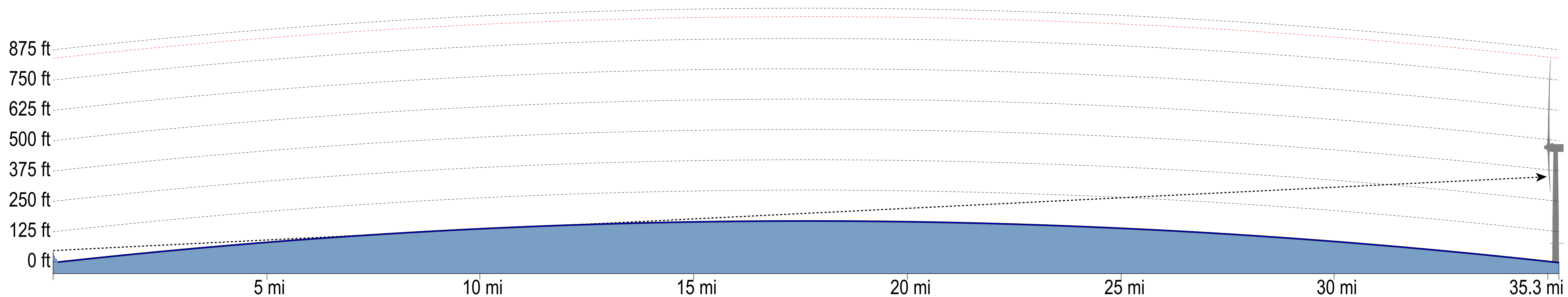
Context Photo: View to the South-Southeast

South Fork Wind Farm

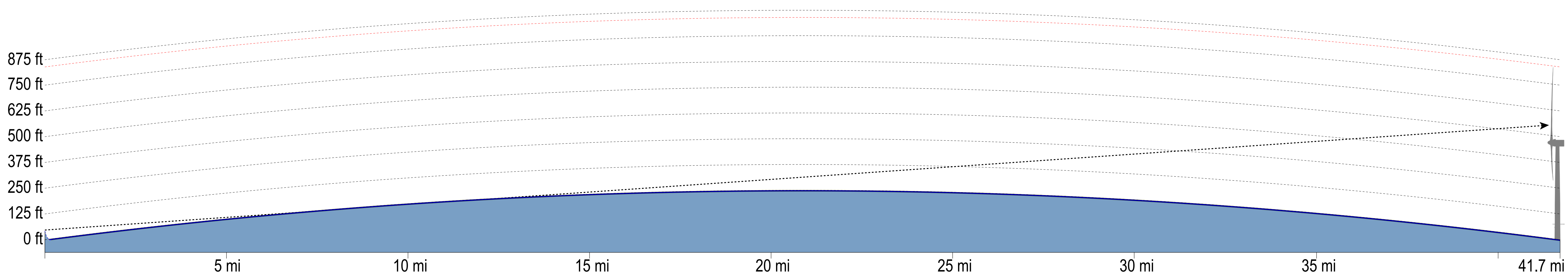
New York/Rhode Island, US

Viewpoint 1D: View from Montauk Point State Park, East Hampton

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 1D: View from Montauk Point State Park, East Hampton
Appendix C: Sheet 3 of 141

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 1D: View from Montauk Point State Park, East Hampton
Appendix C: Sheet 4 of 141

Montauk Point State Park

Viewpoint Information

County: Suffolk

Town: East Hampton

State: New York

Location: Long Island

Latitude: 41.07207888° N

Longitude: 71.85900660° W

Direction of View: East-Northeast (86.1°)

Distance to Nearest Visible Turbine: 35.3 miles

Environmental Data

Date Taken: 9/11/2017

Time: 9:32 PM

Temperature: 54.7 °F

Humidity: 92%

Visibility: >10 miles

Wind Direction: Calm

Wind Speed: Calm

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

User Group: Resident, Tourist

Aesthetic Resource: Montauk Point State Park, National Register Historic Site, Scenic Area of Statewide Significance

Notes: Block Island Wind Farm visible from this location at a distance of 16.9 miles.

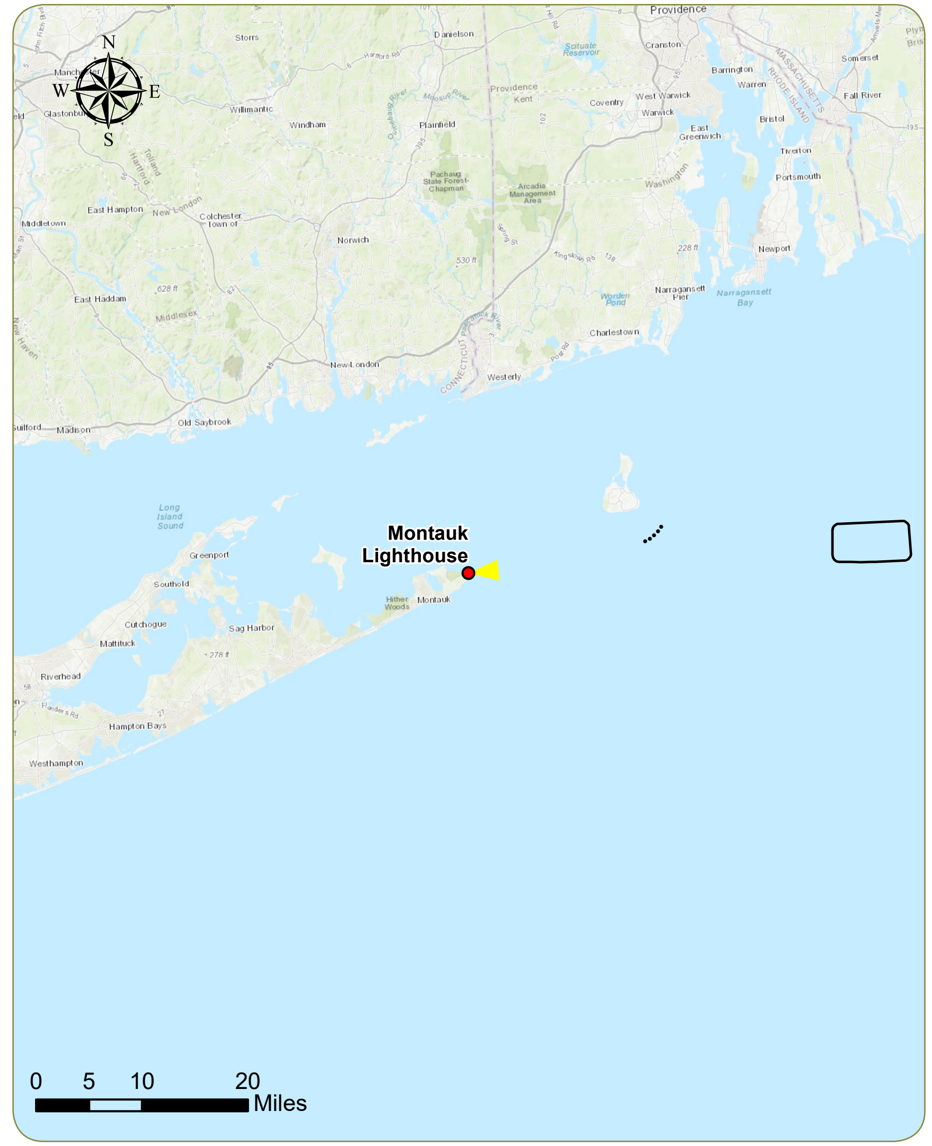
Camera Information

Camera: Canon EOS 5D Mark IV

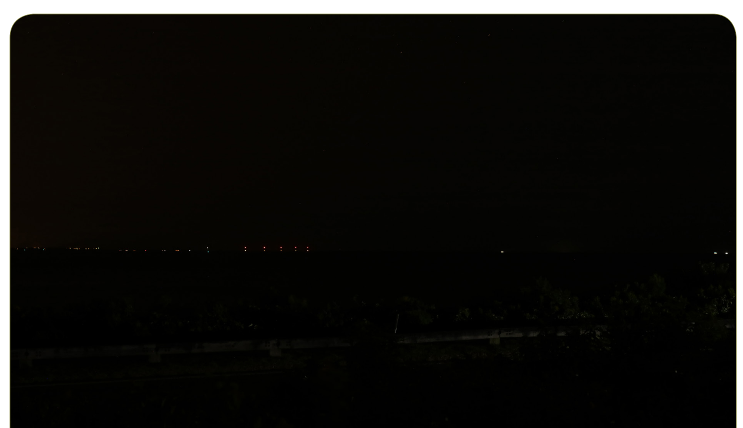
Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 48 feet AMSL



Context Photo: View to the Northeast



Simulation Photo: View to the East-Northeast

Context Photo: View to the East-Southeast

Context Photo: View to the Southeast

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 1N: Nighttime view from Montauk Point State Park, East Hampton
Appendix C: Sheet 6 of 141

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 1N: Nighttime view from Montauk Point State Park, East Hampton
Appendix C: Sheet 7 of 141

Watch Hill Lighthouse

Viewpoint Information

County: Washington

Town: Westerly

State: Rhode Island

Location: Mainland, RI

Latitude: 41.30518171° N

Longitude: 71.85783553° W

Direction of View: East-Southeast (112.2°)

Distance to Nearest Visible Turbine: 37.7 Miles

Environmental Data

Date Taken: 8/2/2017

Time: 6:23 PM

Temperature: 75.0 °F

Humidity: 79%

Visibility: >10 miles

Wind Direction: Southwest

Wind Speed: 6.9 mph

Conditions Observed: Mostly Cloudy

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area, Shoreline Residential

User Group: Resident, Tourist

Aesthetic Resource: Rhode Island Historic District, State Scenic Area

Notes: Block Island Wind Farm visible from this location at a distance of 21.6 miles.

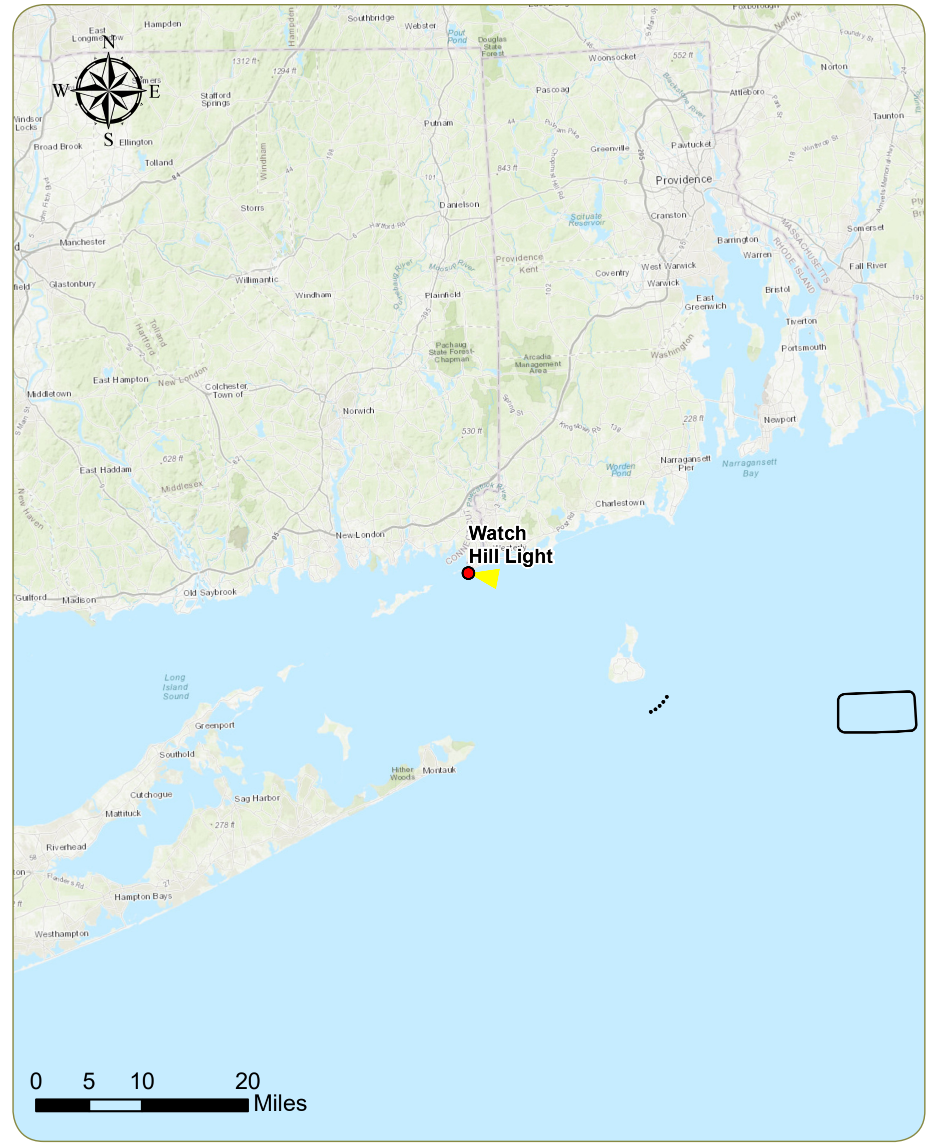
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 24.1 feet AMSL



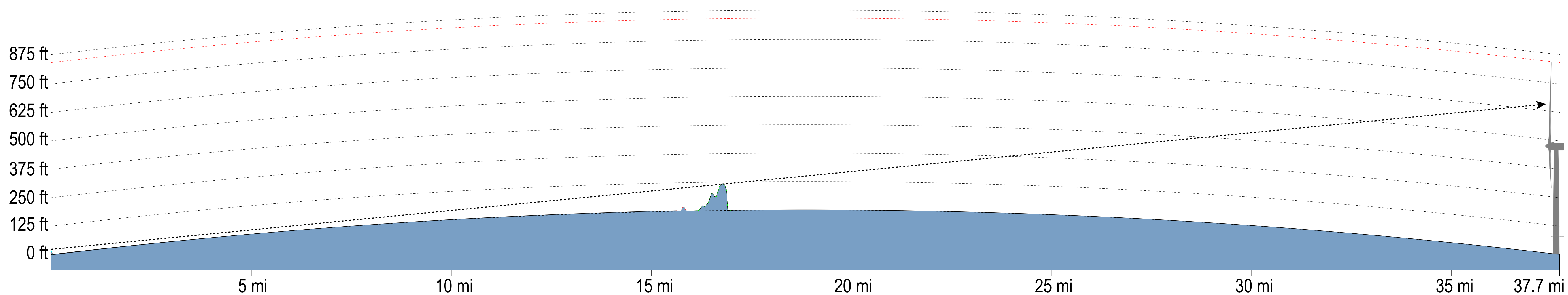

Context Photo: View to the Northeast


Context Photo: View to the East-Northeast

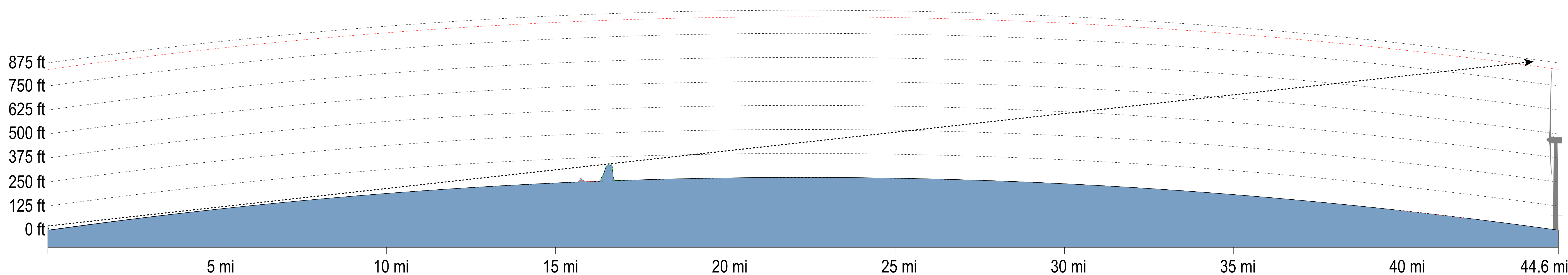

Simulation Photo: View to the Southeast


Context Photo: View to the South-Southeast

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 2: View from Watch Hill Lighthouse, Westerly
Appendix C: Sheet 10 of 141

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 2: View from Watch Hill Lighthouse, Westerly
Appendix C: Sheet 11 of 141

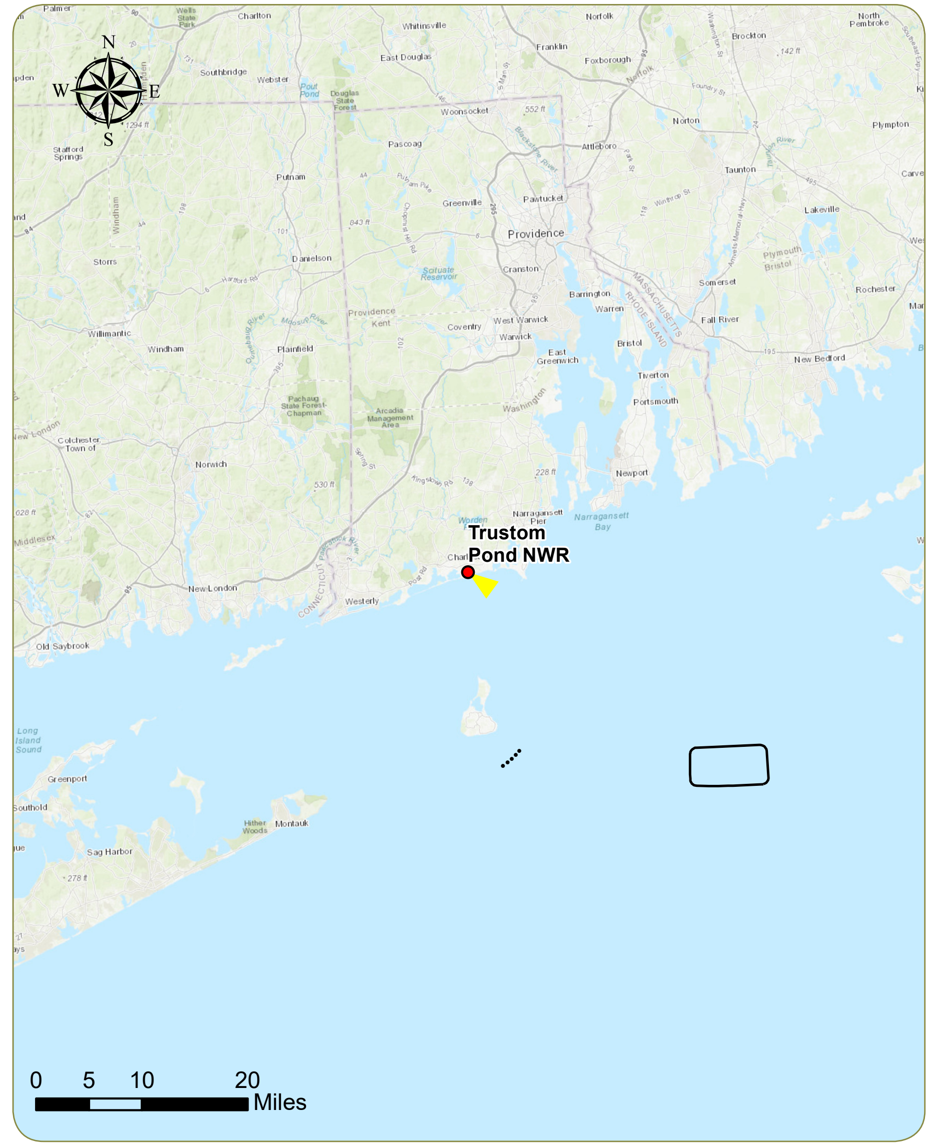
Trustom Pond NWR

Viewpoint Information
County: Washington
Town: South Kingstown
State: Rhode Island
Location: Mainland, RI
Latitude: 41.37217524° N
Longitude: 71.58687303° W
Direction of View: Southeast (128.1°)
Distance to Nearest Visible Turbine: 27.9 Miles

Environmental Data
Date Taken: 1/18/2018
Time: 7:51 AM
Temperature: 21.9 °F
Humidity: 68%
Visibility: >10 miles
Wind Direction: North-Northwest
Wind Speed: 9.2 mph
Conditions Observed: Partly Cloudy

Visual Resources
Landscape Similarity Zone: Salt Pond/Tidal Marsh
User Group: Resident, Tourist
Aesthetic Resource: Trustom Pond/Matunuk State Scenic Area, Trustom Pond National Wildlife Refuge

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 13.8 feet AMSL



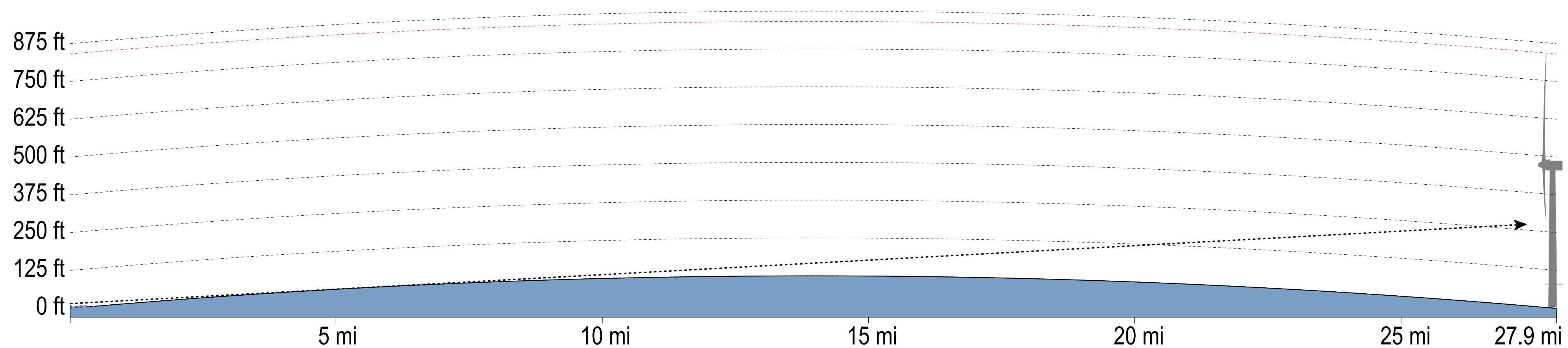

Context Photo: View to the Northeast


Context Photo: View to the East

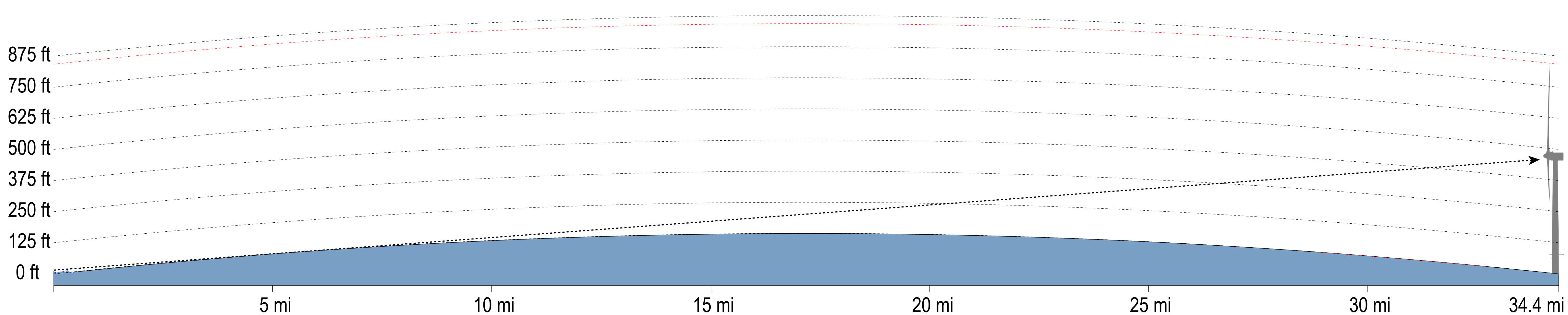

Simulation Photo: View to the Southeast


Context Photo: View to the South-Southeast

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 2A: View from Trustom Pond NWR, South Kingstown
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 2A: View from Trustom Pond NWR, South Kingstown
Appendix C: Sheet 15 of 141

Fred Benson Beach

Viewpoint Information

County: Washington

Town: New Shoreham

State: Rhode Island

Location: Block Island

Latitude: 41.18849667° N

Longitude: 71.56679242° W

Direction of View: East-Southeast (111°)

Distance to Nearest Visible Turbine: 20.7 miles

Environmental Data

Date Taken: 9/10/2017

Time: 3:50 PM

Temperature: 68.0 °F

Humidity: 63%

Visibility: >10 miles

Wind Direction: South

Wind Speed: Calm

Conditions Observed: Scattered Clouds

Visual Resources

Landscape Similarity Zone: Shoreline Beach

User Group: Resident, Tourist

Aesthetic Resource: Crescent Beach, State Scenic Area, Rhode Island Historic District, Town Beach

Notes: Block Island Wind Farm visible from this location at a distance of 5.3 miles.

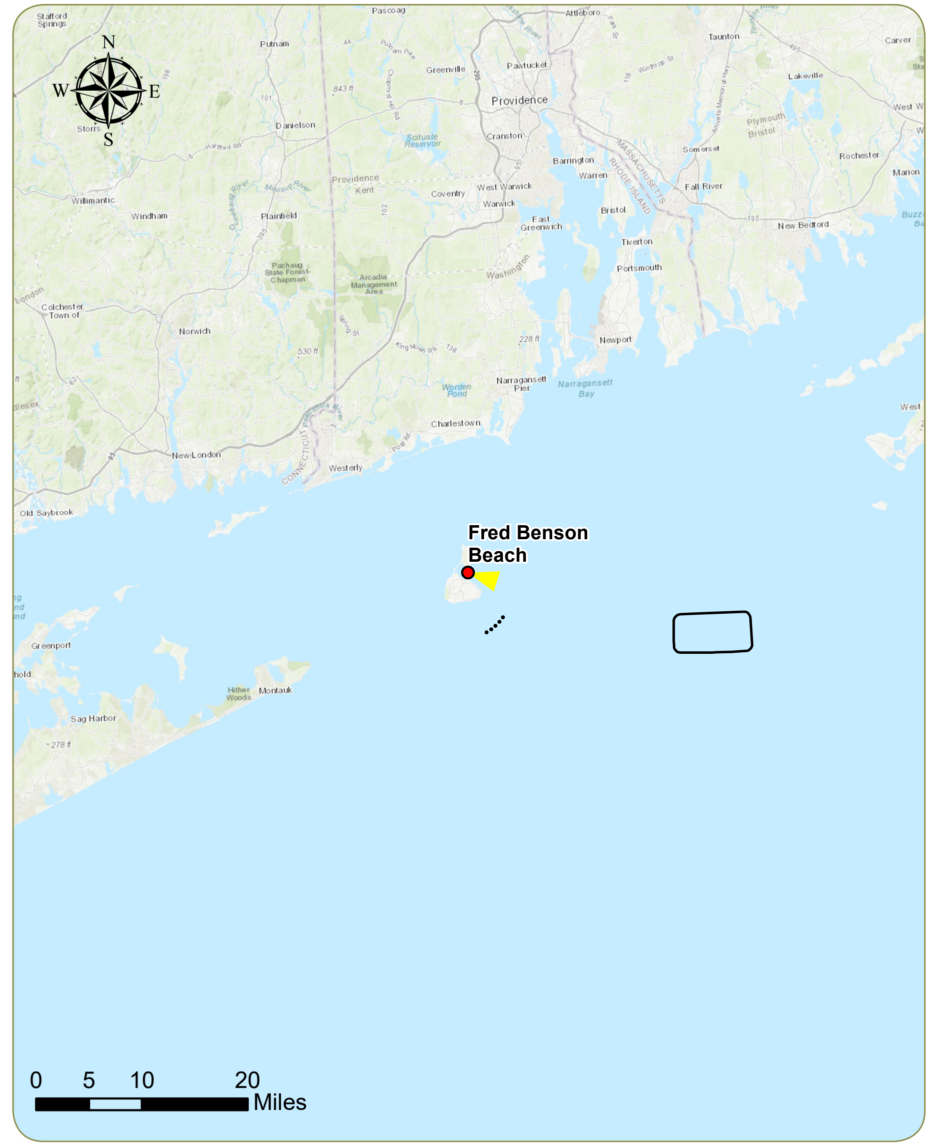
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 10.4 feet AMSL



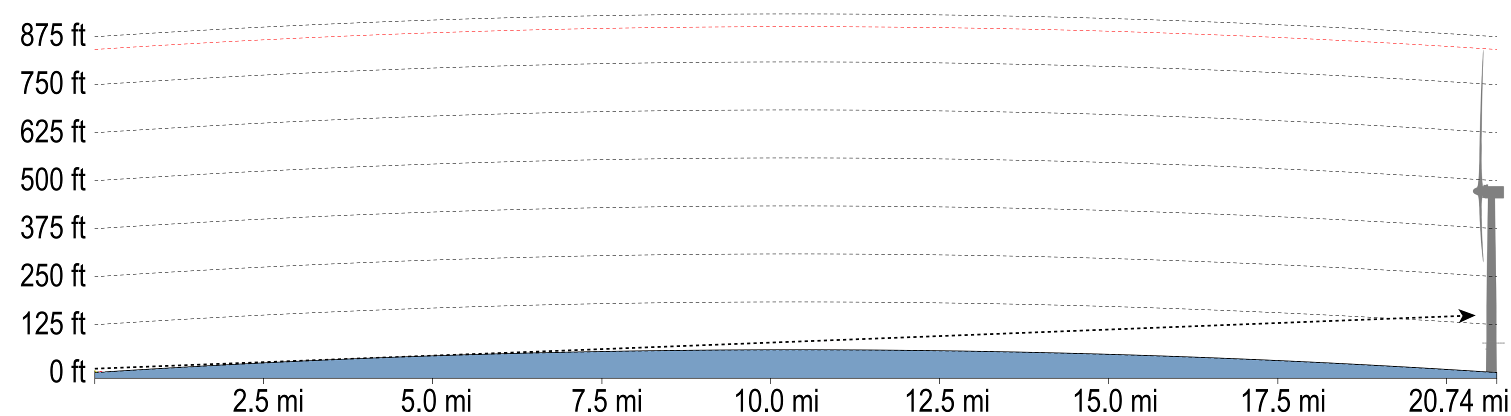
Context Photo: View to the Northeast

Simulation Photo: View to the East-Southeast

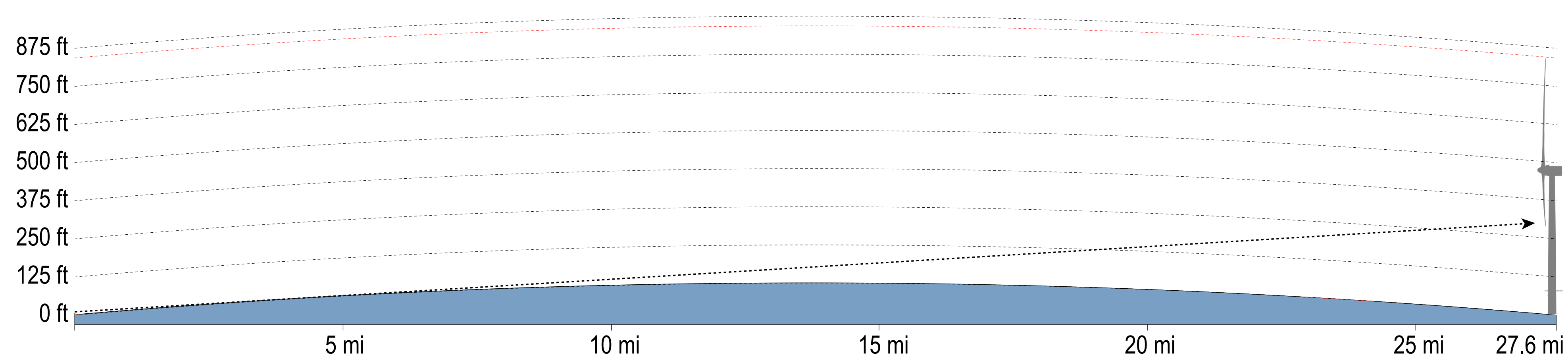
Context Photo: View to the East-Southeast

Context Photo: View to the South-Southeast

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4: View from Fred Benson Beach, New Shoreham
Appendix C: Sheet 18 of 141

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4: View from Fred Benson Beach, New Shoreham
Appendix C: Sheet 19 of 141

New Shoreham Beach

Viewpoint Information

County: Washington
Town: New Shoreham
State: Rhode Island
Location: Block Island
Latitude: 41.14856051° N
Longitude: 71.57529443° W
Direction of View: East-Southeast (99.2°)
Distance to Nearest Visible Turbine: 20.6 miles

Visual Resources

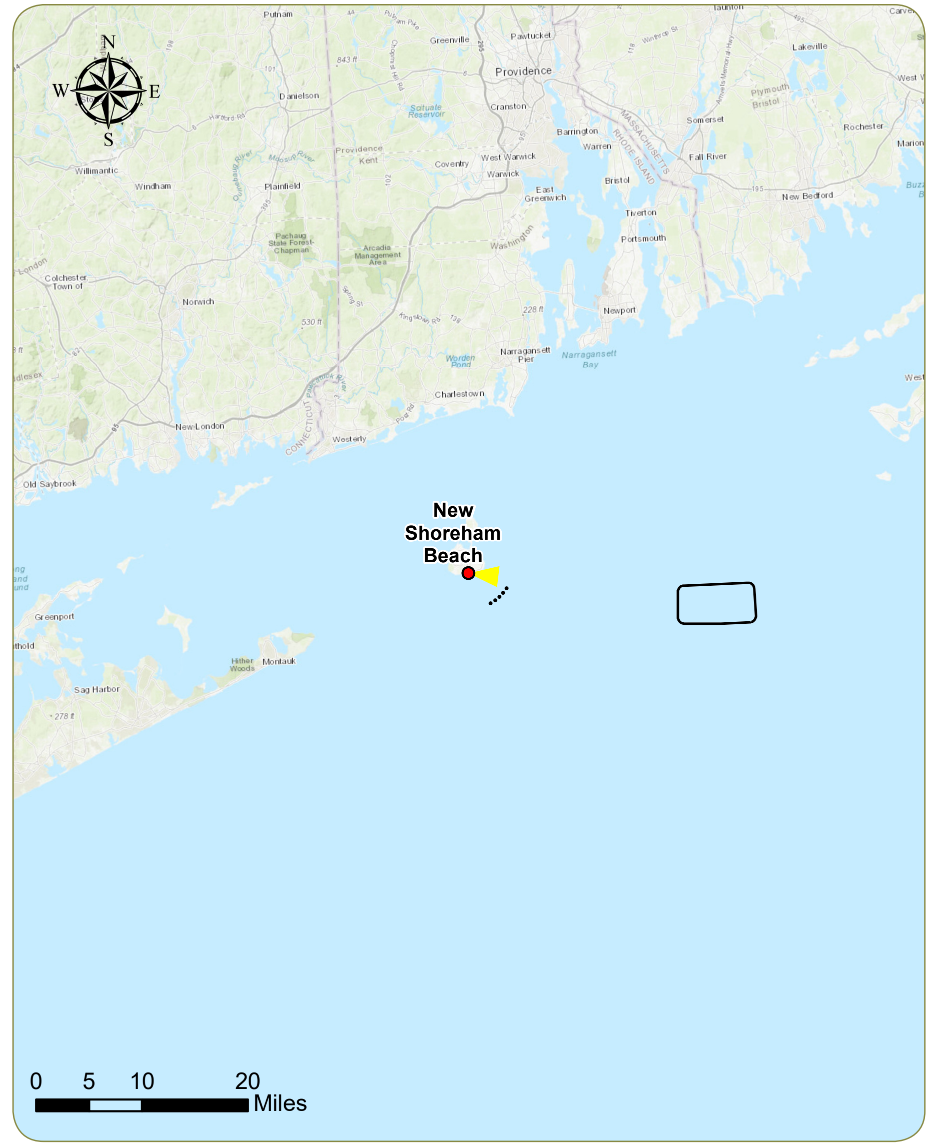
Landscape Similarity Zone: Shoreline Bluffs
User Group: Resident, Tourist
Aesthetic Resource: Lakeside Drive Shore Fishing Access
Notes: Block Island Wind Farm visible from this location at a distance of 3.5 miles.

Environmental Data

Date Taken: 9/10/2017
Time: 2:26 PM
Temperature: 69.1 °F
Humidity: 63%
Visibility: >10 miles
Wind Direction: Northeast
Wind Speed: 10.4 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 11.0 feet AMSL



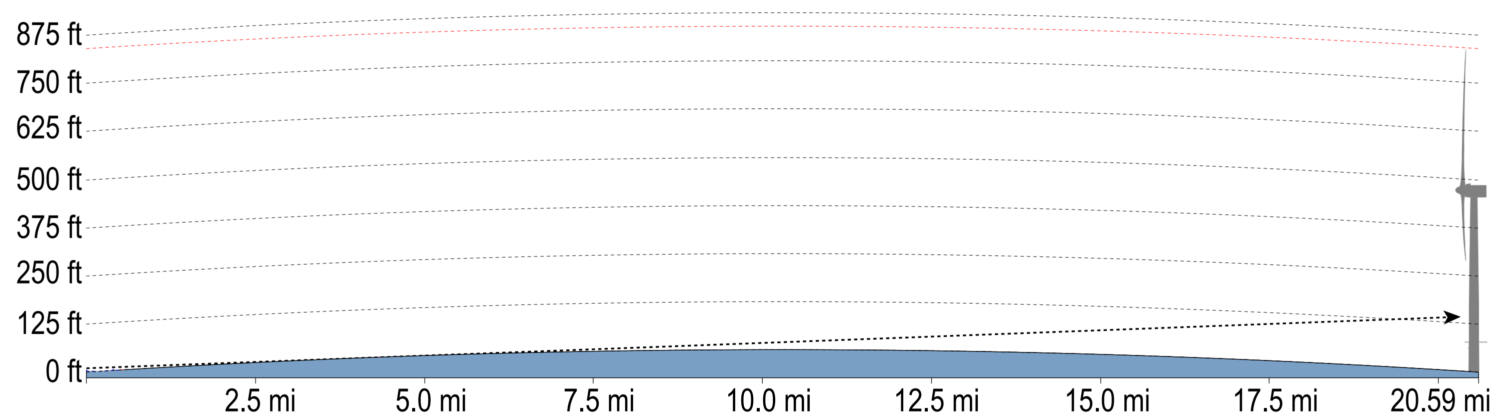

Context Photo: View to the North-Northeast


Simulation Photo: View to the East-Southeast

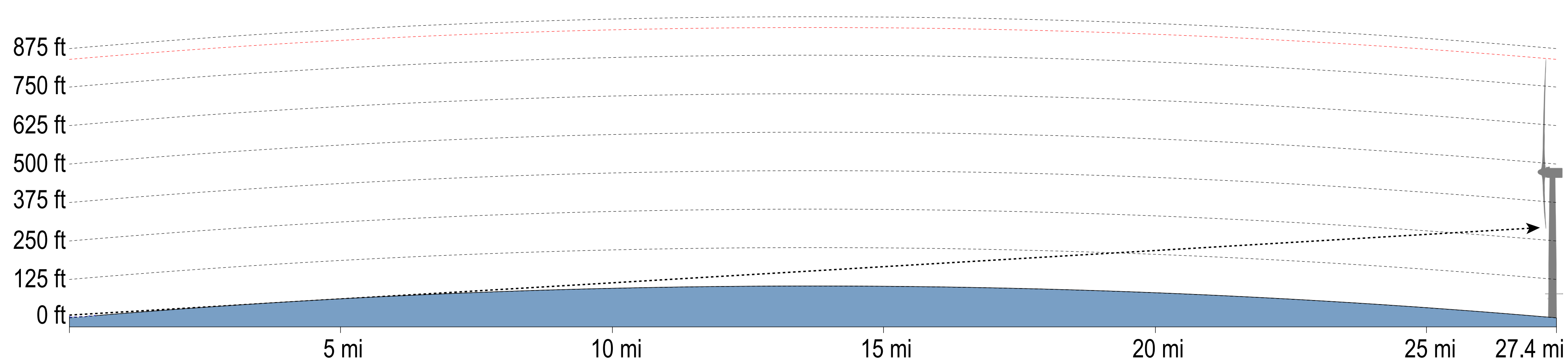

Context Photo: View to the Southeast


Context Photo: View to the South

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4B: View from New Shoreham Beach, New Shoreham

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4B: View from New Shoreham Beach, New Shoreham
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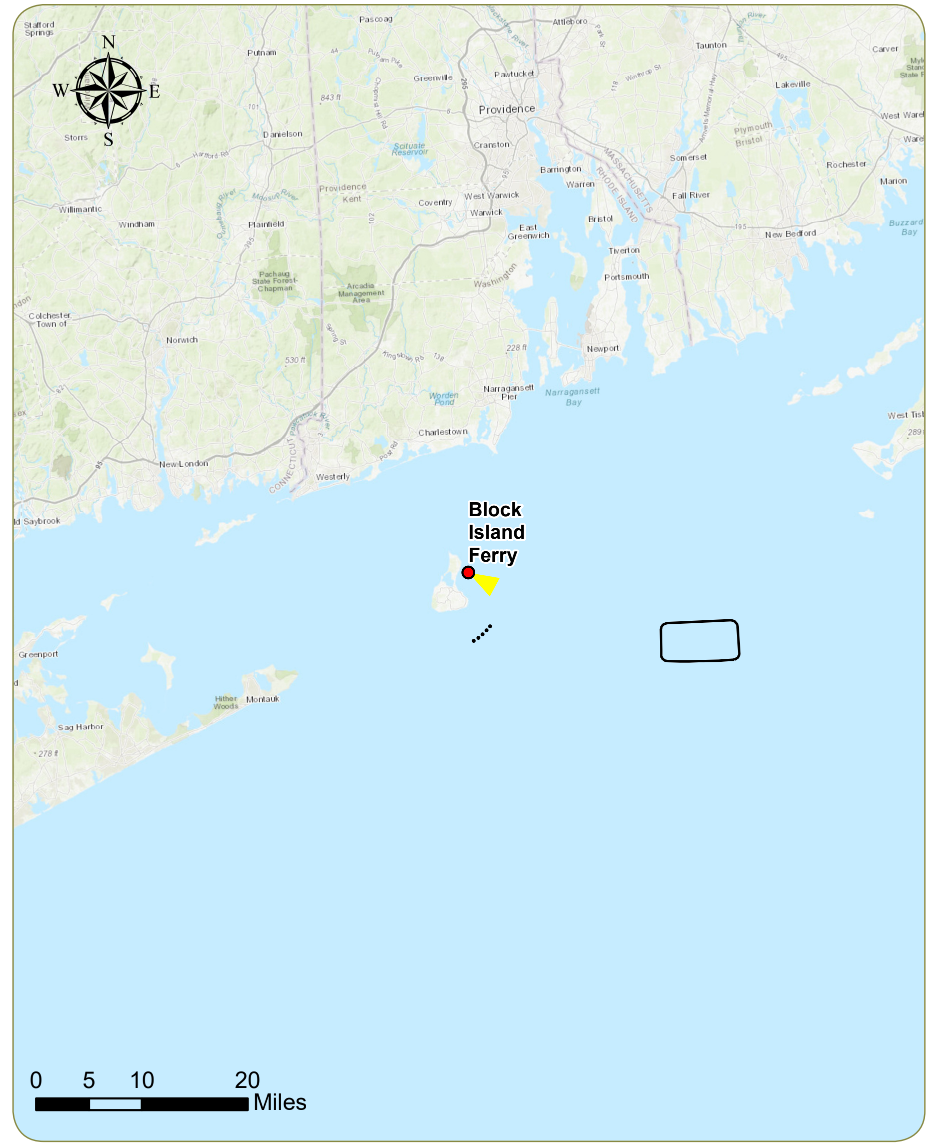
Block Island Ferry

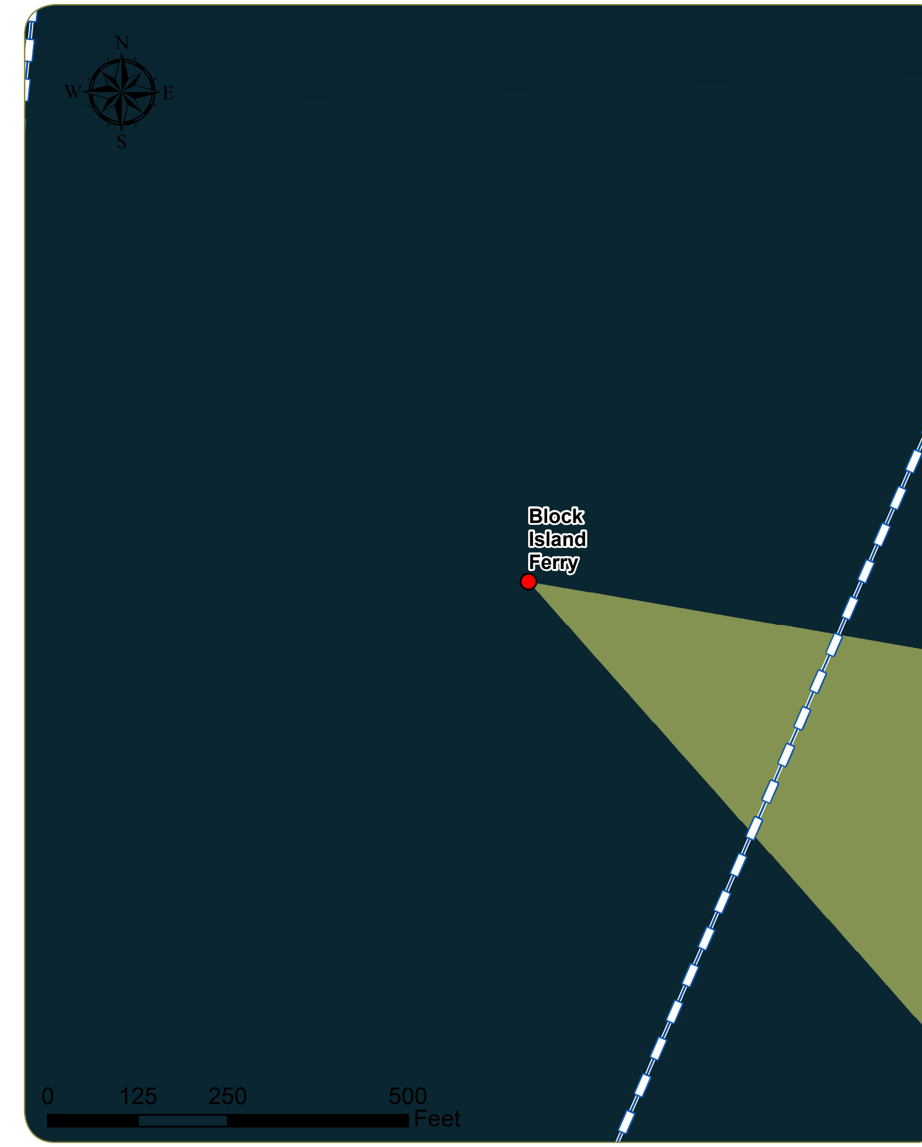
Viewpoint Information
County: Washington
Town: New Shoreham
State: Rhode Island
Location: Block Island
Latitude: 41.19972333° N
Longitude: 71.54240167° W
Direction of View: Southeast (123°)
Distance to Nearest Visible Turbine: 19.8 miles

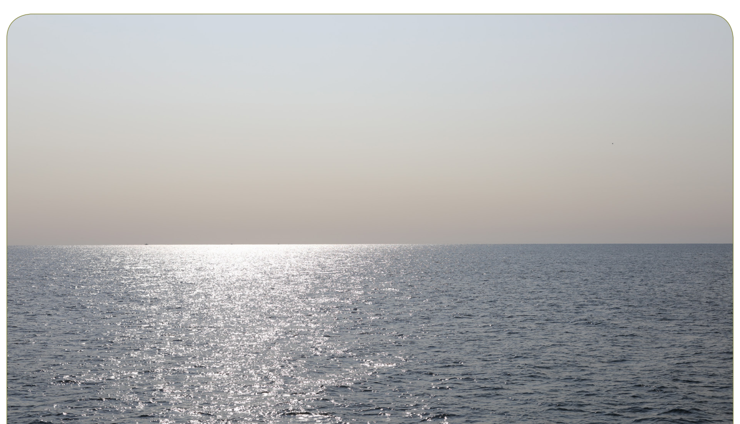
Environmental Data
Date Taken: 9/11/2017
Time: 9:07 AM
Temperature: 60.1 °F
Humidity: 69%
Visibility: >10.0 miles
Wind Direction: Northwest
Wind Speed: 5.8 mph
Conditions Observed: Clear

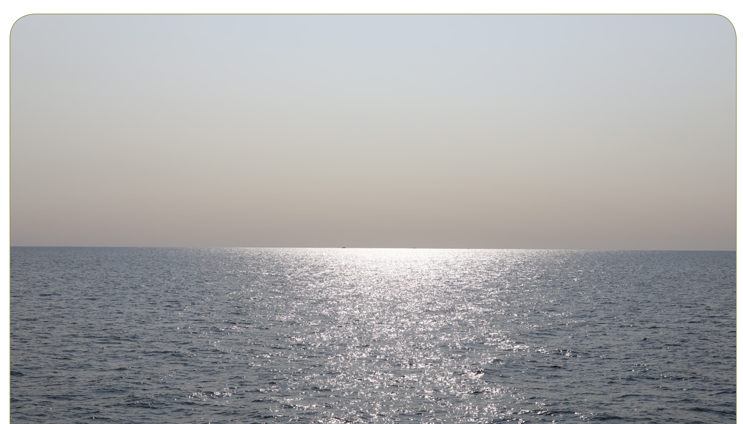
Visual Resources
Landscape Similarity Zone: Open Water
Viewer Type: Resident, Tourist, Through Traveller, Fishing Community
Aesthetic Resource: Block Island Sound
Notes: Block Island Wind Farm visible from this location at a distance of 5.4 miles.

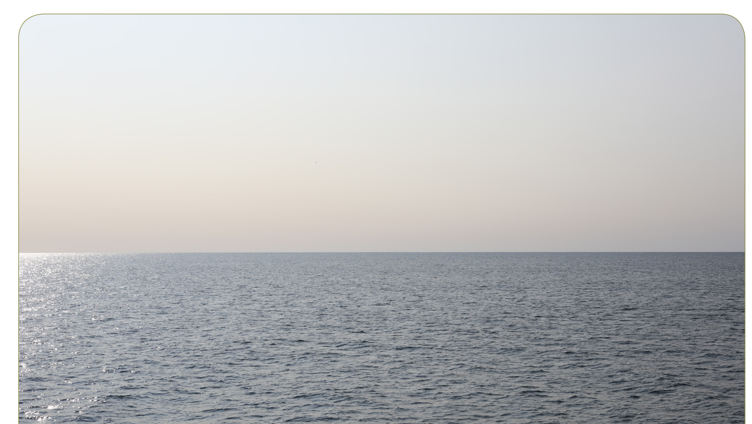
Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 30 feet AMSL






Context Photo: View to the Southeast


Simulation Photo: View to the Southeast

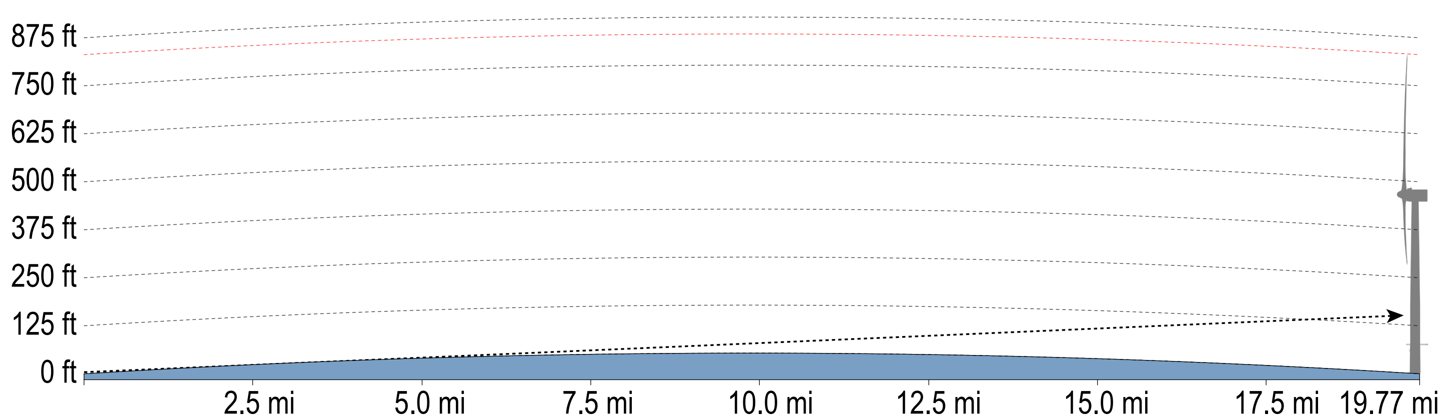

Context Photo: View to the South-Southeast


Context Photo: View to the South

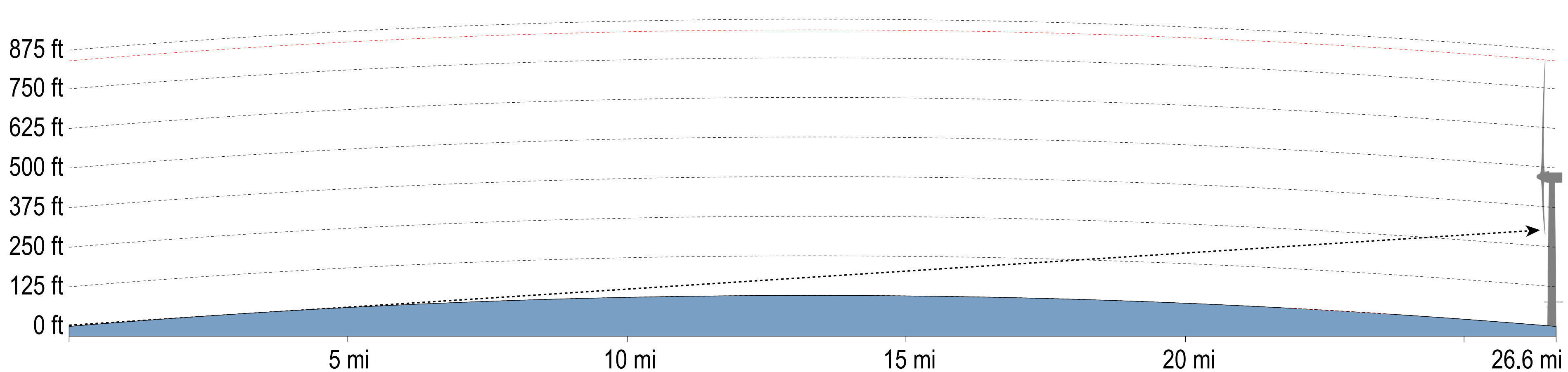
South Fork Wind Farm
New York/Rhode Island, US

Viewpoint 4C: View from Block Island Ferry, New Shoreham

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4C: View from Block Island Ferry, New Shoreham
Appendix C: Sheet 26 of 141

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 4C: View from Block Island Ferry, New Shoreham
Appendix C: Sheet 27 of 141

Southeast Lighthouse

Viewpoint Information

County: Washington

Town: New Shoreham

State: Rhode Island

Location: Block Island

Latitude: 41.15281082° N

Longitude: 71.55185129° W

Direction of View: East-Southeast (100.7°)

Distance to Nearest Visible Turbine: 19.4 miles

Environmental Data

Date Taken: 9/10/2017

Time: 1:20 PM

Temperature: 68.0 °F

Humidity: 63%

Visibility: >10 miles

Wind Direction: Northeast

Wind Speed: 8.1 mph

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

User Group: Resident, Tourist

Aesthetic Resource: National Register Historic Site, Mohegan Bluffs Scenic Area

Notes: Block Island Wind Farm visible from this location at a distance of 3.0 miles.

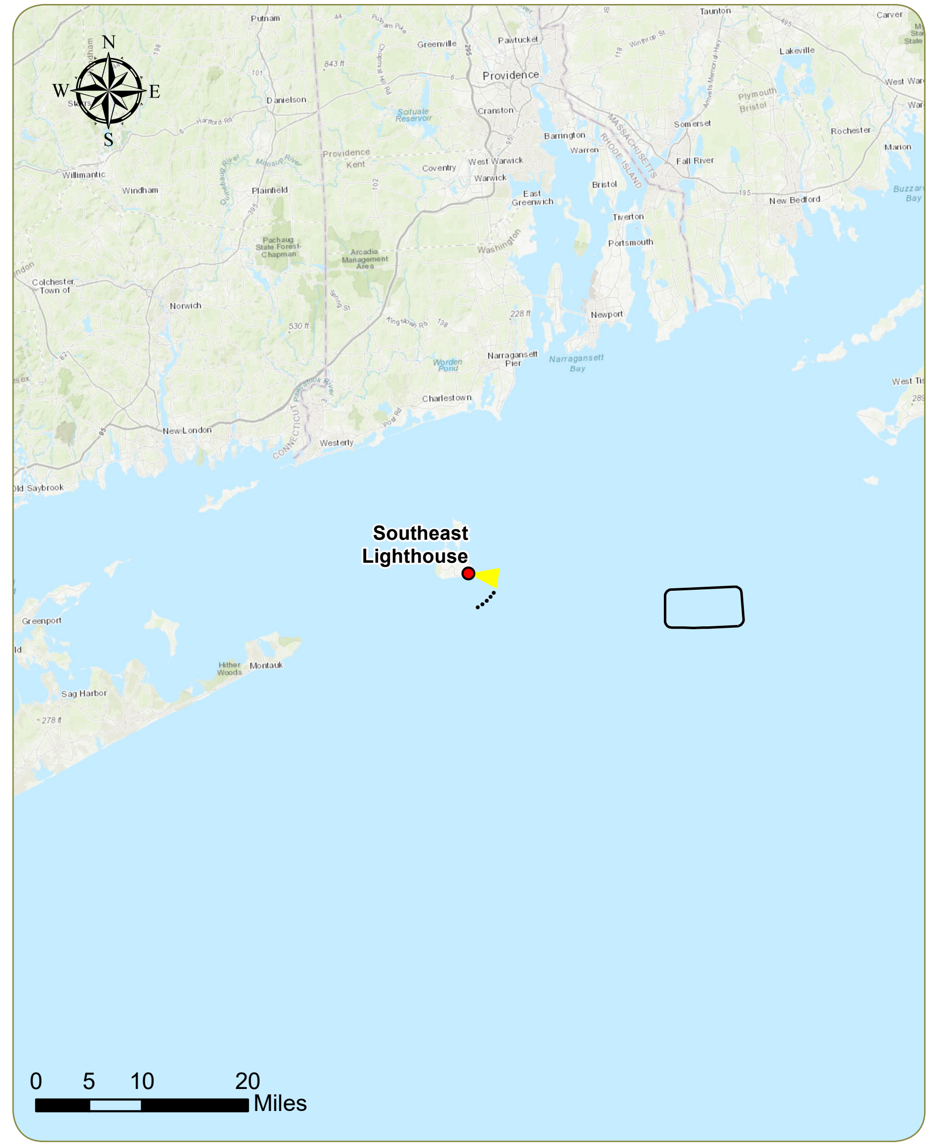
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 161.1 feet AMSL



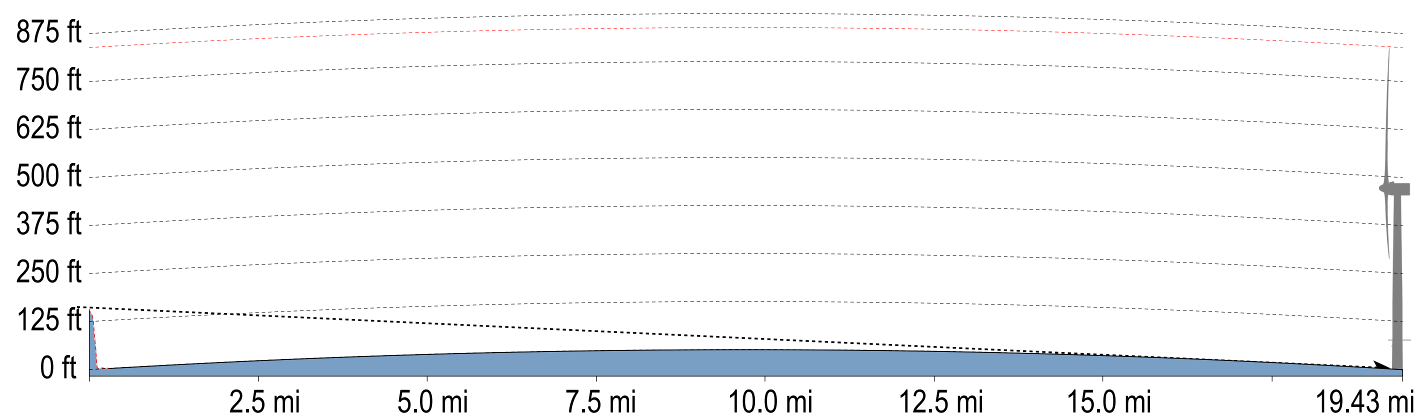

Context Photo: View to the North


Simulation Photo: View to the East-Southeast

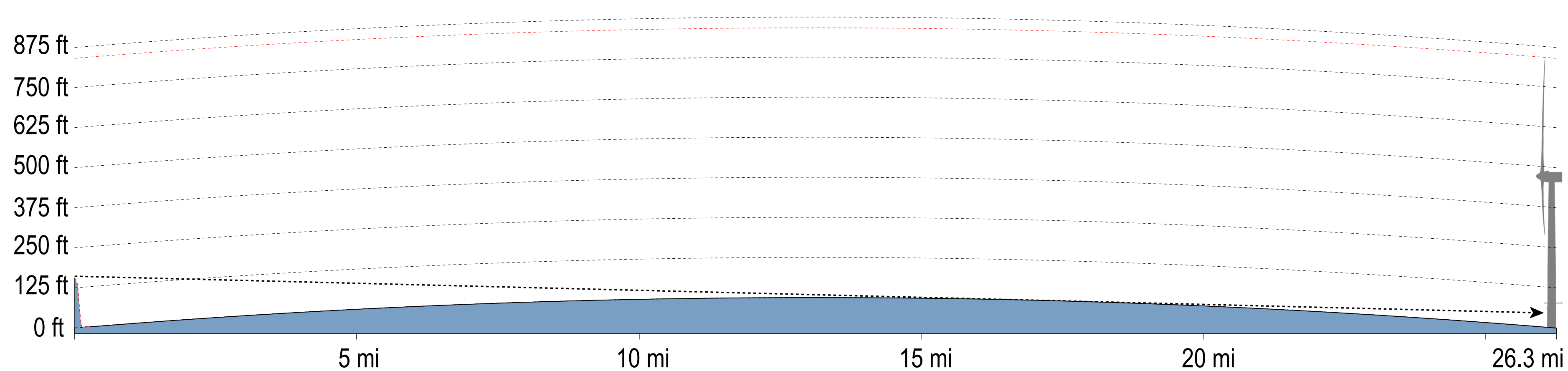

Context Photo: View to the Southeast


Context Photo: View to the South-Southeast

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 5B: View from Southeast Lighthouse, New Shoreham
Appendix C: Sheet 30 of 141

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 5B: View from Southeast Lighthouse, New Shoreham
Appendix C: Sheet 31 of 141

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 5B: View from Southeast Lighthouse, New Shoreham
Appendix C: Sheet 32 of 141

Southeast Lighthouse

Viewpoint Information

County: Washington

Town: New Shoreham

State: Rhode Island

Location: Block Island

Latitude: 41.15281082° N

Longitude: 71.55185129° W

Direction of View: East-Southeast (100.7°)

Distance to Nearest Visible Turbine: 19.4 miles

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area, Shoreline Bluffs

User Group: Resident, Tourist

Aesthetic Resource: National Register Historic Site, Mohegan Bluffs Scenic Area

Notes: Block Island Wind Farm visible from this location at a distance of 3.0 miles.

Environmental Data

Date Taken: 9/10/2017

Time: 9:06 PM

Temperature: 63.0 °F

Humidity: 81%

Visibility: >10 miles

Wind Direction: South-Southwest

Wind Speed: 3.5 mph

Conditions Observed: Clear

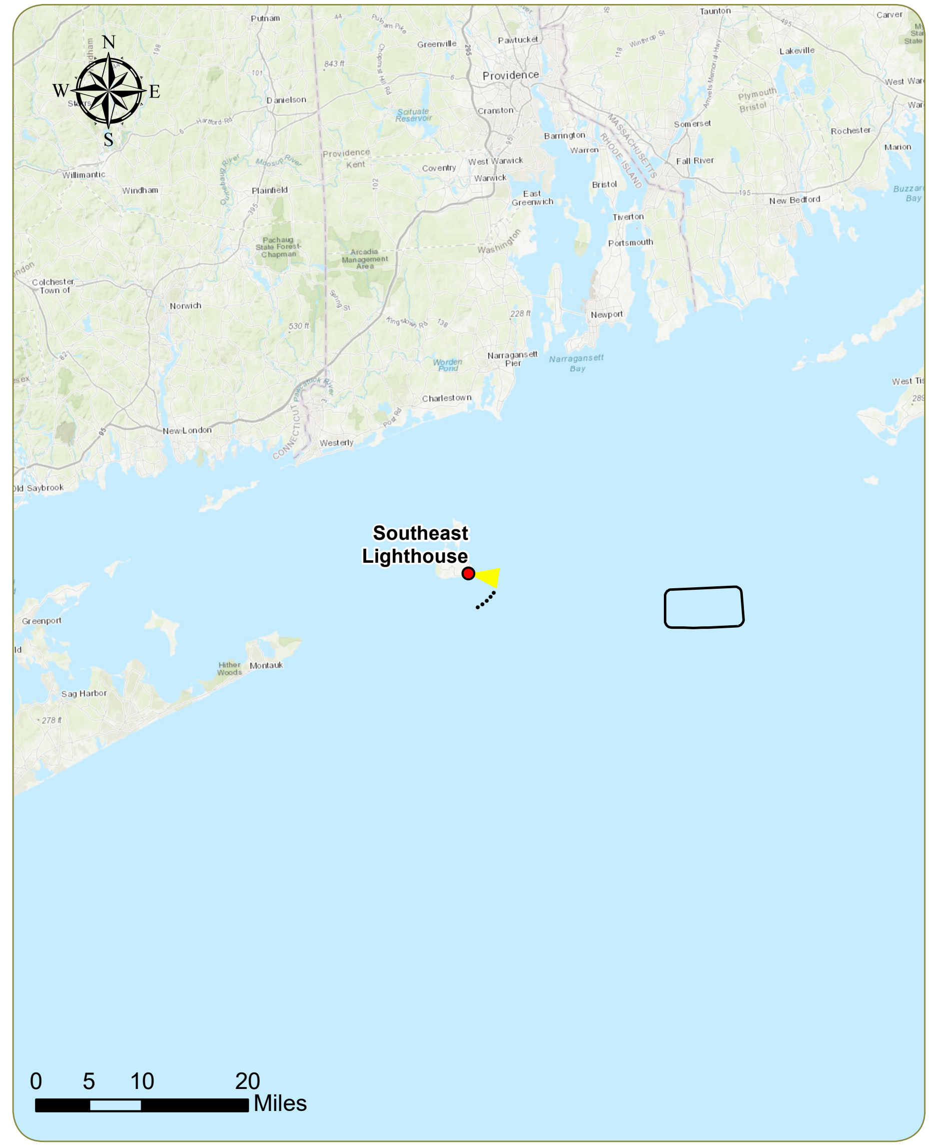
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

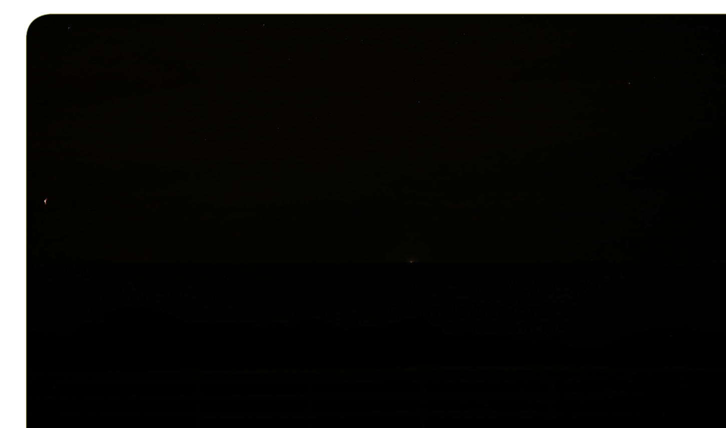
Camera Height: 161.1 feet AMSL



Context Photo: View to the North

Simulation Photo: View to the East-Southeast

Context Photo: View to the Southeast



Context Photo: View to the South-Southeast

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 5BN: Nighttime view from Southeast Lighthouse, New Shoreham
Appendix C: Sheet 34 of 141

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 5BN: Nighttime view from Southeast Lighthouse, New Shoreham
Appendix C: Sheet 35 of 141

Point Judith Lighthouse

Viewpoint Information

County: Washington

Town: Narragansett

State: Rhode Island

Location: Mainland, RI

Latitude: 41.36308909° N

Longitude: 71.48099512° W

Direction of View: South-Southeast (141.7°)

Distance to Nearest Visible Turbine: 23.6 miles

Environmental Data

Date Taken: 8/3/2017

Time: 12:34 PM

Temperature: 77.0 °F

Humidity: 79%

Visibility: >10 miles

Wind Direction: South

Wind Speed: 10.4 mph

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

User Group: Resident, Tourist, Fishing Community

Aesthetic Resource: National Register Historic Site, Point Judith State Scenic Area

Notes: Block Island Wind Farm visible from this location at a distance of 16.4 miles.

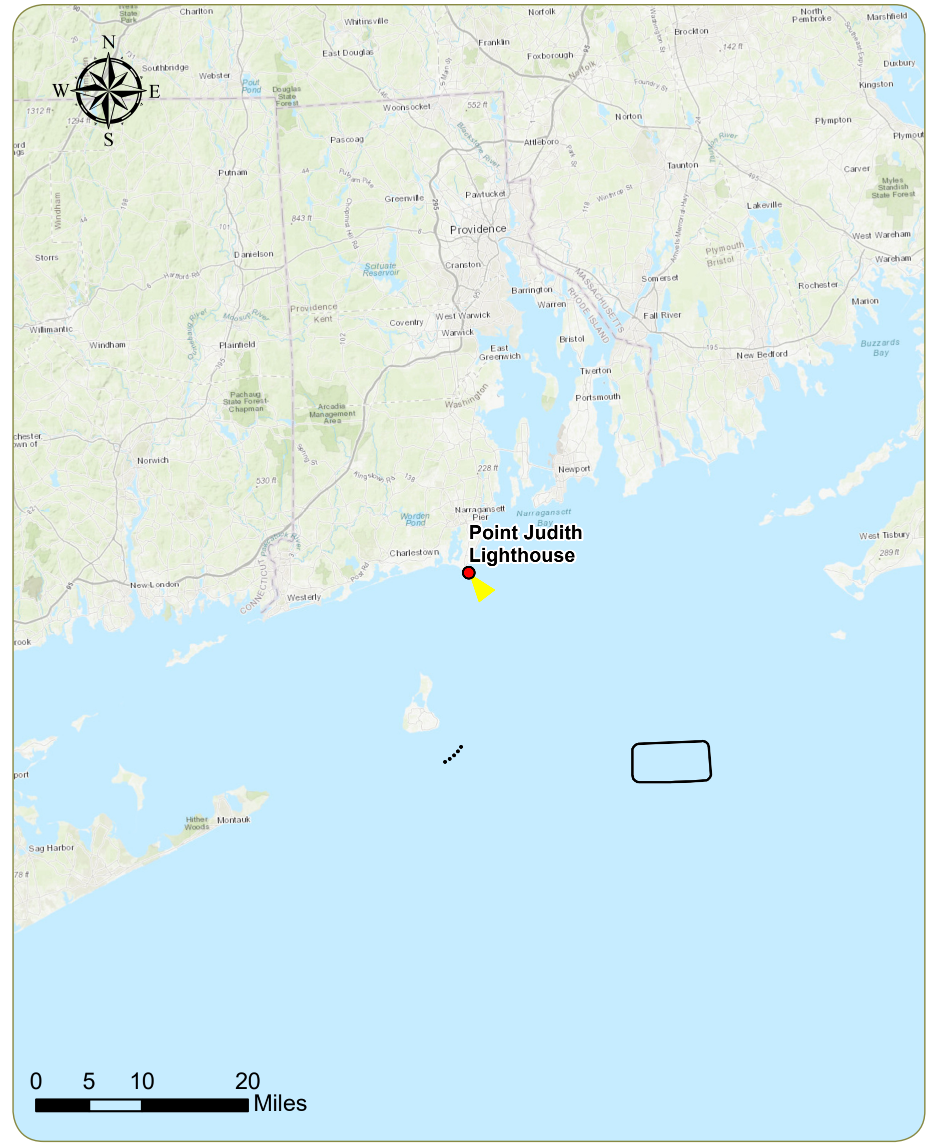
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 29.6 feet AMSL



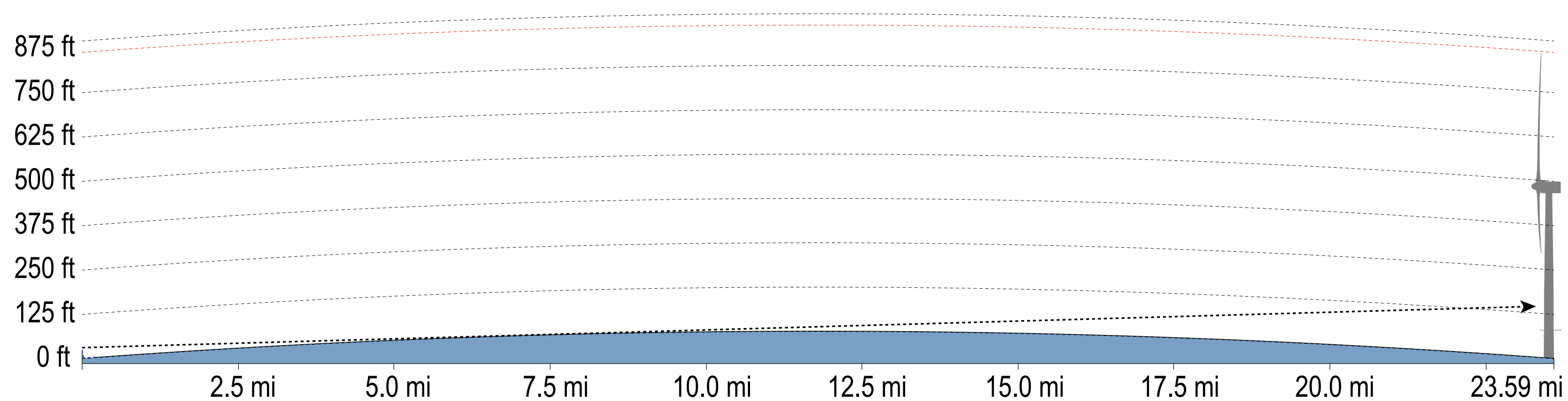
Context Photo: View to the East-Southeast

Simulation Photo: View to the South-Southeast

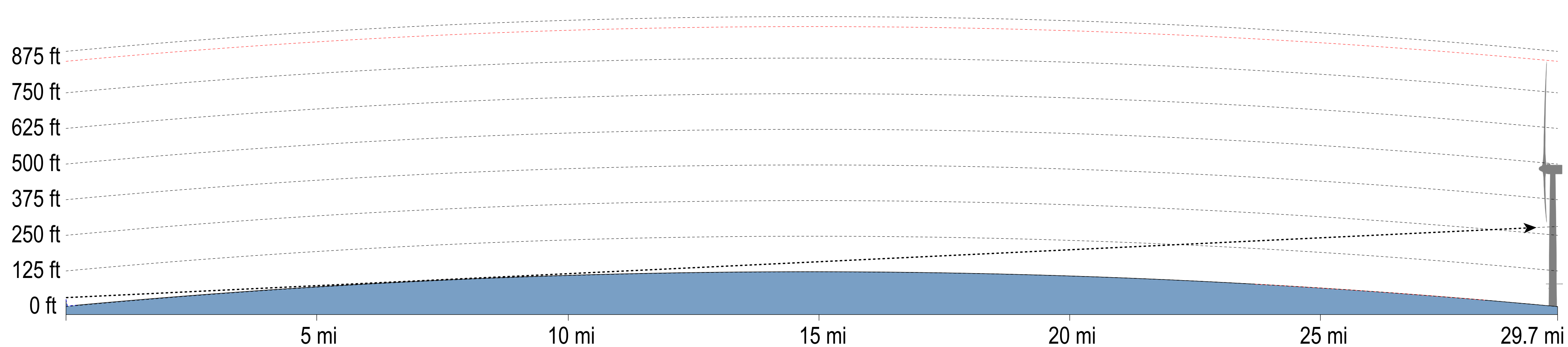
Context Photo: View to the South

Context Photo: View to the South-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 6: View from Point Judith Lighthouse, Narragansett
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 6: View from Point Judith Lighthouse, Narragansett
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Point Judith Lighthouse

Viewpoint Information

County: Washington

Town: Narragansett

State: Rhode Island

Location: Mainland, RI

Latitude: 41.36308909° N

Longitude: 71.48099512° W

Direction of View: South-Southeast (141.7°)

Distance to Nearest Visible Turbine: 23.6 miles

Environmental Data

Date Taken: 9/8/2017

Time: 11:15 PM

Temperature: 60.1 °F

Humidity: 86%

Visibility: >10 miles

Wind Direction: West

Wind Speed: 3.5 mph

Conditions Observed: Partly Cloudy

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

User Group: Resident, Tourist, Fishing Community

Aesthetic Resource: National Register Historic Site, Point Judith State Scenic Area

Notes: Block Island Wind Farm visible from this location at a distance of 16.4 miles.

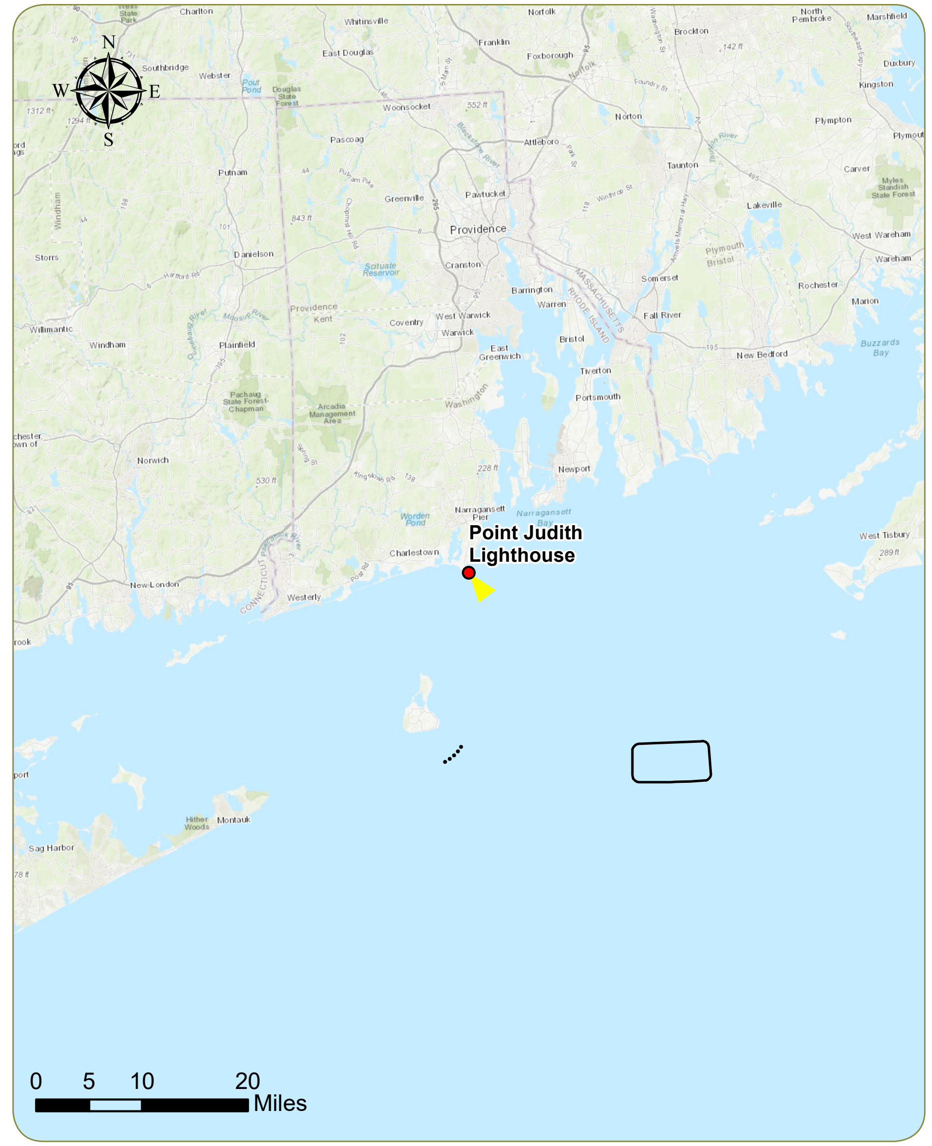
Camera Information

Camera: Canon EOS 5D Mark IV

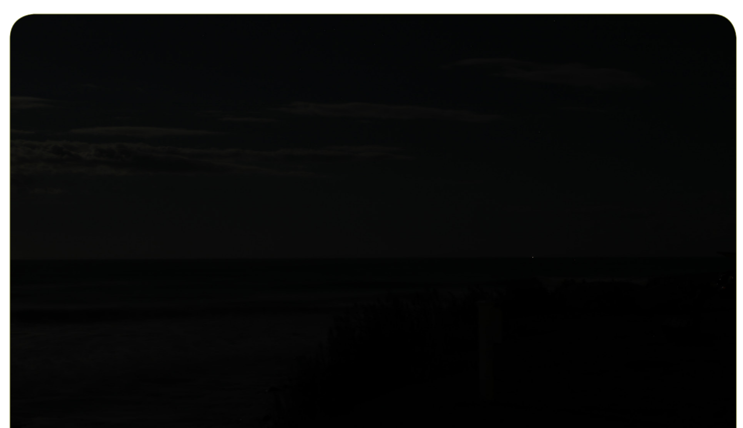
Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 29.6 feet AMSL



Context Photo: View to the East-Southeast



Simulation Photo: View to the South-Southeast

Context Photo: View to the South-Southeast

Context Photo: View to the South

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 6N: Nighttime view from Point Judith Lighthouse, Narragansett
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South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 6N: Nighttime view from Point Judith Lighthouse, Narragansett

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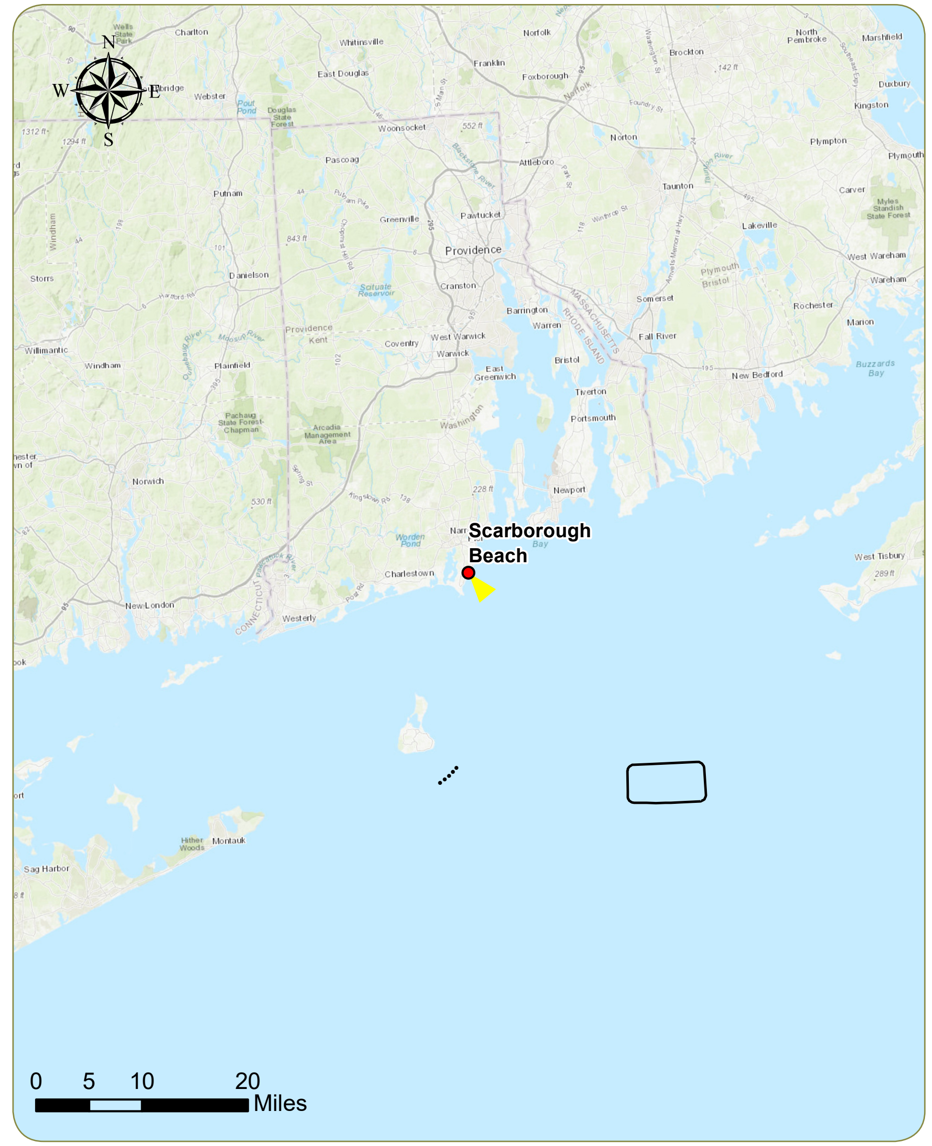
Scarborough Beach State Park

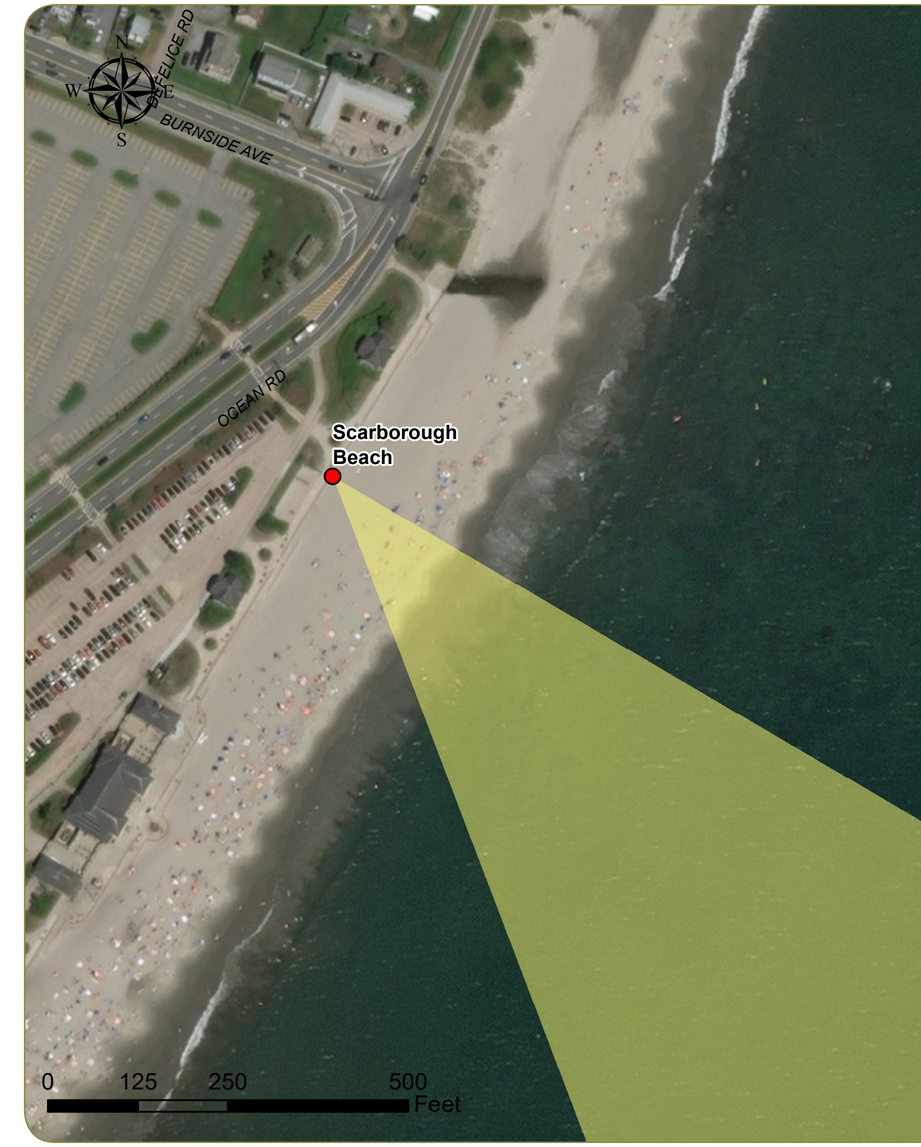
Viewpoint Information
County: Washington
Town: Narragansett
State: Rhode Island
Location: Mainland, RI
Latitude: 41.39093547° N
Longitude: 71.47129574° W
Direction of View: South-Southeast (145.5°)
Distance to Nearest Visible Turbine: 24.8 miles

Environmental Data
Date Taken: 8/3/2017
Time: 11:07 AM
Temperature: 73.9 °F
Humidity: 87%
Visibility: >10 miles
Wind Direction: South-Southwest
Wind Speed: 8.1 mph
Conditions Observed: Scattered Clouds

Visual Resources
Landscape Similarity Zone: Shoreline Beach
User Group: Resident, Tourist
Aesthetic Resource: Scarborough State Beach
Notes: Block Island Wind Farm visible from this location at a distance of 18.4 miles.

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 14.8 feet AMSL





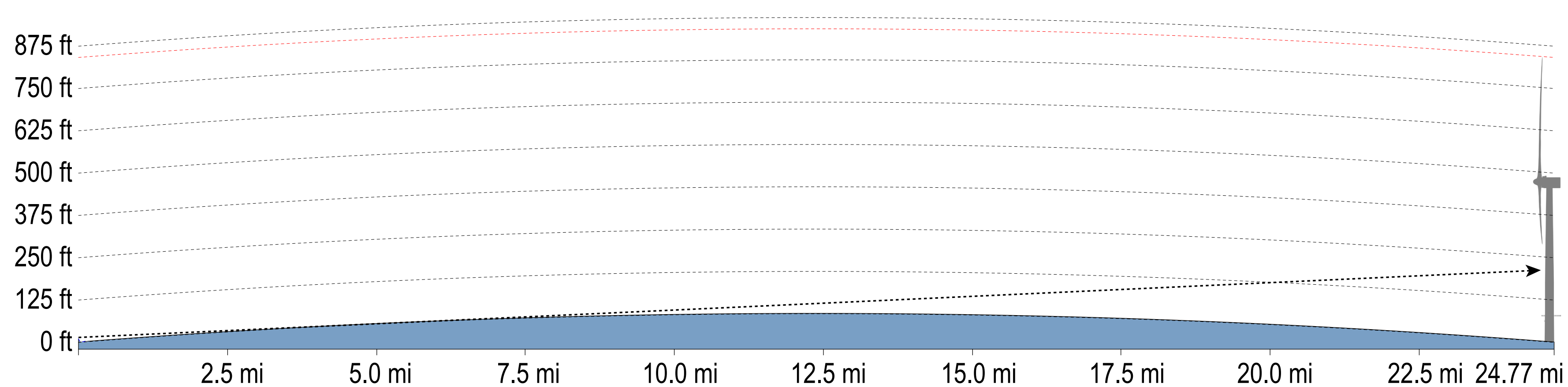

Context Photo: View to the East


Simulation Photo: View to the South-Southeast

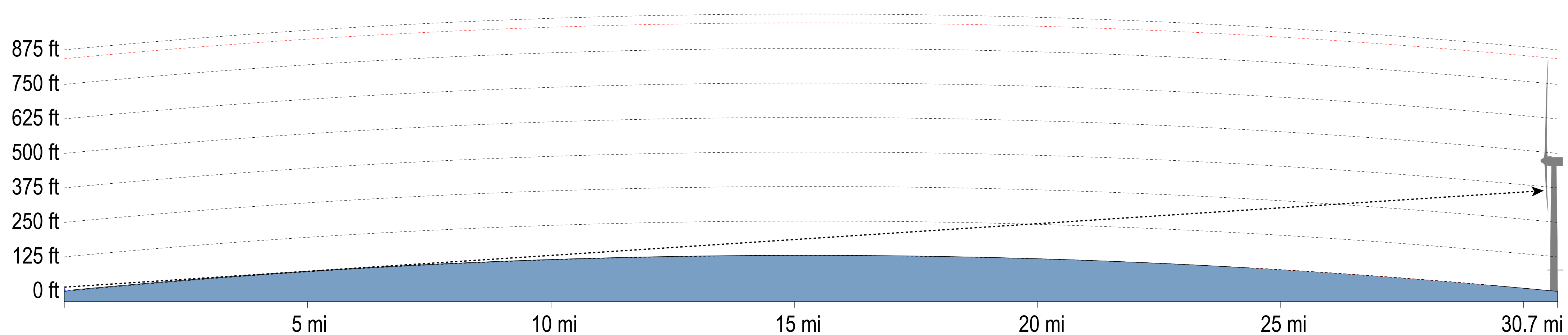

Context Photo: View to the South-Southeast


Context Photo: View to the Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 7: View from Scarborough Beach State Park, Narragansett
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 7: View from Scarborough Beach State Park, Narragansett
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Narragansett Beach

Viewpoint Information

County: Washington

Town: Narragansett

State: Rhode Island

Location: Mainland, RI

Latitude: 41.43860850° N

Longitude: 71.44979759° W

Direction of View: South-Southeast (151.6°)

Distance to Nearest Visible Turbine: 26.9 miles

Visual Resources

Landscape Similarity Zone: Shoreline Beach

User Group: Resident, Tourist

Aesthetic Resource: Narragansett Town Beach

Environmental Data

Date Taken: 8/3/2017

Time: 9:16 AM

Temperature: 71.1 °F

Humidity: 96%

Visibility: >10 miles

Wind Direction: Calm

Wind Speed: Calm

Conditions Observed: Overcast

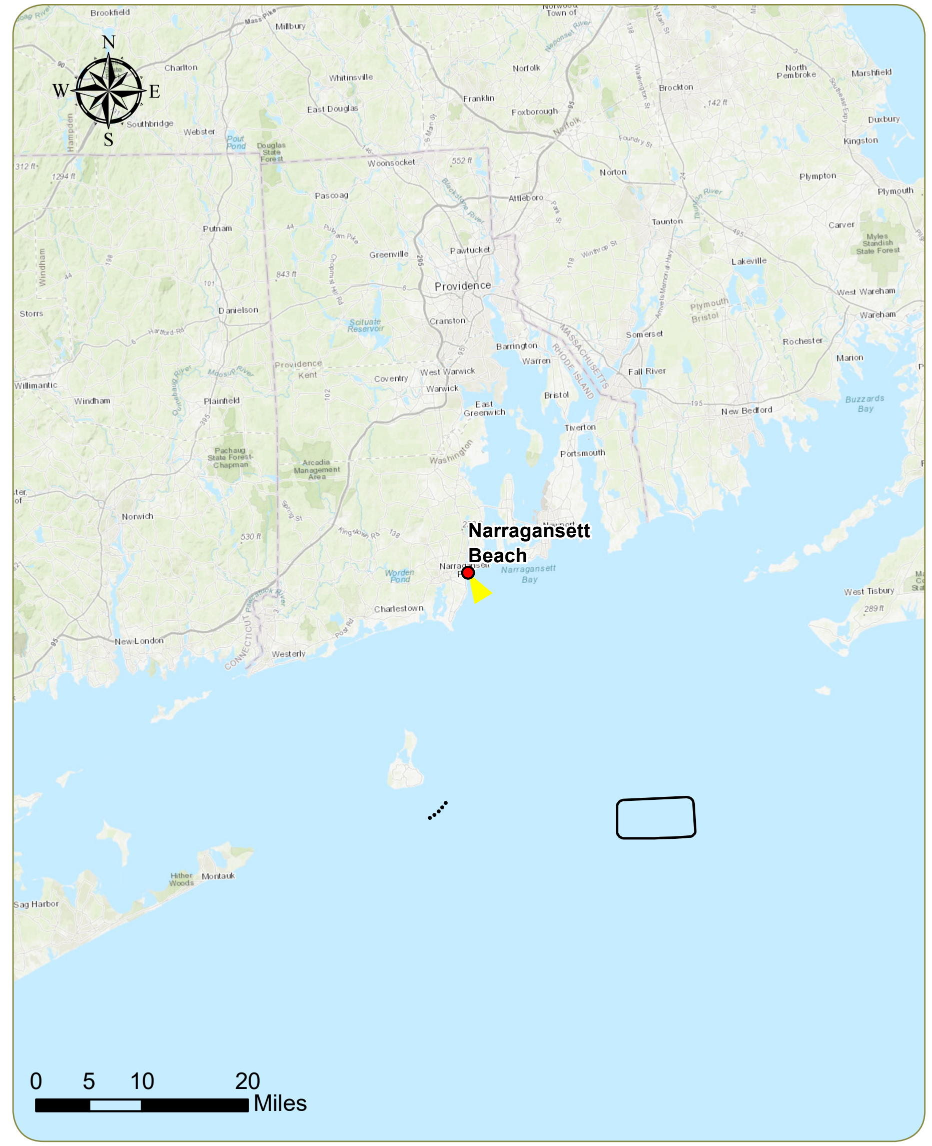
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 10.5 feet AMSL



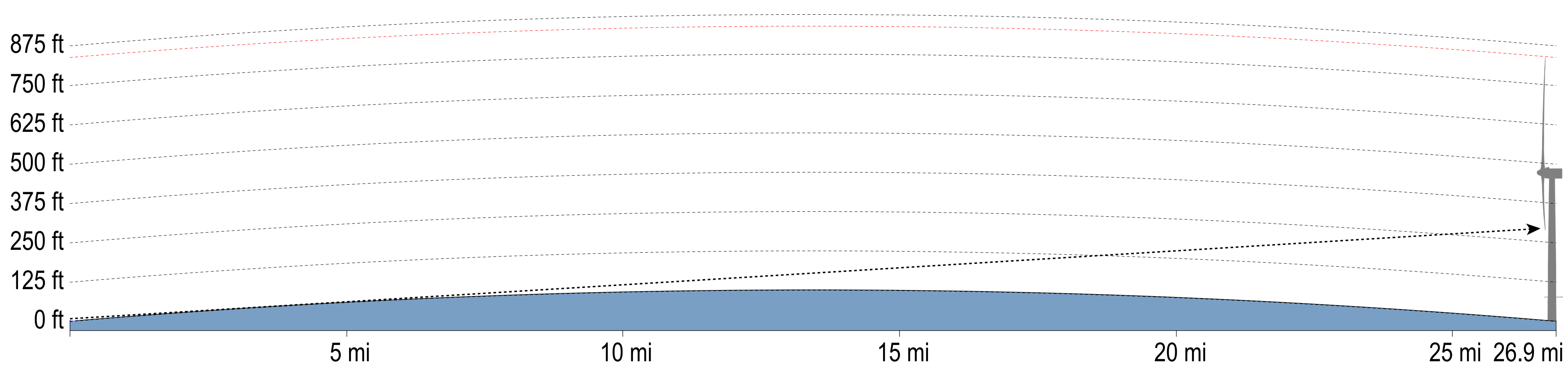
Context Photo: View to the East-Southeast

Simulation Photo: View to the South-Southeast

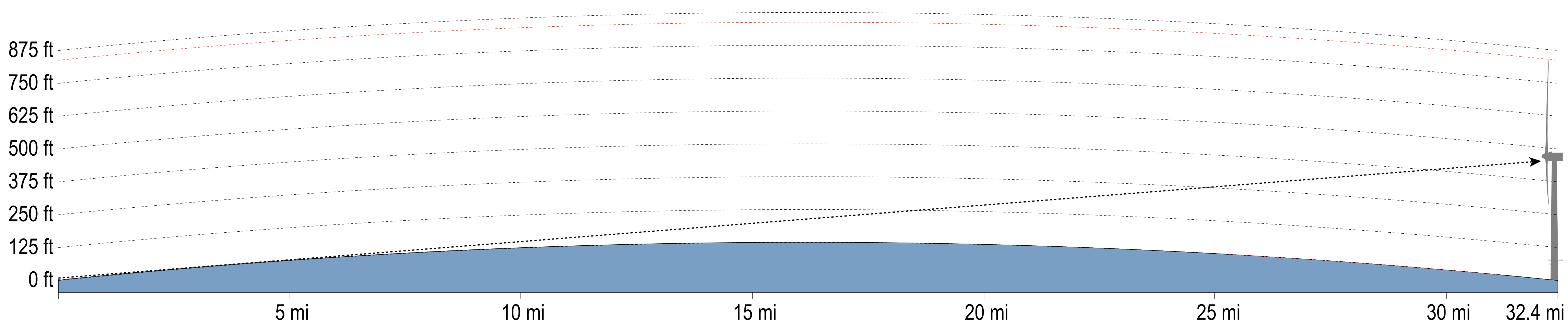
Context Photo: View to the South-Southwest

Context Photo: View to the Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 9: View from Narragansett Beach, Narragansett Platform, Narragansett
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 9: View from Narragansett Beach, Narragansett Platform, Narragansett
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Beavertail Lighthouse

Viewpoint Information

County: Newport

Town: Jamestown

State: Rhode Island

Location: Conanicut Island

Latitude: 41.44978450° N

Longitude: 71.39847894° W

Direction of View: South-Southeast (157.6°)

Distance to Nearest Visible Turbine: 26.3 miles

Environmental Data

Date Taken: 7/26/2017

Time: 7:25 PM

Temperature: 66.0 °F

Humidity: 84%

Visibility: >10 miles

Wind Direction: South-Southwest

Wind Speed: 6.9 mph

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreation Areas, Coastal Bluff

User Group: Resident, Tourist

Aesthetic Resource: National Register Historic Site, Beavertail Point Scenic Area, Rhode Island Historic District, Beavertail State Park

Notes: Block Island Wind Farm visible from this location at a distance of 23.1 miles.

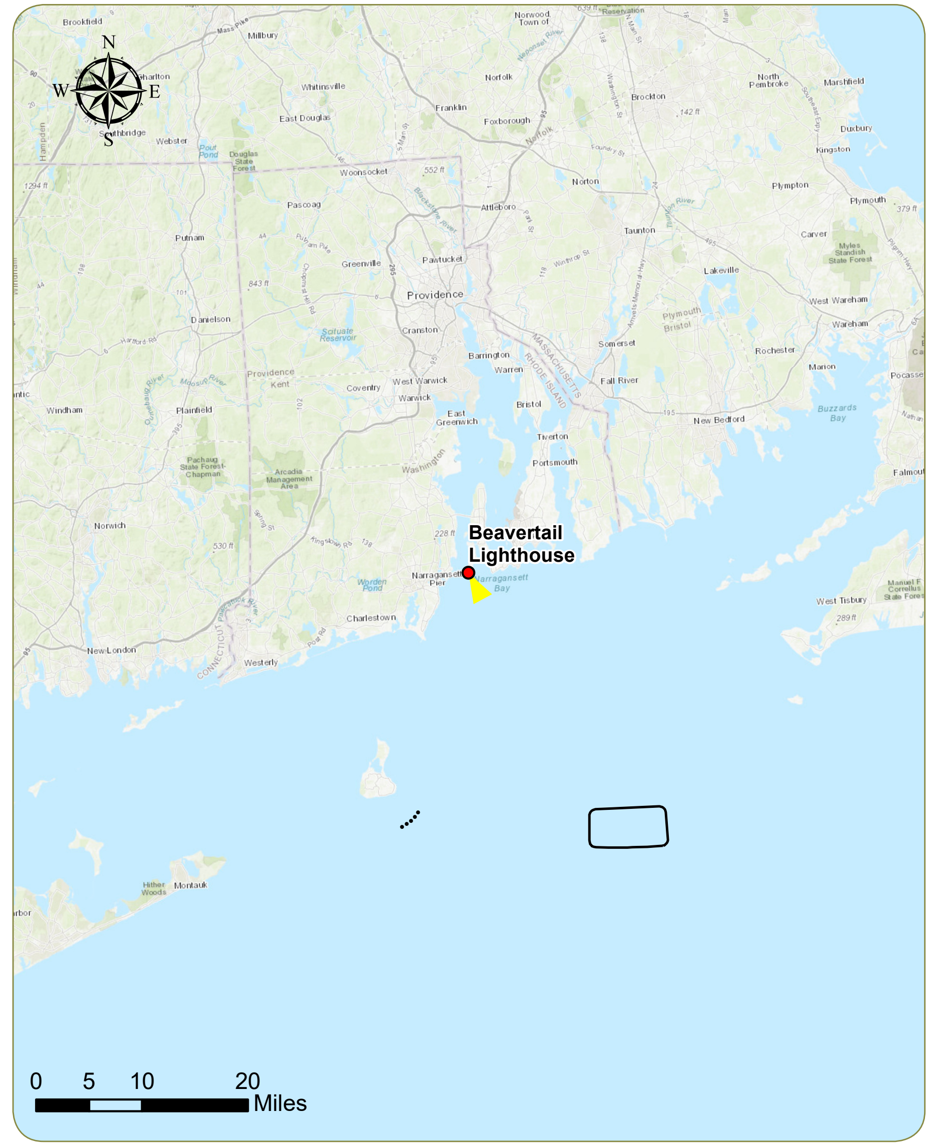
Camera Information

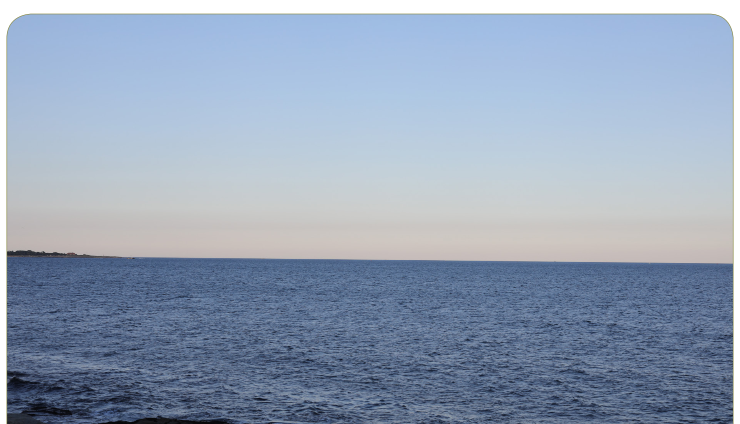
Camera: Canon EOS 5D Mark IV

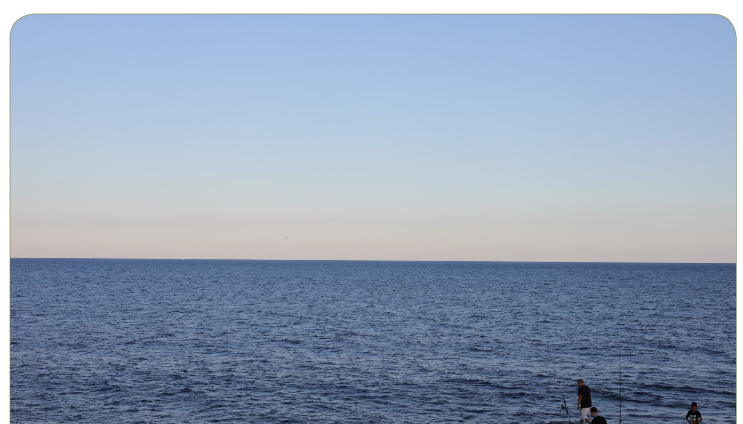
Resolution: 30.4 Megapixels

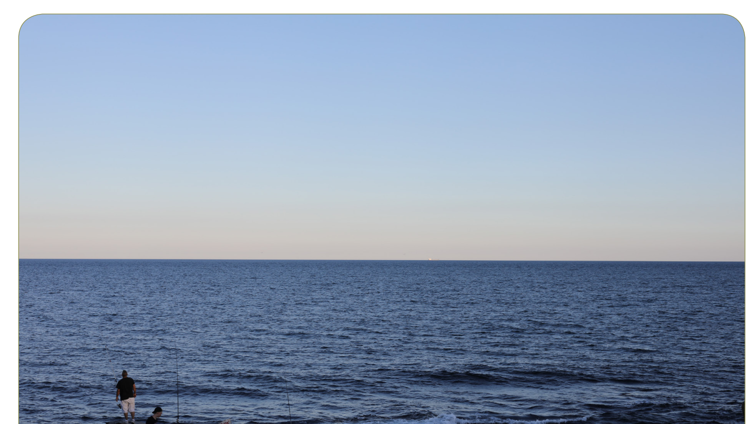
Lens Focal Length: 50 mm

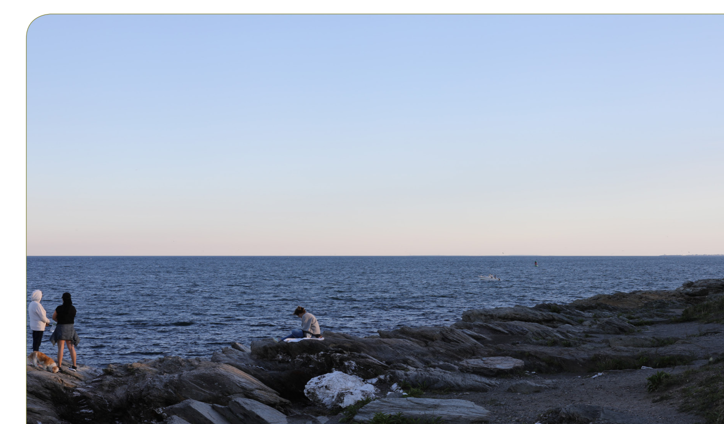
Camera Height: 27.5 feet AMSL



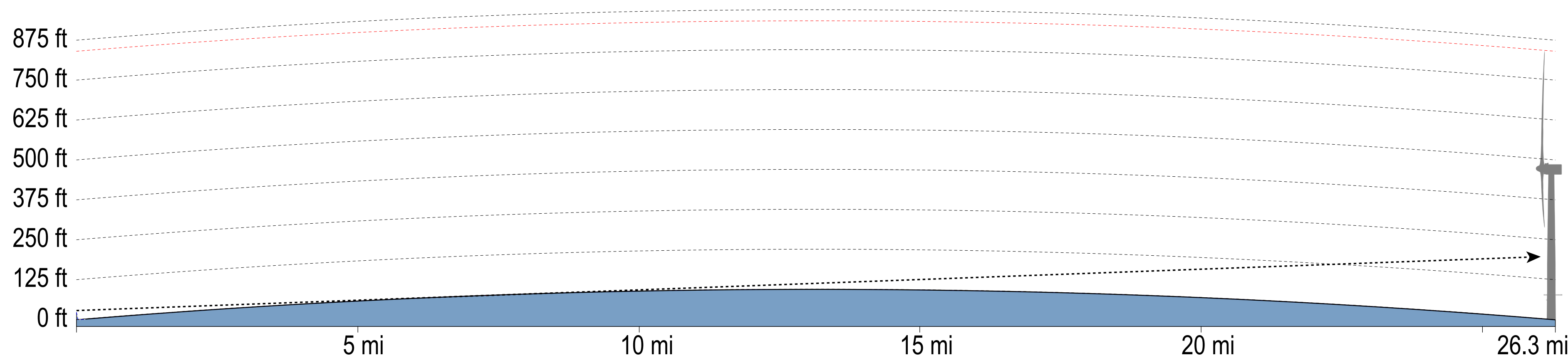

Context Photo: View to the East


Context Photo: View to the Southeast

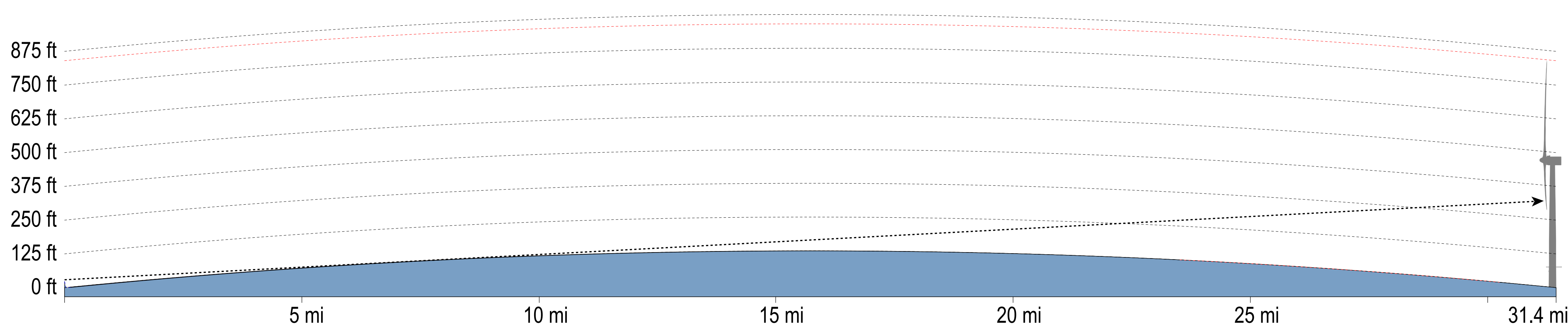

Simulation Photo: View to the South-Southeast


Context Photo: View to the South-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 10: View from Beavertail Lighthouse, Jamestown
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 10: View from Beavertail Lighthouse, Jamestown
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Brenton Point State Park

Viewpoint Information

County: Newport
Town: Newport
State: Rhode Island
Location: Aquidneck Island
Latitude: 41.45036661° N
Longitude: 71.35475887° W
Direction of View: South-Southeast (162.5°)
Distance to Nearest Visible Turbine: 25.5 miles

Visual Resources

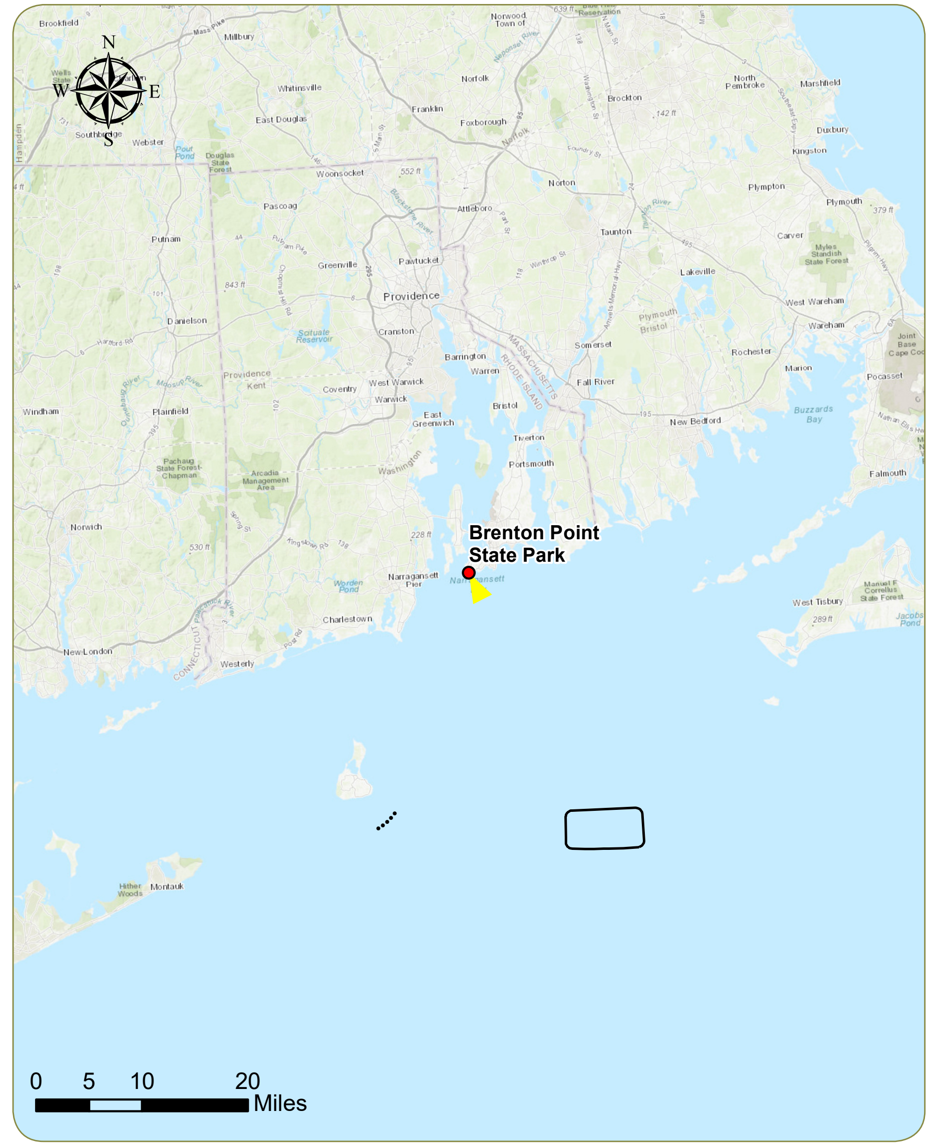
Landscape Similarity Zone: Maintained Recreation Areas
User Group: Resident, Tourist
Aesthetic Resource: Newport/Ocean Drive State Scenic Area, Brenton Point State Park, Rhode Island Historic District
Notes: Block Island Wind Farm visible from this location at a distance of 23.8 miles.

Environmental Data

Date Taken: 7/26/2017
Time: 4:45 PM
Temperature: 72.0 °F
Humidity: 68%
Visibility: >10 miles
Wind Direction: South
Wind Speed: 8.1 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 33.9 feet AMSL



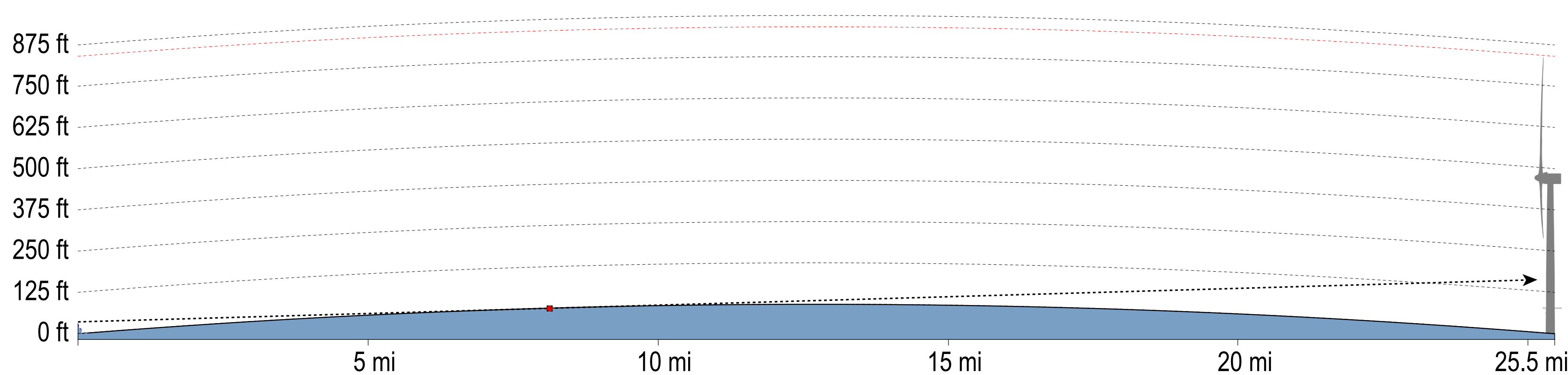

Context Photo: View to the East-Southeast


Simulation Photo: View to the South-Southeast

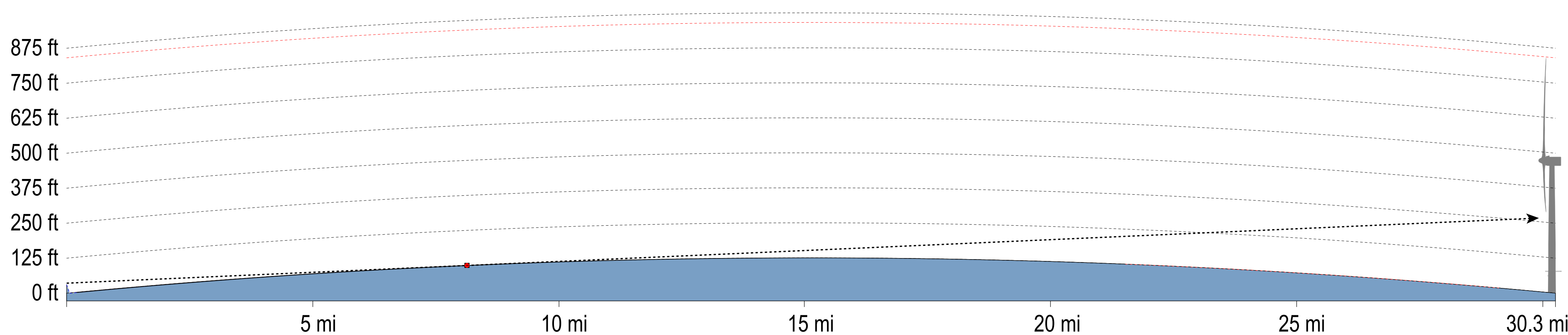

Context Photo: View to the South-Southwest


Context Photo: View to the Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 11: View from Brenton Point State Park, Newport
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 11: View from Brenton Point State Park, Newport
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Brenton Point State Park

Viewpoint Information

County: Newport

Town: Newport

State: Rhode Island

Location: Aquidneck Island

Latitude: 41.45036661° N

Longitude: 71.35475887° W

Direction of View: South-Southeast (162.5°)

Distance to Nearest Visible Turbine: 25.5 miles

Environmental Data

Date Taken: 11/24/2017

Time: 5:11 PM

Temperature: 39.0 °F

Humidity: 87%

Visibility: >10 miles

Wind Direction: West

Wind Speed: 4.4 mph

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreation Areas

User Group: Resident, Tourist

Aesthetic Resource: Newport/Ocean Drive State Scenic Area, Brenton Point State Park, Rhode Island Historic District

Notes: Block Island Wind Farm visible from this location at a distance of 23.8 miles.

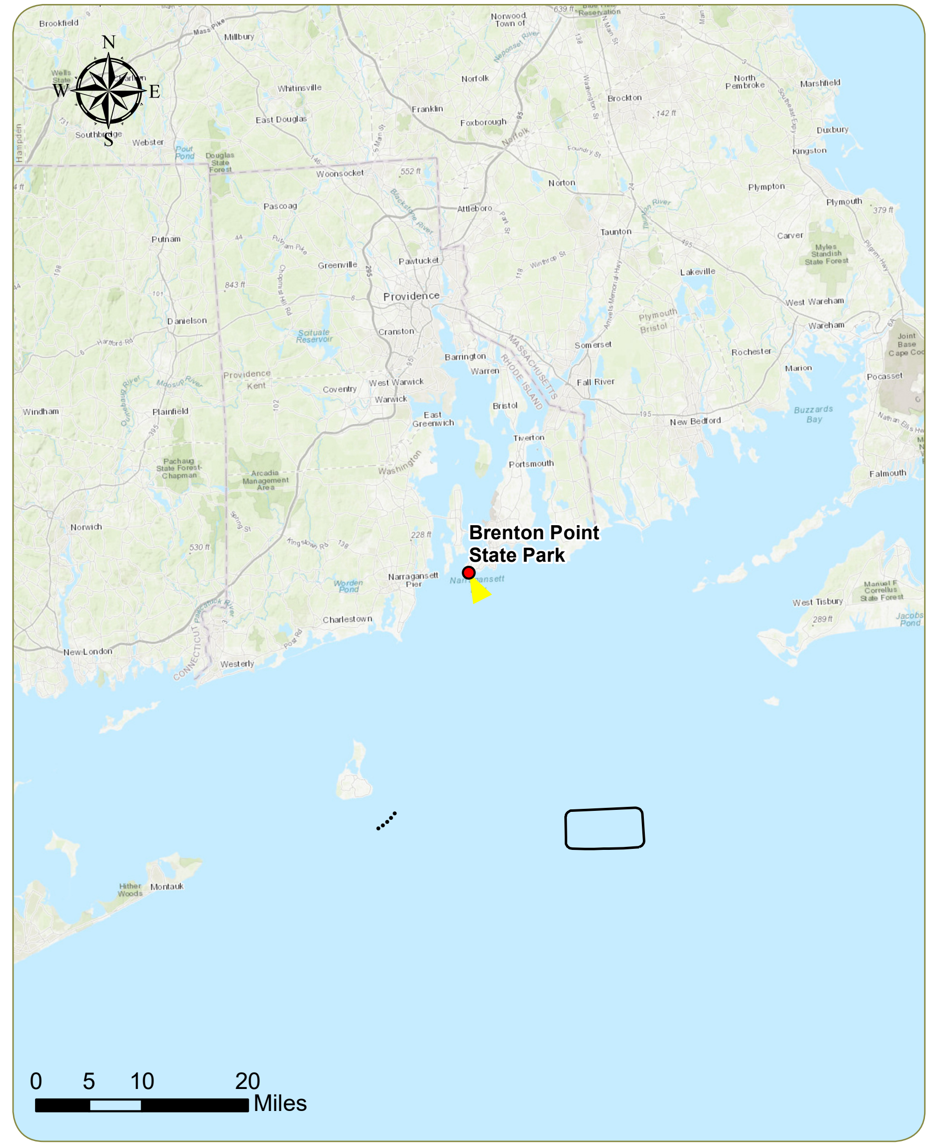
Camera Information

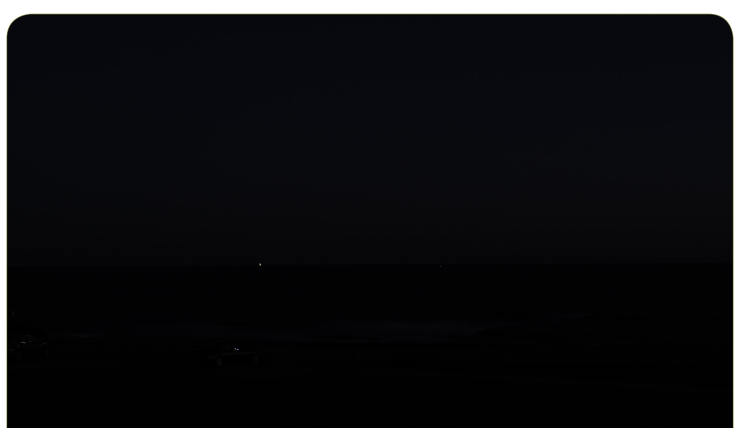
Camera: Canon EOS 5D Mark IV

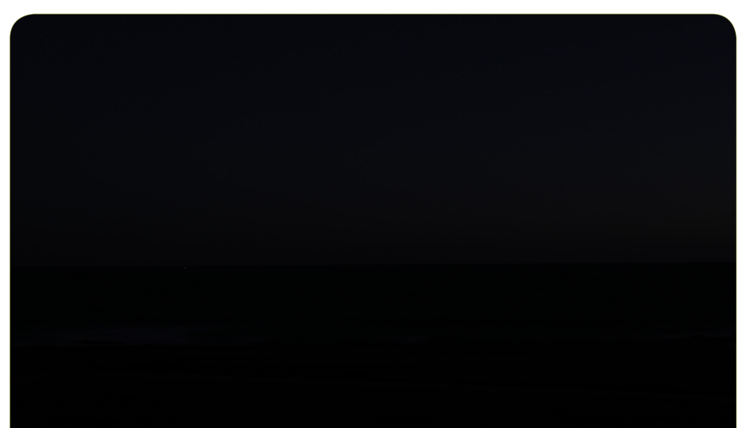
Resolution: 30.4 Megapixels

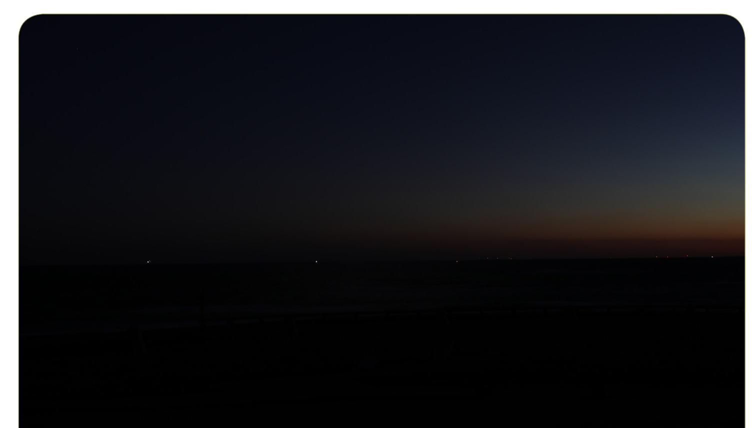
Lens Focal Length: 50 mm

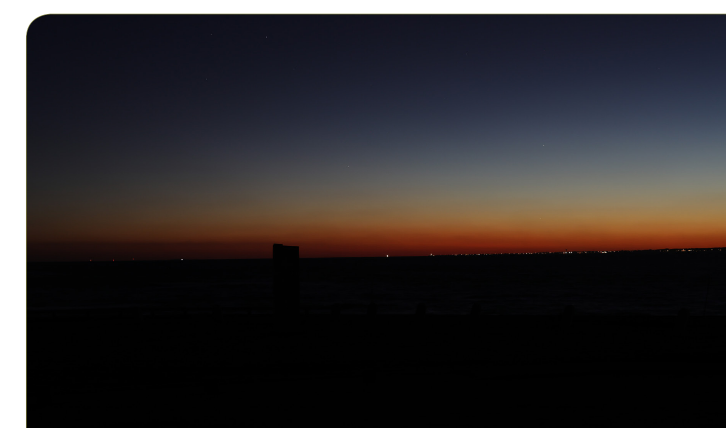
Camera Height: 34.9 feet AMSL




Context Photo: View to the East-Southeast


Simulation Photo: View to the South-Southeast


Context Photo: View to the South-Southwest


Context Photo: View to the Southwest

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 11N: Nighttime view from Brenton Point State Park, Newport
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 11N: Nighttime view from Brenton Point State Park, Newport
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Newport Cliffwalk

Viewpoint Information

County: Newport

Town: Newport

State: Rhode Island

Location: Aquidneck Island

Latitude: 41.45119478° N

Longitude: 71.31157497° W

Direction of View: South-Southeast (167.6°)

Distance to Nearest Visible Turbine: 24.8 miles

Environmental Data

Date Taken: 7/26/2017

Time: 7:03 PM

Temperature: 61.0 °F

Humidity: 97%

Visibility: >10 miles

Wind Direction: Calm

Wind Speed: Calm

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Maintained Recreation Areas, Shoreline Residential

User Group: Resident, Tourist

Aesthetic Resource: Newport/Ocean Drive State Scenic Area, Cliff Walk National Recreation Trail,

North Light Rhode Island Historic District

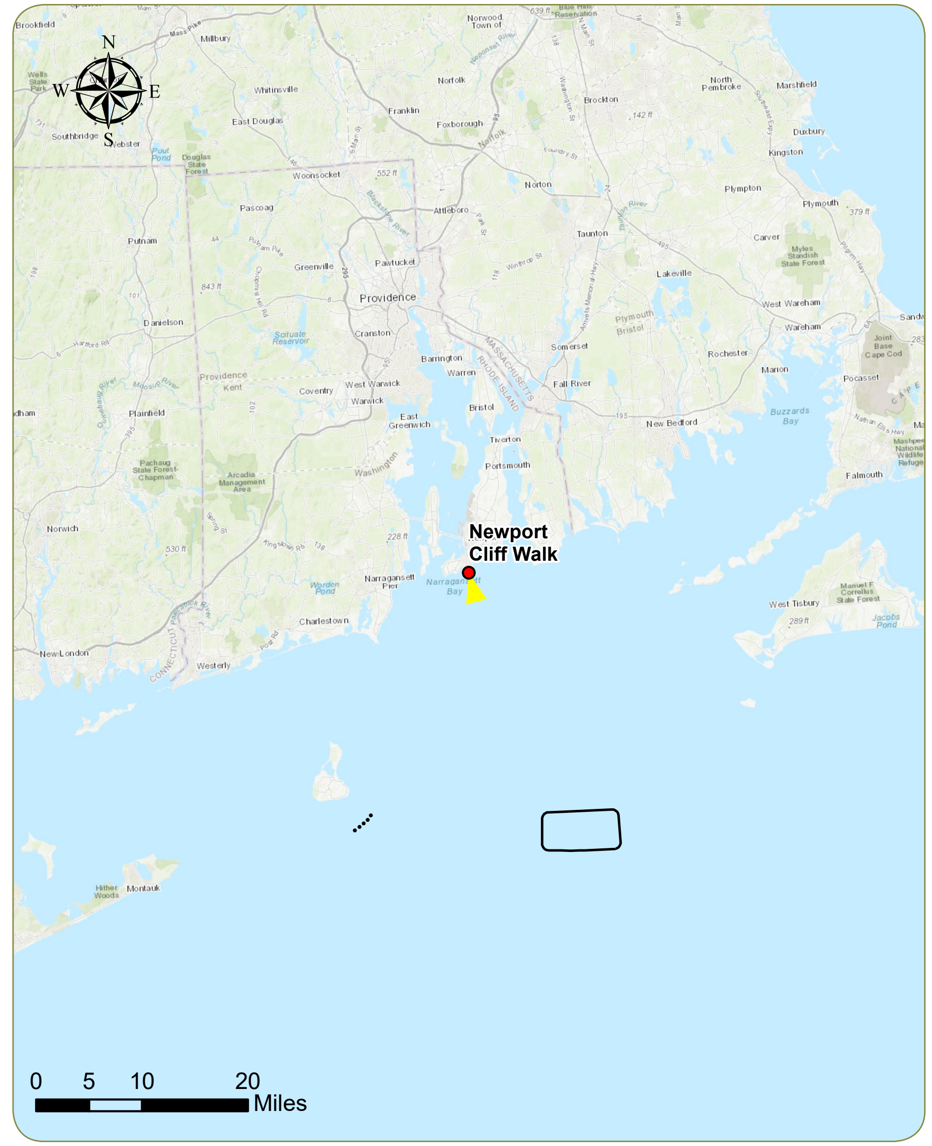
Camera Information

Camera: Canon EOS 5D Mark IV

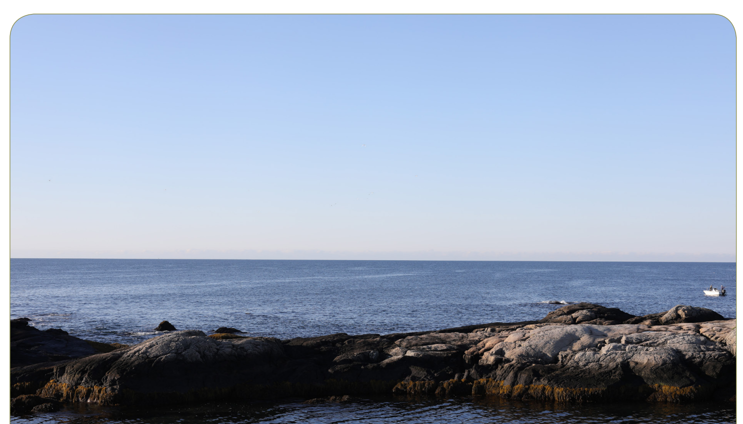
Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

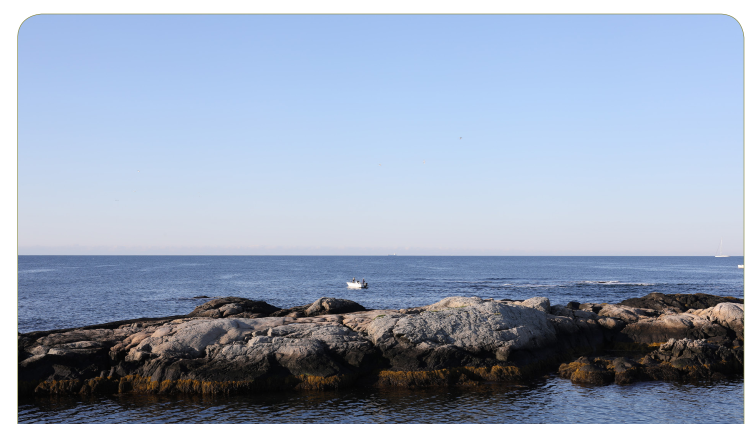
Camera Height: 22.8 feet AMSL



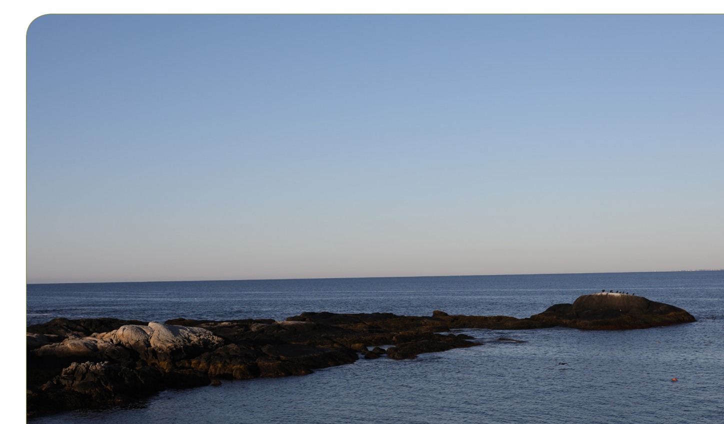
Context Photo: View to the Southeast



Simulation Photo: View to the South-Southeast

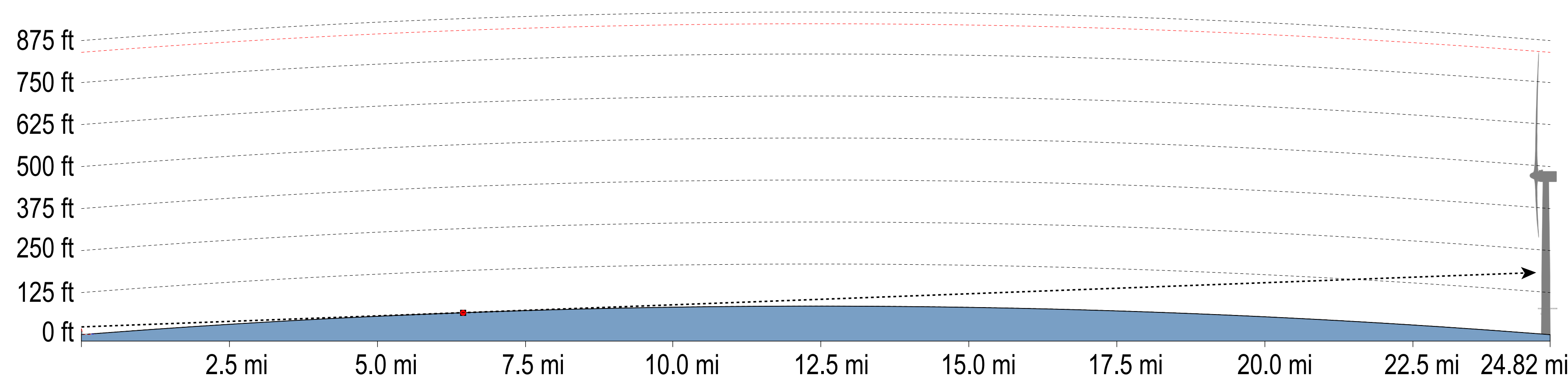


Context Photo: View to the South

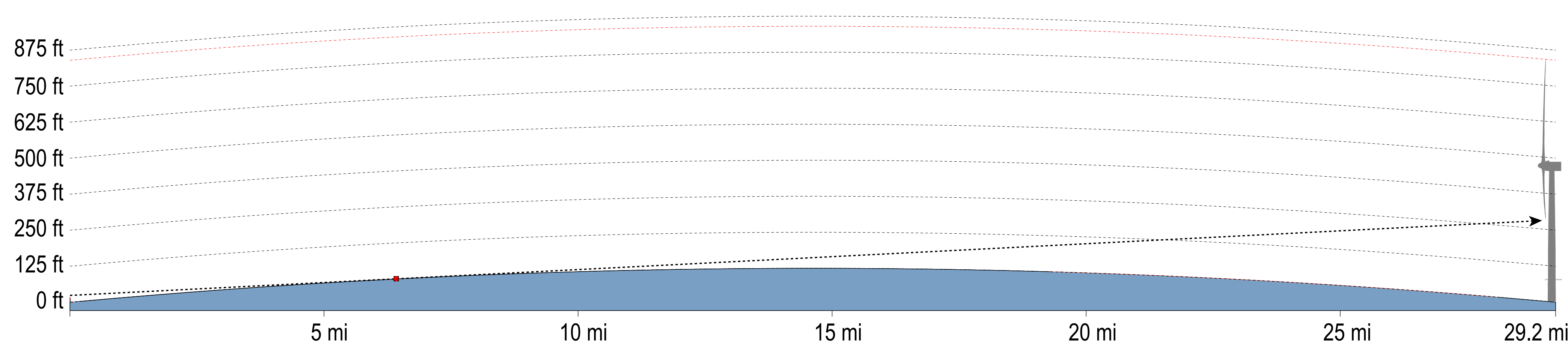


Context Photo: View to the South-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 12: View from Newport Cliffwalk, Newport
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 12: View from Newport Cliffwalk, Newport
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Sachuest Beach (Second Beach)

Viewpoint Information

County: Newport

Town: Middletown

State: Rhode Island

Location: Aquidneck Island

Latitude: 41.48801602° N

Longitude: 71.25795518° W

Direction of View: South (174.6°)

Distance to Nearest Visible Turbine: 26.7 miles

Environmental Data

Date Taken: 7/26/2017

Time: 6:09 PM

Temperature: 71.1 °F

Humidity: 66%

Visibility: >10 miles

Wind Direction: South

Wind Speed: 8.1 mph

Conditions Observed: Partly Cloudy

Visual Resources

Landscape Similarity Zone: Shoreline Beach

User Group: Resident, Tourist

Aesthetic Resource: Second Beach, Narragansett Bay

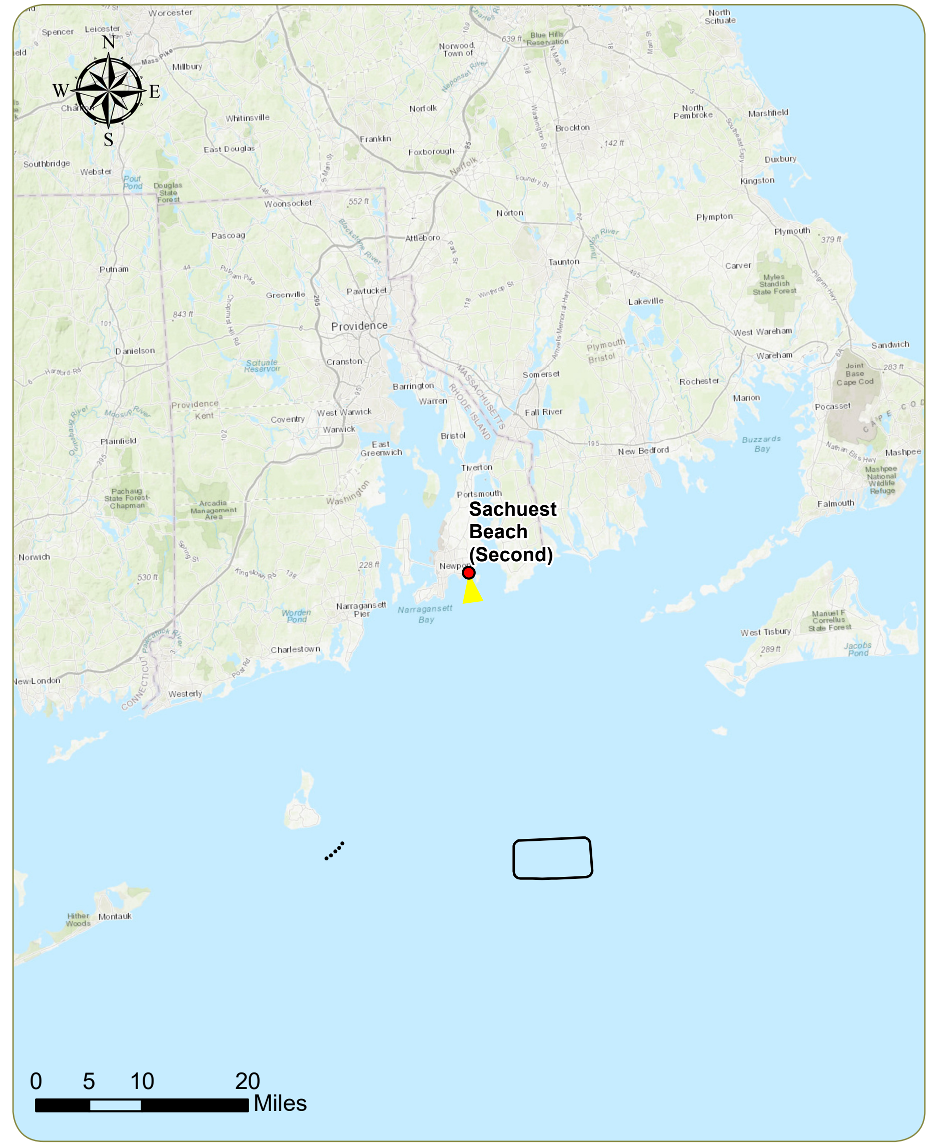
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 10.2 feet AMSL



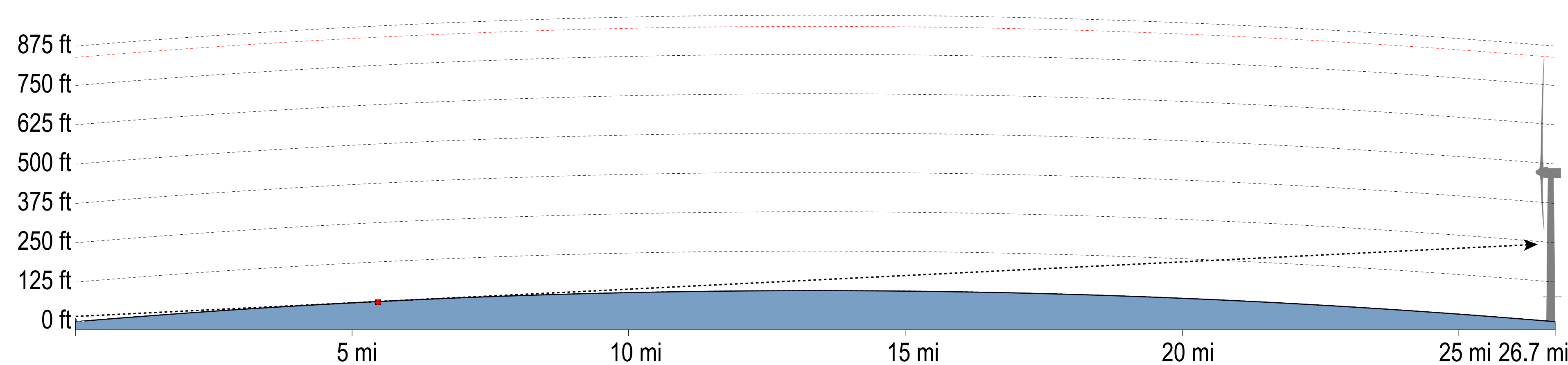
Context Photo: View to the East

Context Photo: View to the Southeast

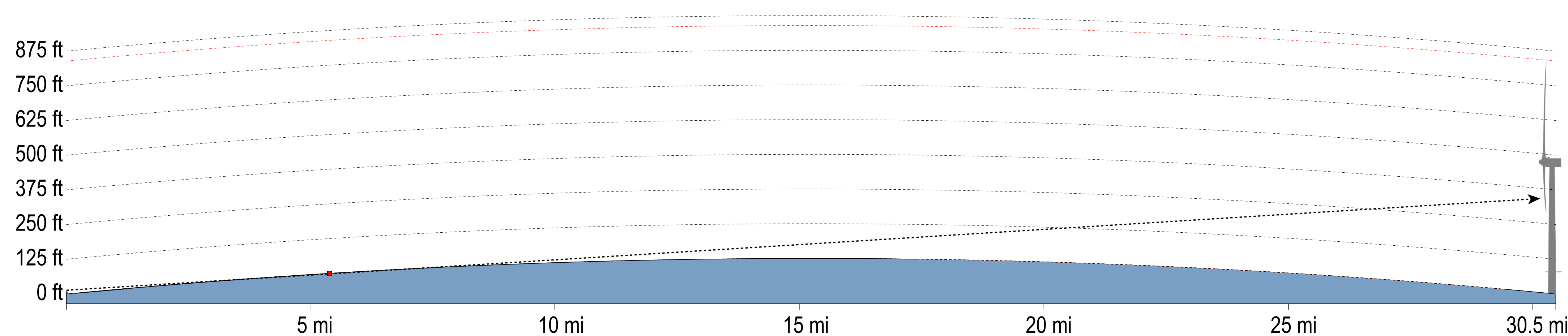
Simulation Photo: View to the South

Context Photo: View to the South-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



Existing Conditions

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 14: View from Sachuest Town Beach (Second Beach), Middletown
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 14: View from Sachuest Town Beach (Second Beach), Middletown
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Hanging Rock (Norman Bird Sanctuary)

Viewpoint Information

County: Newport
Town: Middletown
State: Rhode Island
Location: Aquidneck Island
Latitude: 41.49120020° N
Longitude: 71.25895069° W
Direction of View: South-Southeast (171°)
Distance to Nearest Visible Turbine: 27 Miles

Environmental Data

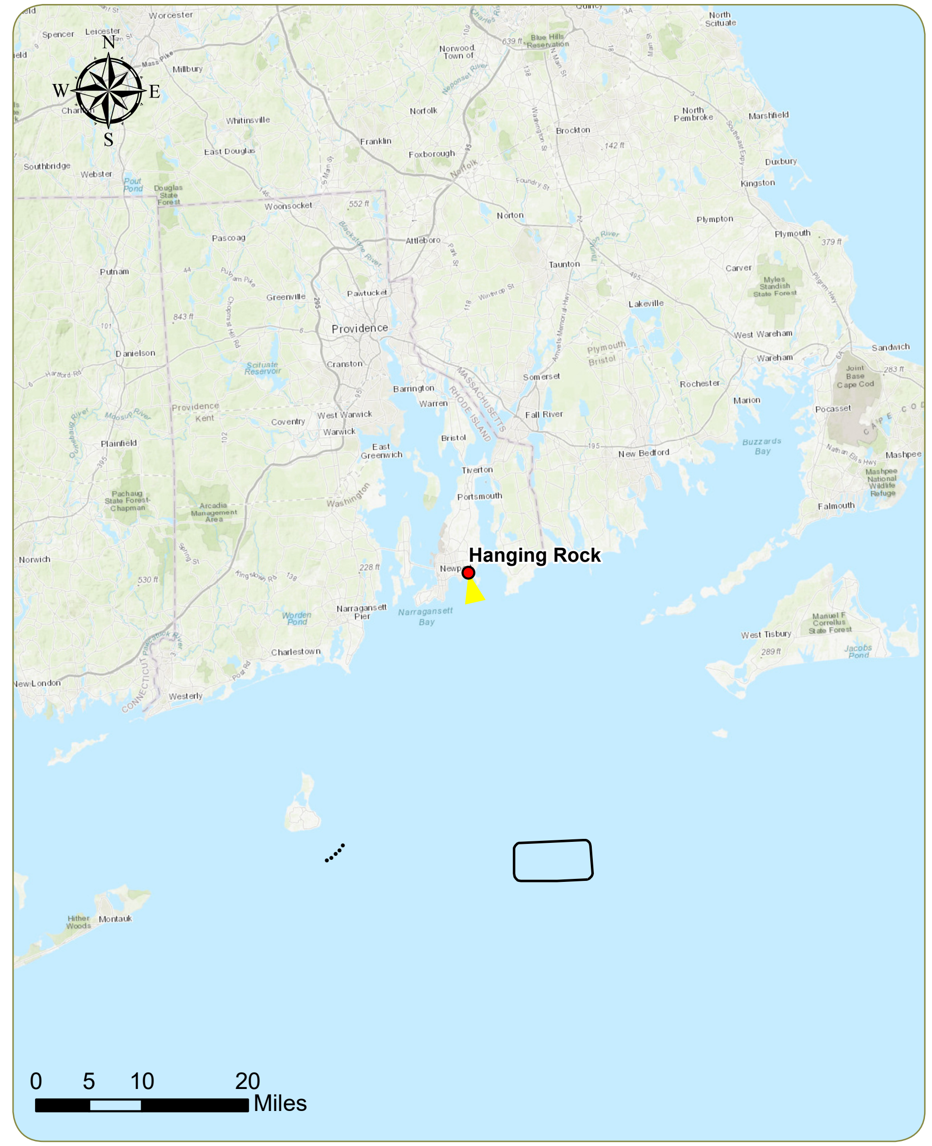
Date Taken: 11/24/2017
Time: 9:38 AM
Temperature: 43.0 °F
Humidity: 47%
Visibility: >10 miles
Wind Direction: Variable
Wind Speed: 4.6 mph
Conditions Observed: Clear

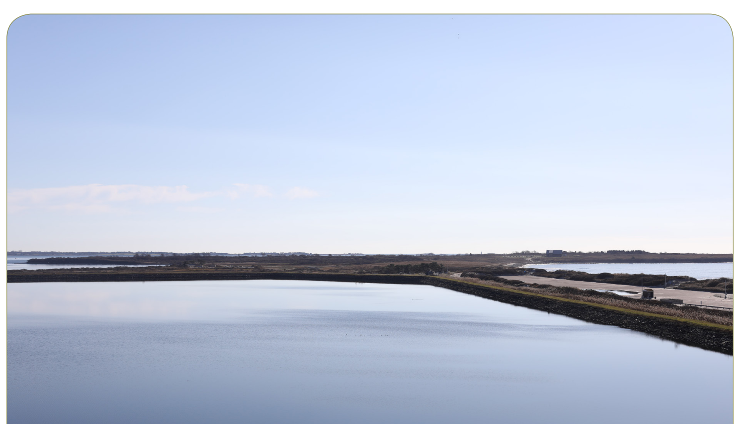
Visual Resources

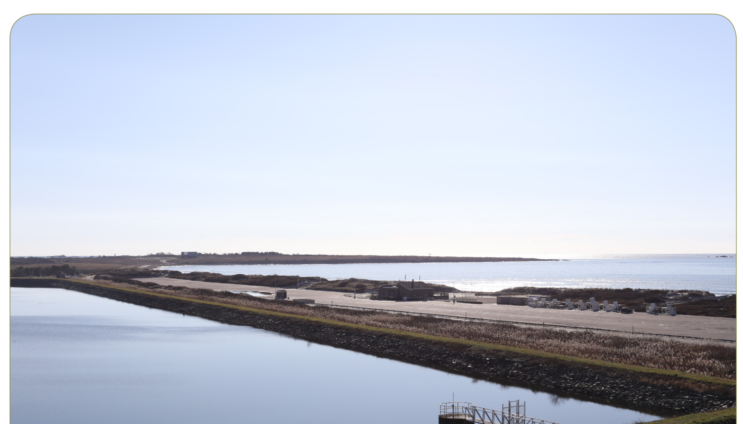
Landscape Similarity Zone: Coastal Scrub/Scrub Forest
User Group: Resident, Tourist
Aesthetic Resource: Norman Bird Sanctuary, Paradise Avenue and Associated Roads State Scenic Byway, Second Beach

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 67.3 feet AMSL



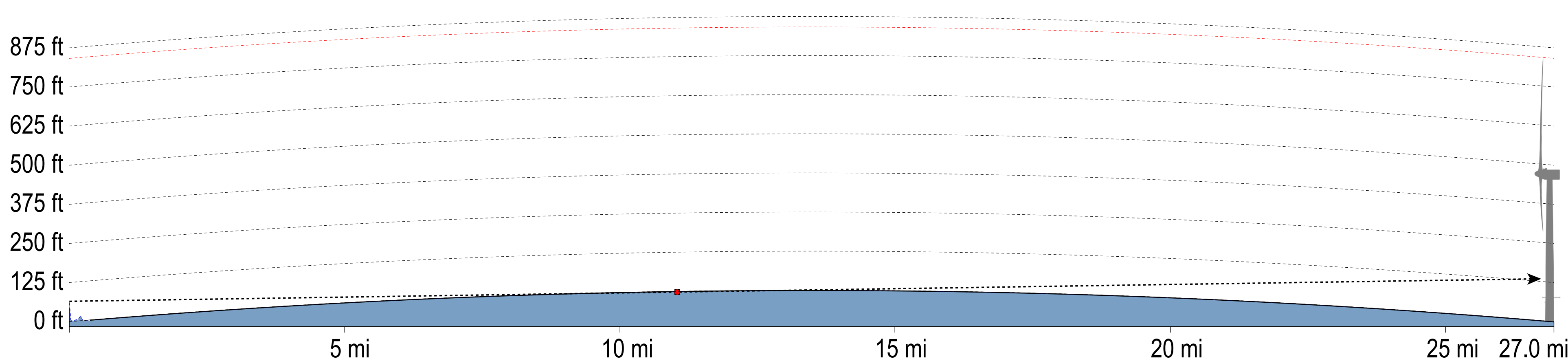

Context Photo: View to the East-Southeast


Context Photo: View to the Southeast

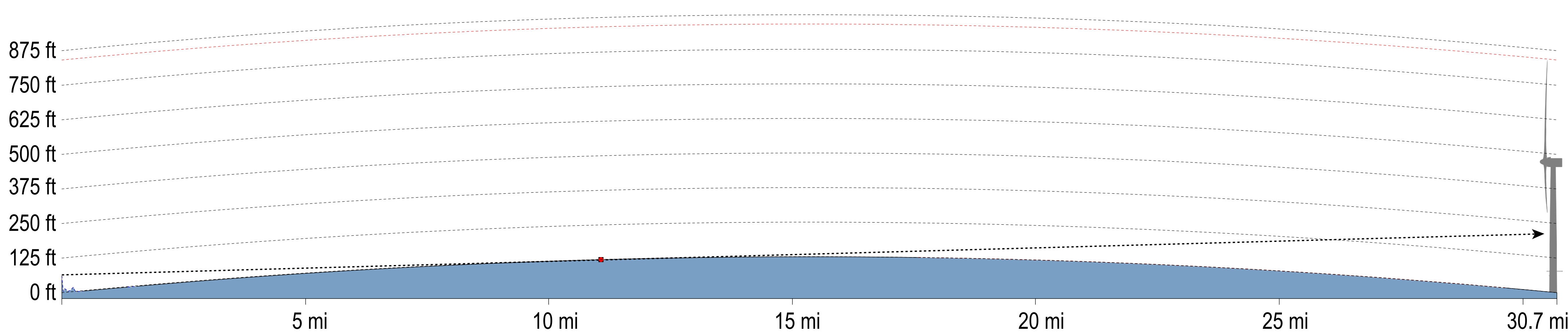

Simulation Photo: View to the South-Southeast


Context Photo: View to the South

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 14A: View from Hanging Rock (Norman Bird Sanctuary), Middletown
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 14A: View from Hanging Rock (Norman Bird Sanctuary), Middletown

Sachuest Point NWR

Viewpoint Information

County: Newport
Town: Middletown
State: Rhode Island
Location: Aquidneck Island
Latitude: 41.47268794° N
Longitude: 71.24720235° W
Direction of View: South-Southeast (172.9°)
Distance to Nearest Visible Turbine: 25.6 miles

Environmental Data

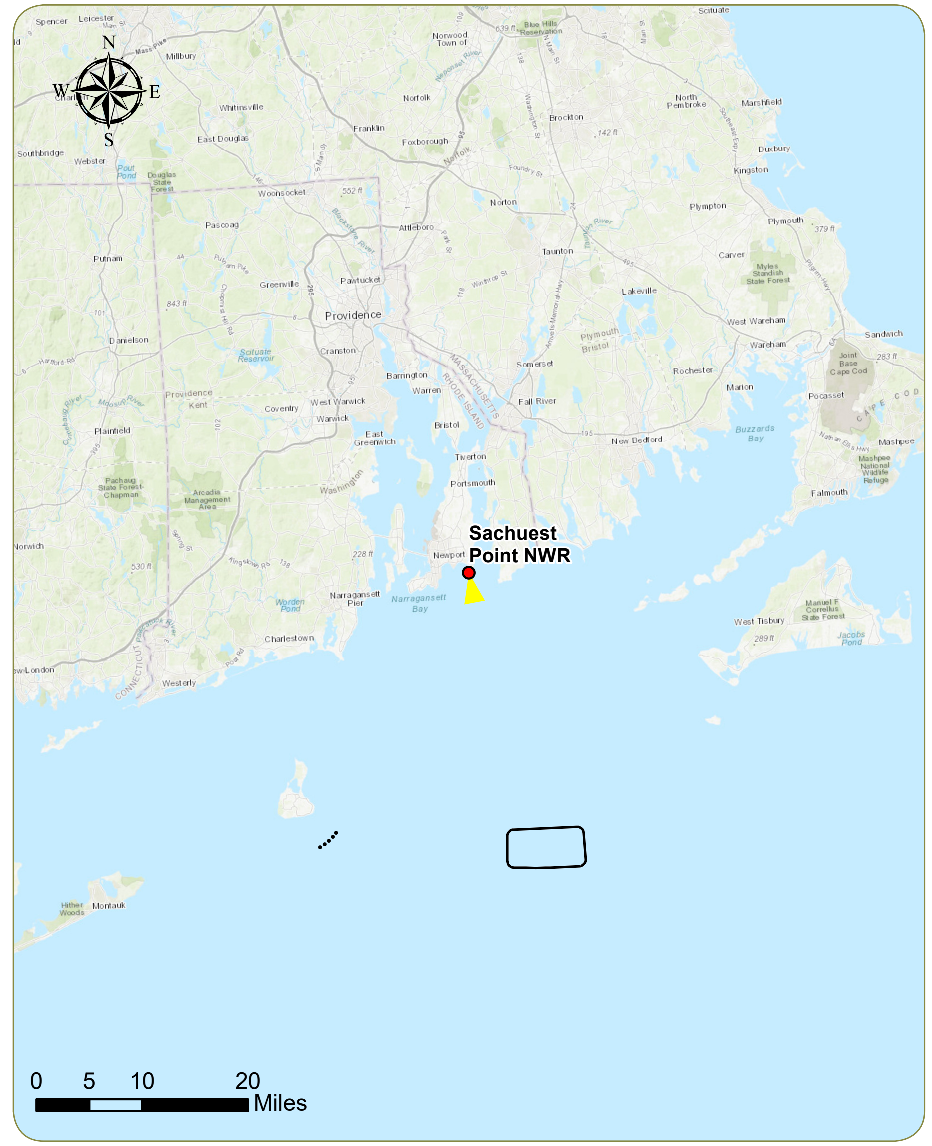
Date Taken: 11/24/2017
Time: 7:42 AM
Temperature: 39.0 °F
Humidity: 60%
Visibility: >10.0 miles
Wind Direction: West
Wind Speed: Calm
Conditions Observed: Clear

Visual Resources

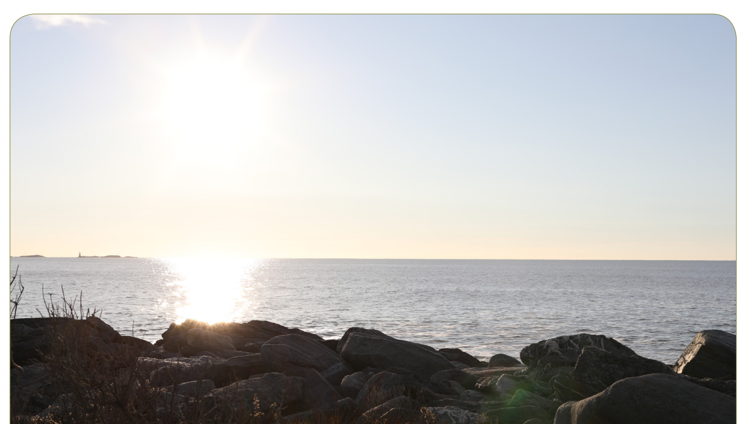
Landscape Similarity Zone: Coastal Scrub/Scrub Forest
Viewer Type: Resident, Tourist
Aesthetic Resource: Sachuest Point National Wildlife Refuge, Sachuest Point State Scenic Area

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 21.7 feet AMSL




Context Photo: View to the Southeast

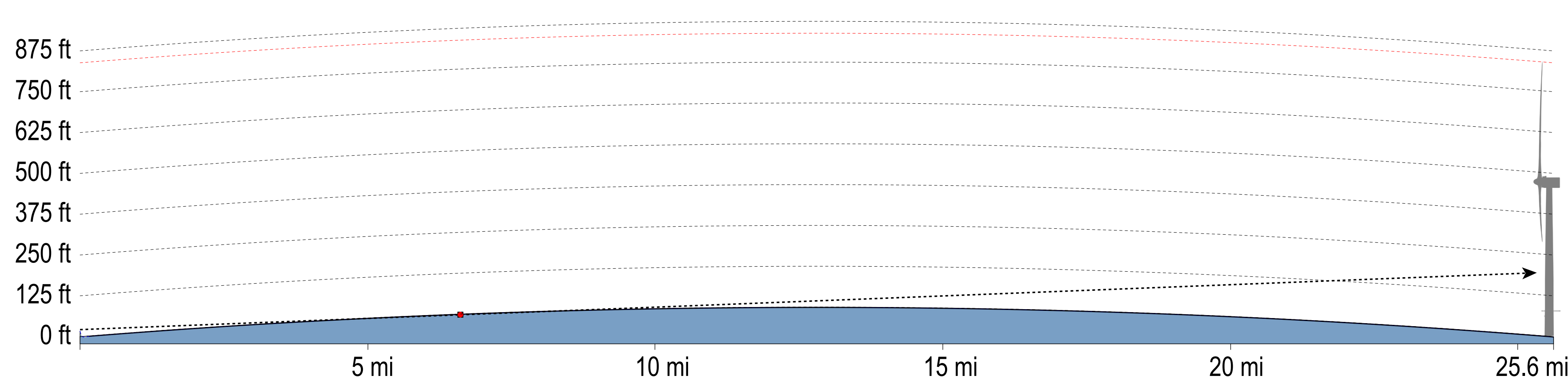

Context Photo: View to the South-Southeast


Simulation Photo: View to the South-Southeast

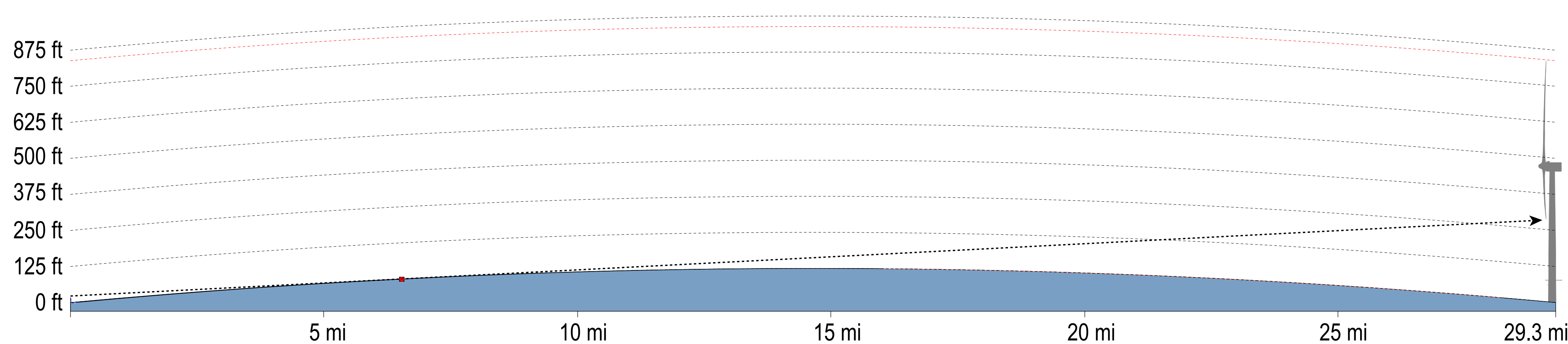

Context Photo: View to the South-Southwest

Timelapse Video Simulation:
https://vimeo.com/323546249/2291d30d73

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 14B: View from Sachuest Point NWR, Middletown
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Simulation MWA

South Shore Beach

Viewpoint Information

County: Newport
Town: Little Compton
State: Rhode Island
Location: Mainland, RI
Latitude: 41.49549060° N
Longitude: 71.13312068° W
Direction of View: South-Southwest (196°)
Distance to Nearest Visible Turbine: 27 miles

Environmental Data

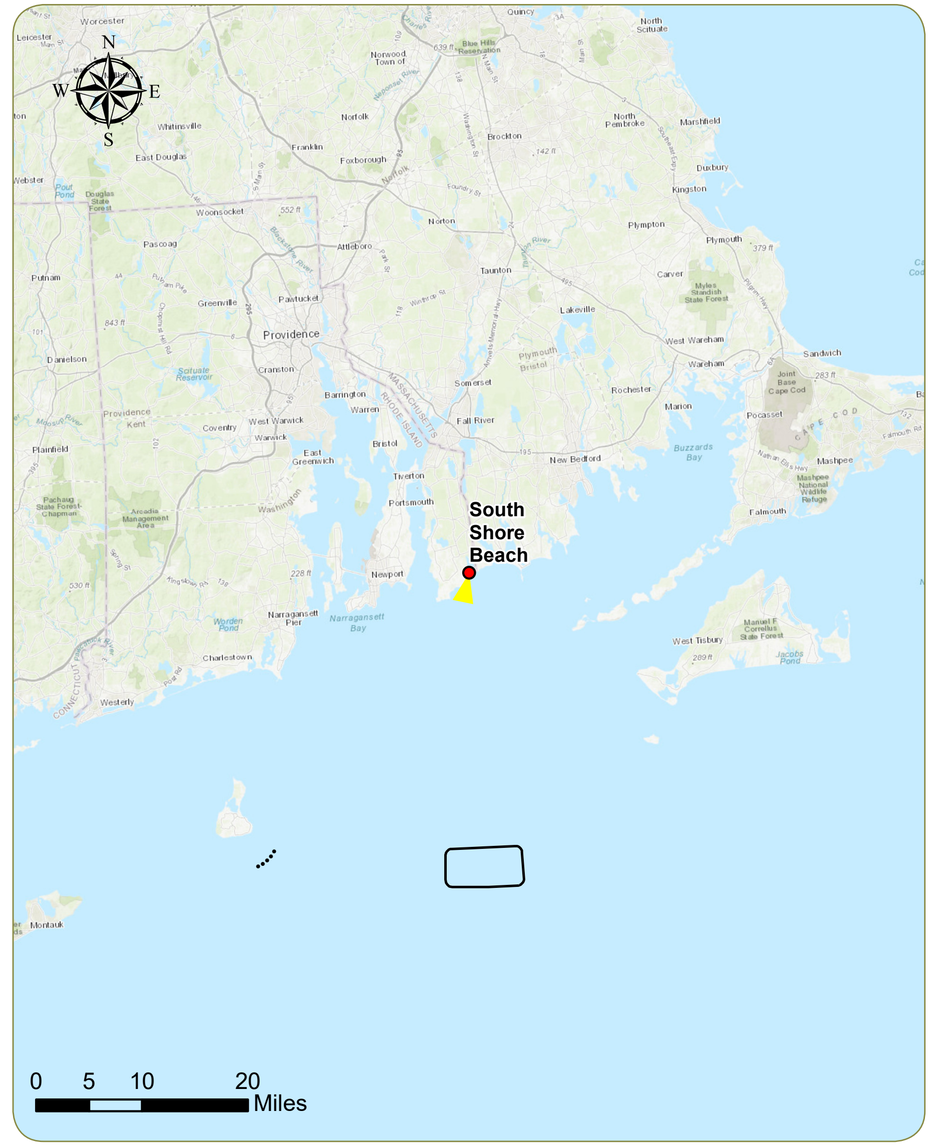
Date Taken: 7/26/2017
Time: 10:54 AM
Temperature: 73.0 °F
Humidity: 68%
Visibility: >10.0 miles
Wind Direction: Variable
Wind Speed: 4.6 mph
Conditions Observed: Partly Cloudy

Visual Resources

Landscape Similarity Zone: Shoreline Beach
Viewer Type: Resident, Tourist
Aesthetic Resource: Narragansett Bay, Little Compton Agricultural Lands State Scenic Area, South Shore Beach

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 8.6 feet AMSL



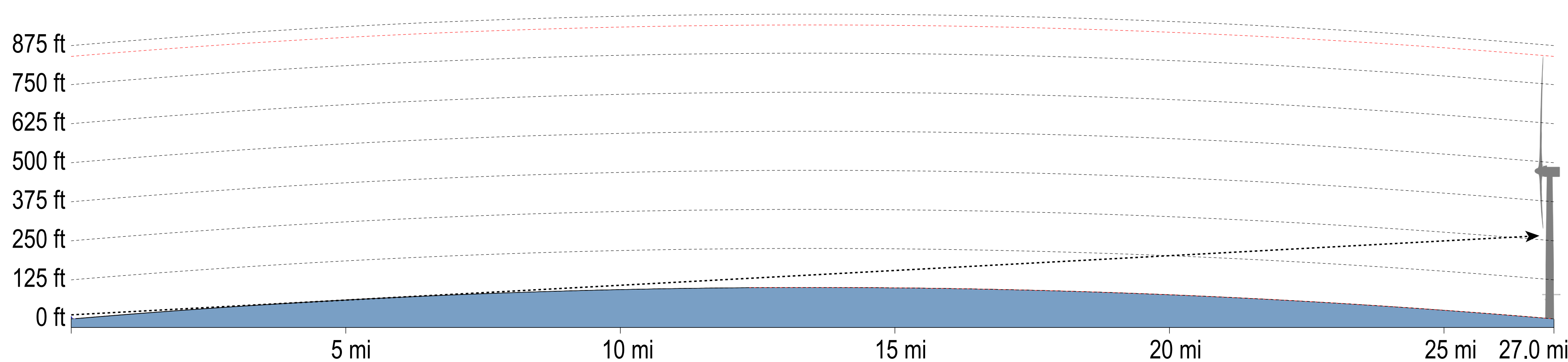

Context Photo: View to the East-Southeast


Context Photo: View to the South

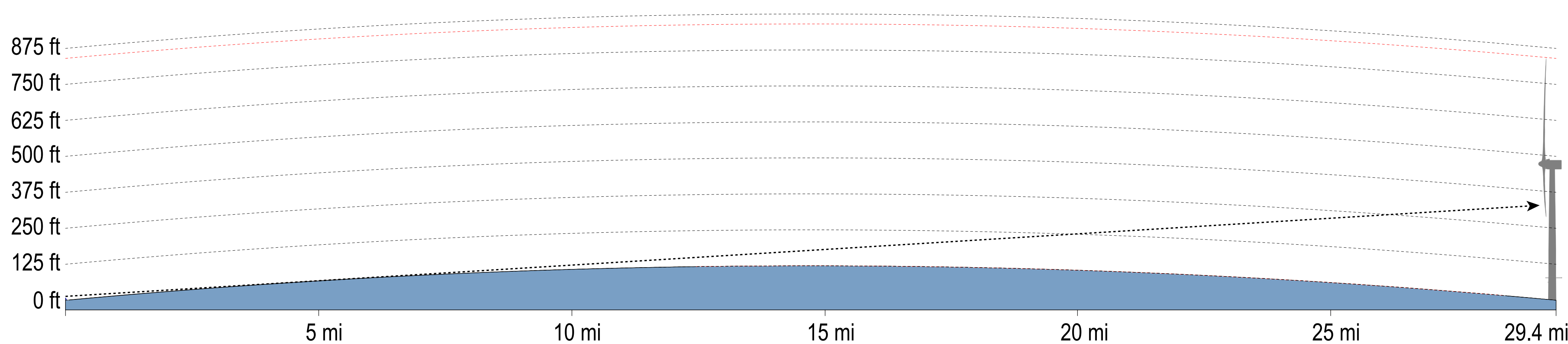

Simulation Photo: View to the South-Southwest


Context Photo: View to the Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 15: View from South Shore Beach, Little Compton
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 15: View from South Shore Beach, Little Compton
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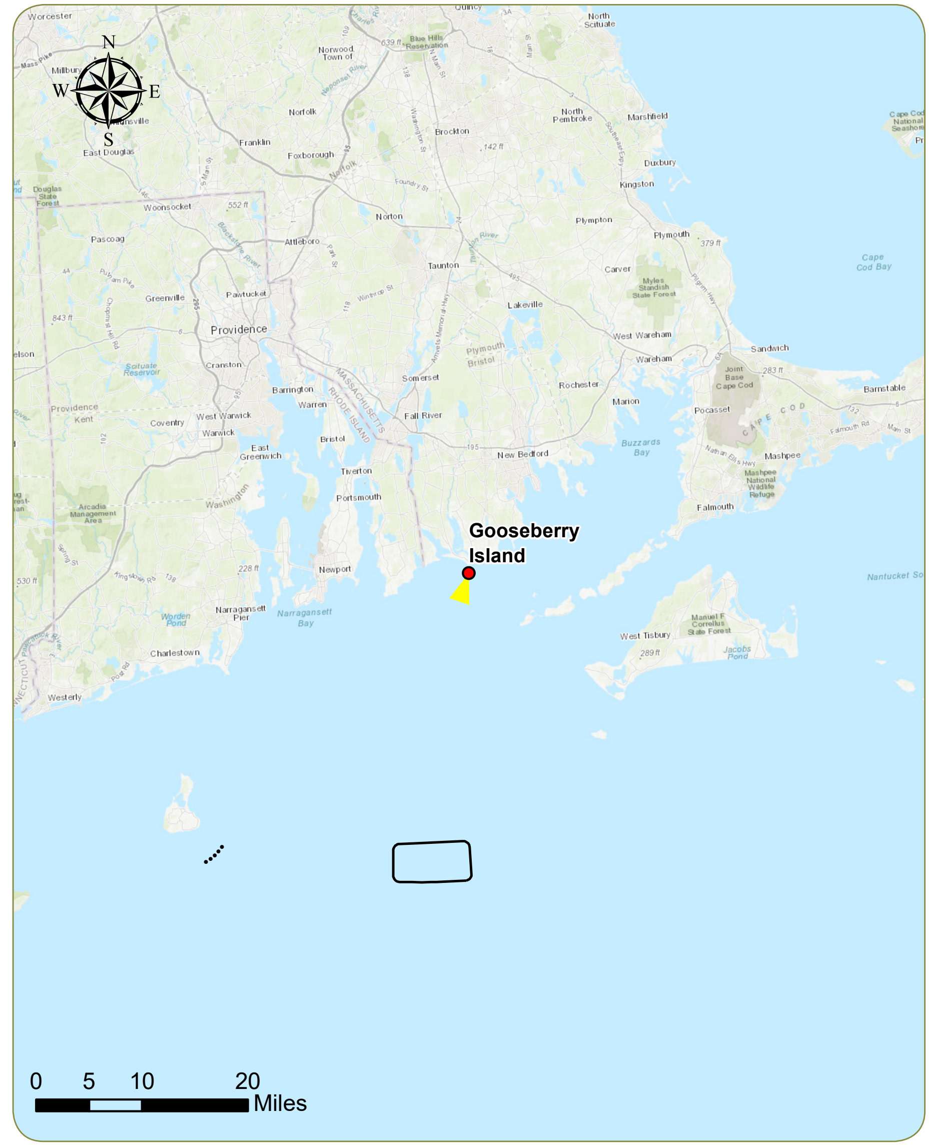
Gooseberry Island

Viewpoint Information
County: Bristol
Town: Westport
State: Massachusetts
Location: Gooseberry Island
Latitude: 41.48516534° N
Longitude: 71.03884470° W
Direction of View: Southwest (198.8°)
Distance to Nearest Visible Turbine: 26.2 miles

Visual Resources
Landscape Similarity Zone: Coastal Scrub/Scrub Forest
User Group: Resident, Tourist
Aesthetic Resource: Horseneck Beach State Reservation, Westport South Dartmouth Unit State Scenic Area, Buzzards Bay

Environmental Data
Date Taken: 7/26/2017
Time: 2:21 PM
Temperature: 75.9 °F
Humidity: 54%
Visibility: >10 miles
Wind Direction: Calm
Wind Speed: Calm
Conditions Observed: Scattered Clouds

Camera Information
Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 16.0 feet AMSL



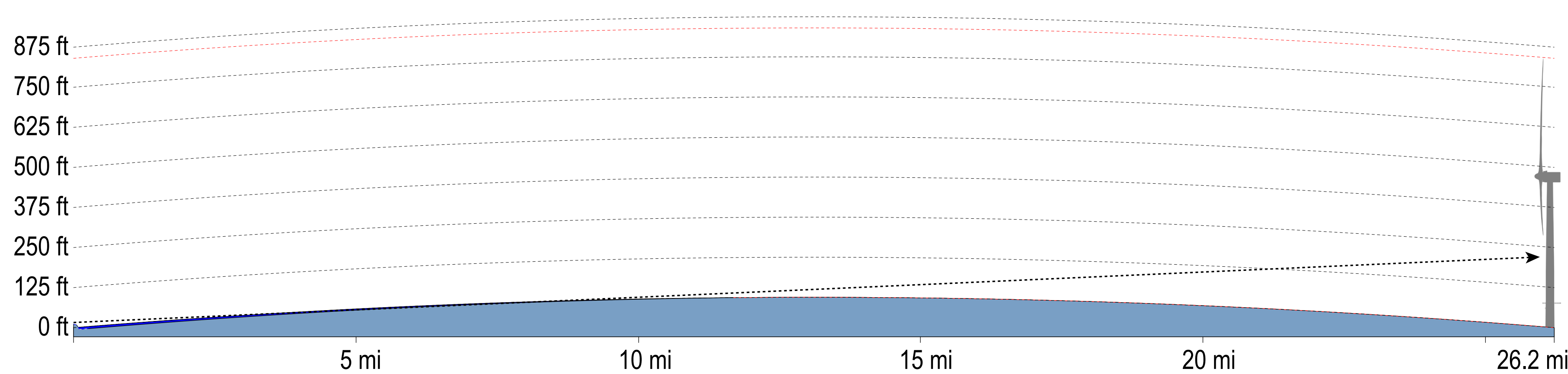

Context Photo: View to the South-Southeast


Simulation Photo: View to the Southwest

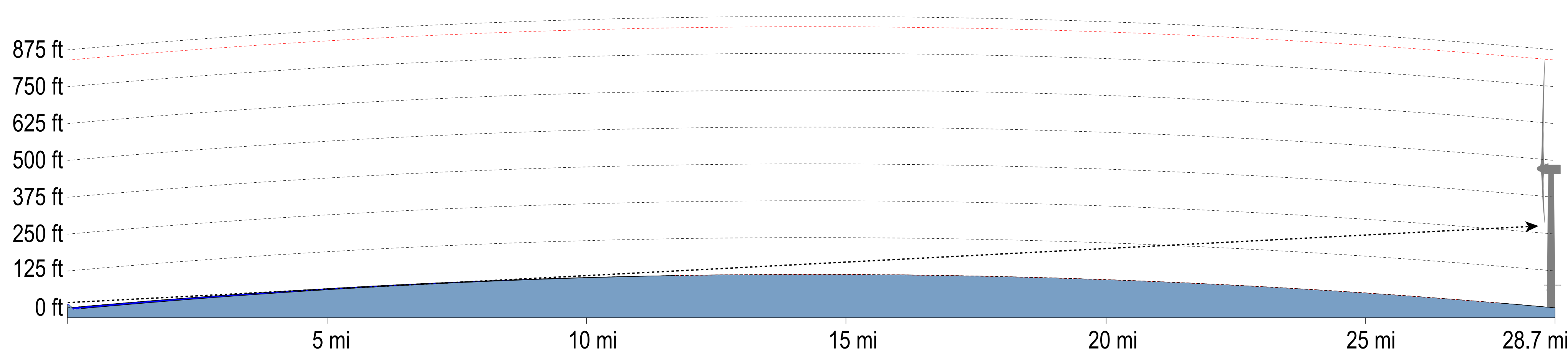

Context Photo: View to the South-Southwest


Context Photo: View to the West

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 17: View from Gooseberry Island, Westport
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 17: View from Gooseberry Island, Westport

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 17: View from Gooseberry Island, Westport
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Cuttyhunk Island

Viewpoint Information

County: Dukes

Town: Gosnold

State: Massachusetts

Location: Cuttyhunk Island

Latitude: 41.42051845° N

Longitude: 70.93411318° W

Direction of View: South-Southwest (204.3°)

Distance to Nearest Visible Turbine: 22.7 miles

Visual Resources

Landscape Similarity Zone: Coastal Scrub/Scrub Forest

User Group: Resident, Tourist

Aesthetic Resource: The Elizabeth Islands, Buzzards Bay

Environmental Data

Date Taken: 1/18/2018

Time: 1:22 PM

Temperature: 34.0 °F

Humidity: 64%

Visibility: >10 miles

Wind Direction: NNW

Wind Speed: 10.4 mph

Conditions Observed: Clear

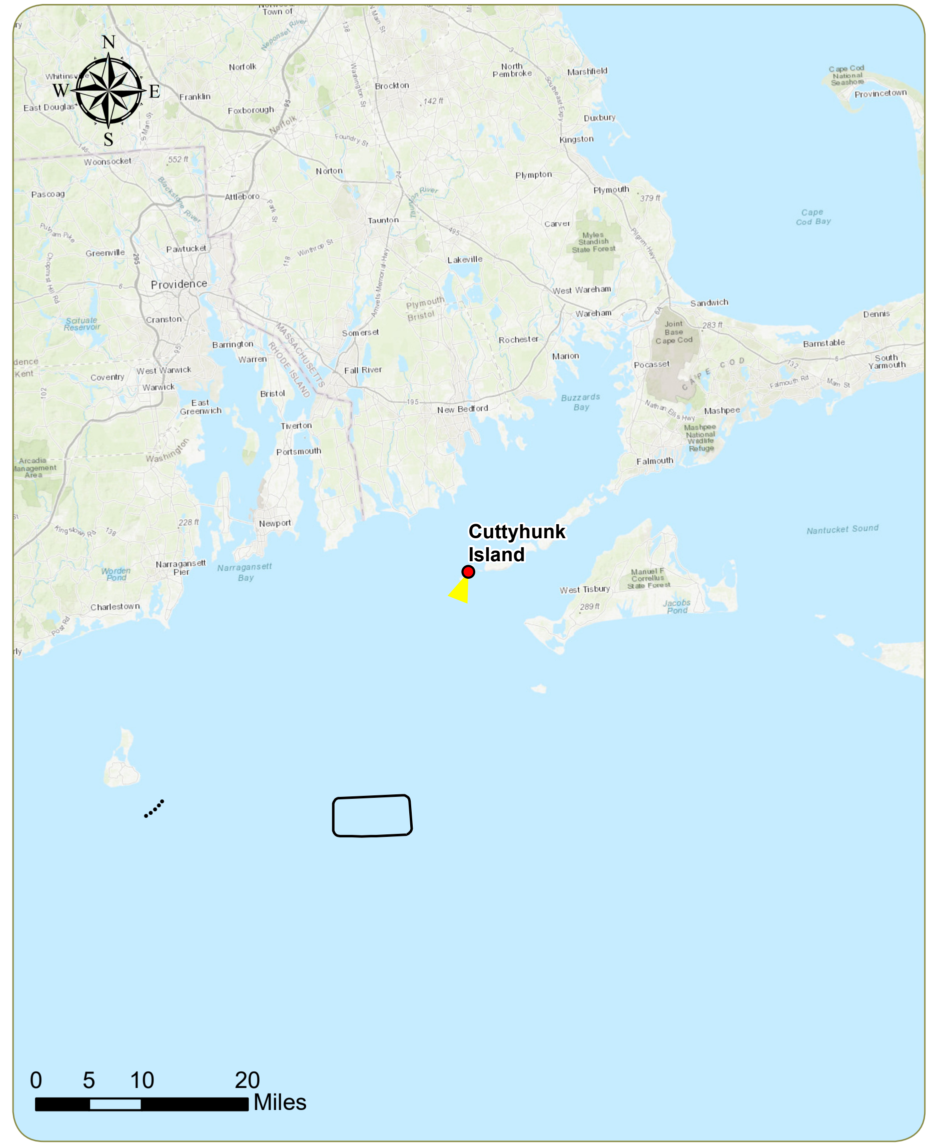
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 151.3 feet AMSL



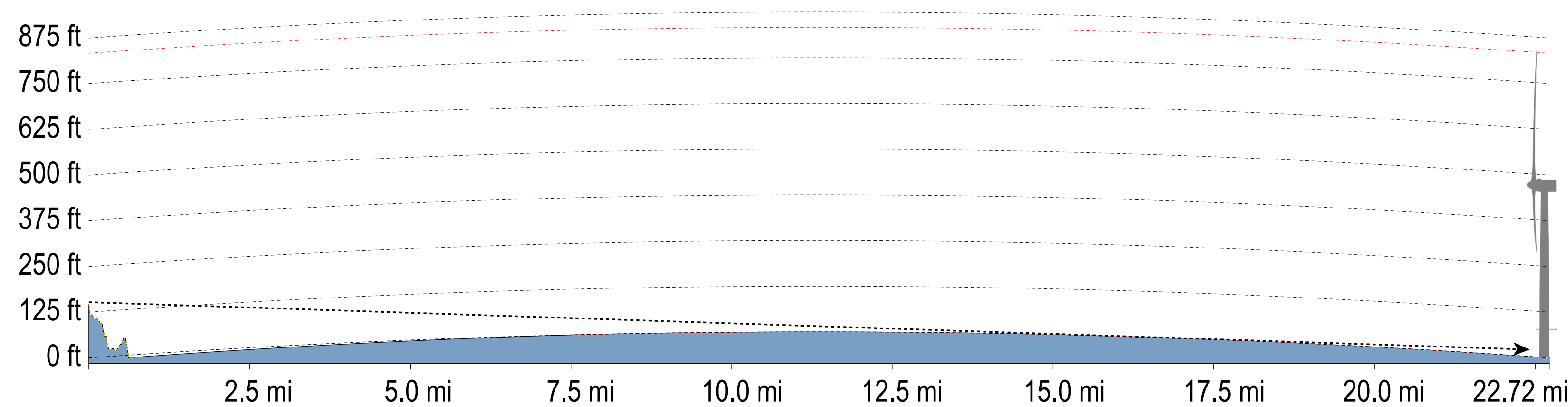

Context Photo: View to the South-Southeast


Simulation Photo: View to the South-Southwest

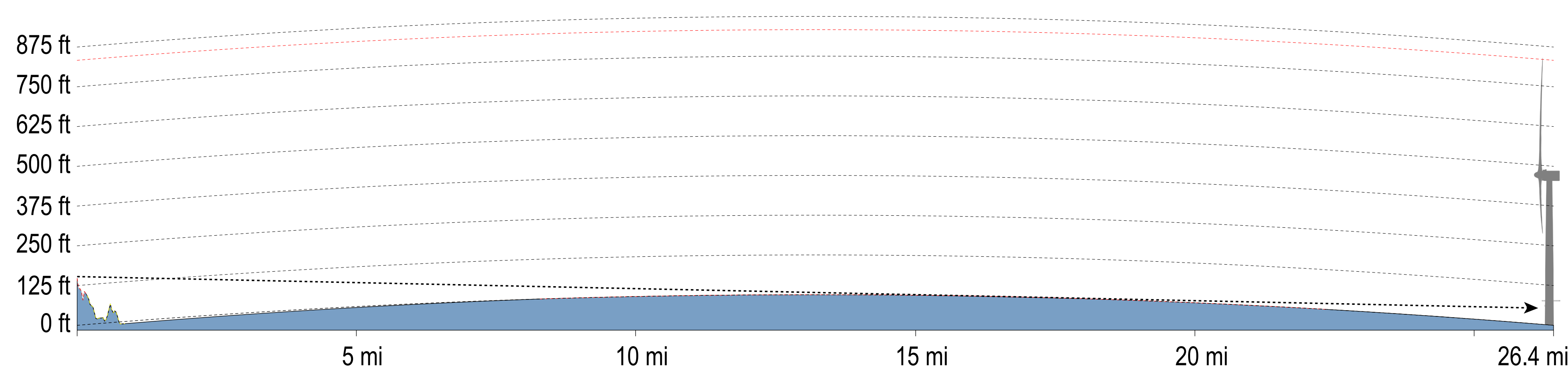

Context Photo: View to the West-Southwest


Context Photo: View to the West

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 18: View from Cuttyhunk Island, Gosnold

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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 18: View from Cuttyhunk Island, Gosnold
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Aquinnah Overlook

Viewpoint Information

County: Dukes
Town: Aquinnah
State: Massachusetts
Location: Martha's Vineyard
Latitude: 41.34730978° N
Longitude: 70.83699579° W
Direction of View: Southwest (229.2°)
Distance to Nearest Visible Turbine: 20.4 miles

Visual Resources

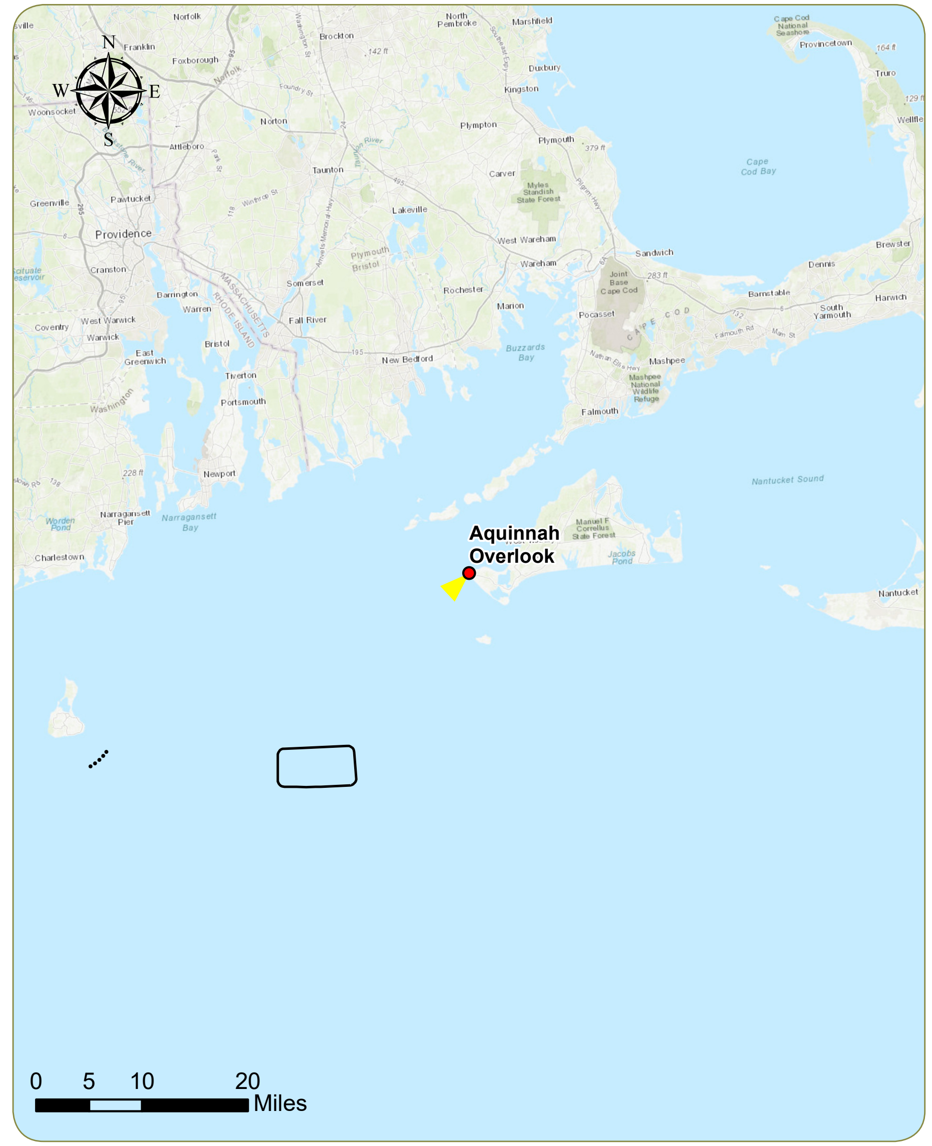
Landscape Similarity Zone: Shoreline Bluffs
Viewer Type: Resident, Tourist
Aesthetic Resource: Gay Head Aquinnah Shops Area State Historic Area, Gay Head West Tisbury Unit State Scenic Area

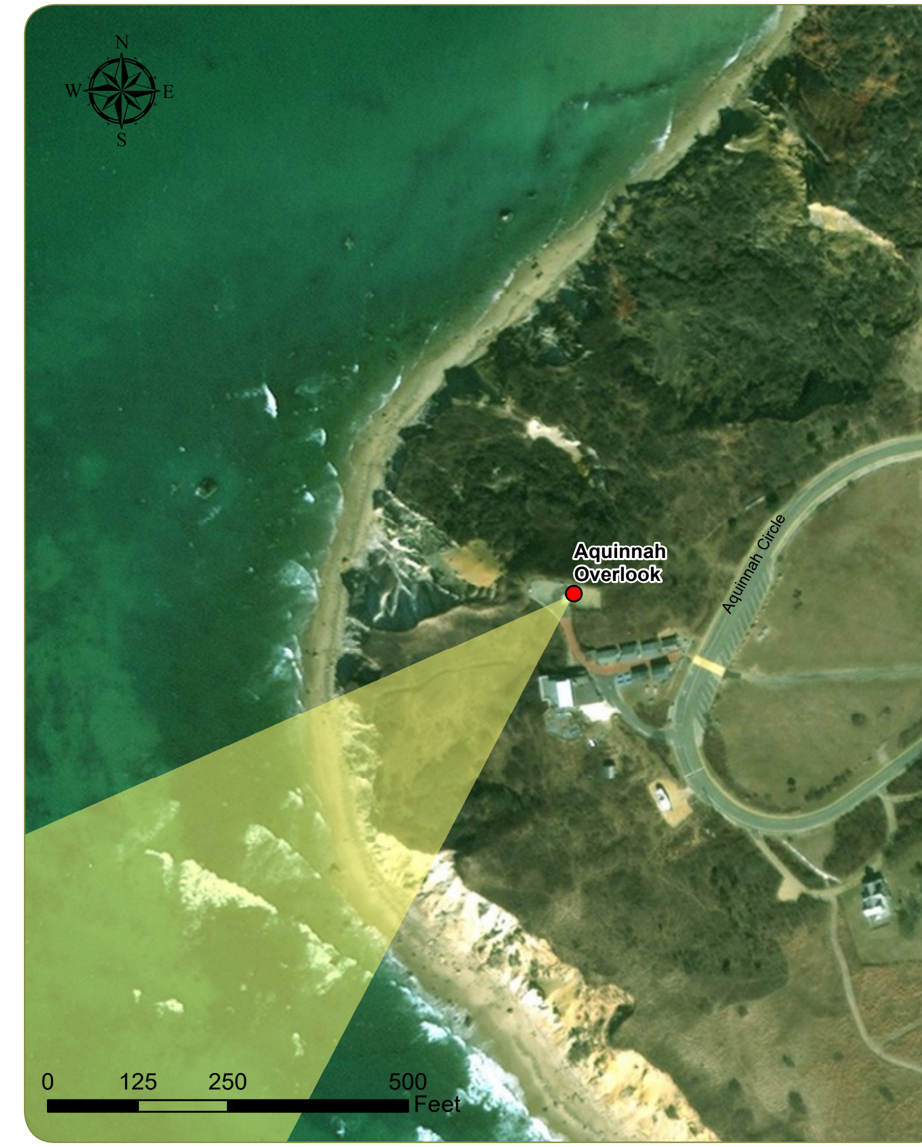
Environmental Data

Date Taken: 8/4/2017, 11/25/2017 (sunset)
Time: 8:57 AM, 3:58 PM (sunset)
Temperature: 73.0 °F
Humidity: 87%
Visibility: >10 miles
Wind Direction: South
Wind Speed: 9.2 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 145.5 feet AMSL






Context Photo: View to the South-Southwest

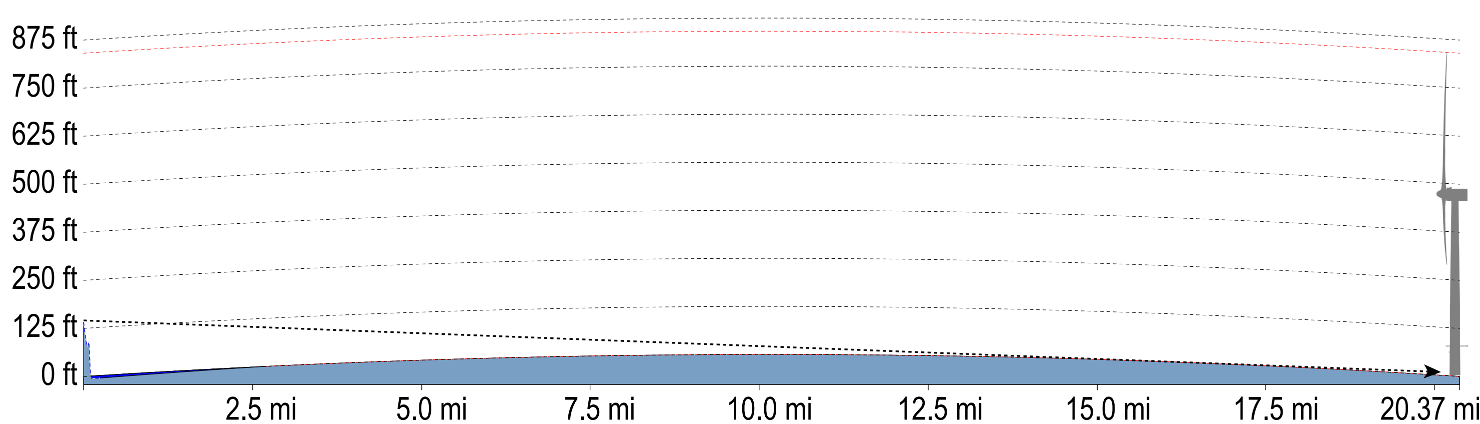

Simulation Photo: View to the Southwest


Context Photo: View to the West-Southwest

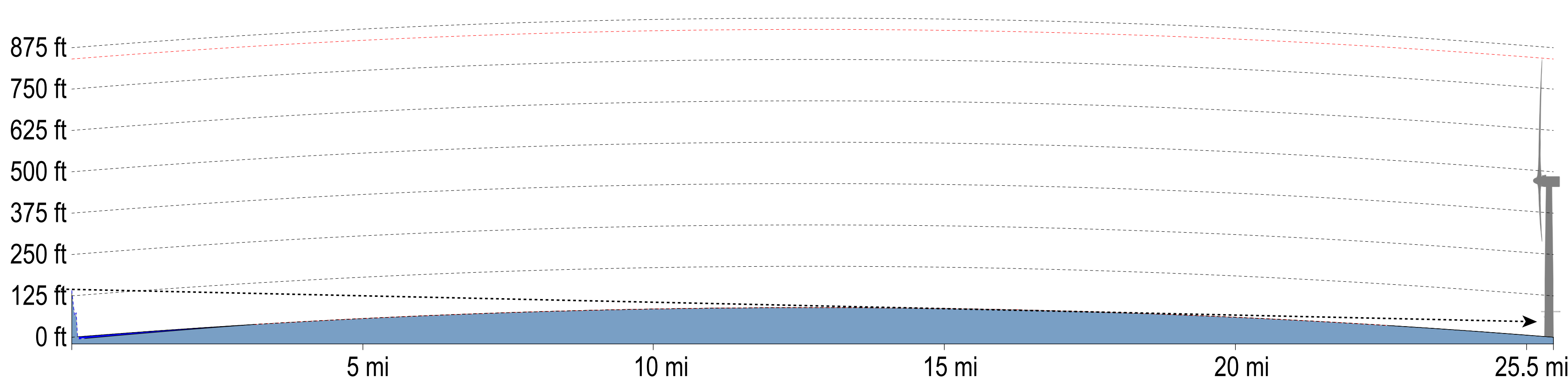

Context Photo: View to the West-Northwest

Timelapse Video Simulation:
https://vimeo.com/331276637/bb44be6d62

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 19: View from Aquinnah Overlook, Aquinnah
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 19: View from Aquinnah Overlook, Aquinnah
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 19: View from Aquinnah Overlook, Aquinnah
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Aquinnah Overlook

Viewpoint Information

County: Dukes

Town: Aquinnah

State: Massachusetts

Location: Martha's Vineyard

Latitude: 41.34730978° N

Longitude: 70.83699579° W

Direction of View: Southwest (229.2°)

Distance to Nearest Visible Turbine: 20.4 miles

Environmental Data

Date Taken: 11/25/2017

Time: 4:53 PM

Temperature: 57.0 °F

Humidity: 74%

Visibility: >10 miles

Wind Direction: Southwest

Wind Speed: 14.3 mph

Conditions Observed: Scattered Clouds

Visual Resources

Landscape Similarity Zone: Shoreline Bluffs

Viewer Type: Resident, Tourist

Aesthetic Resource: Gay Head Aquinnah Shops Area State Historic Area, Gay Head West Tisbury Unit State Scenic Area

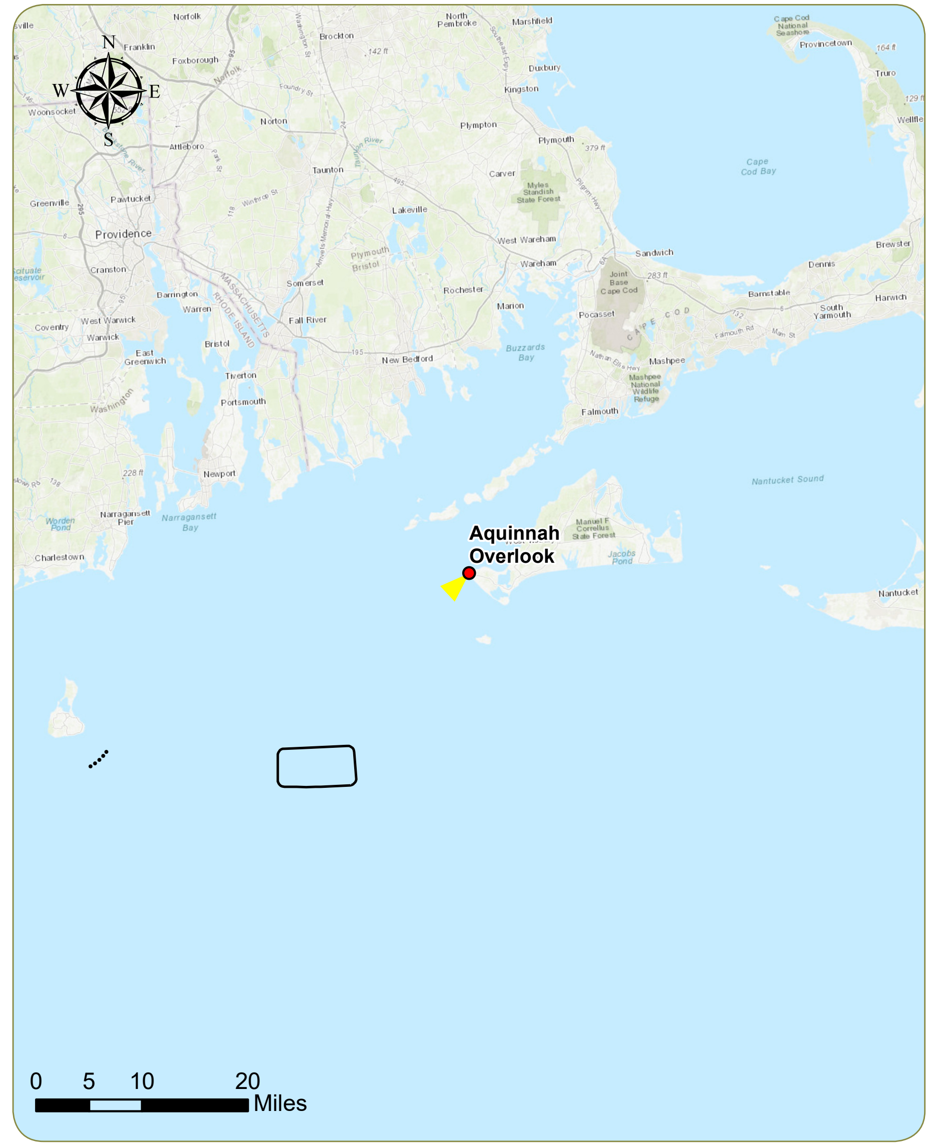
Camera Information

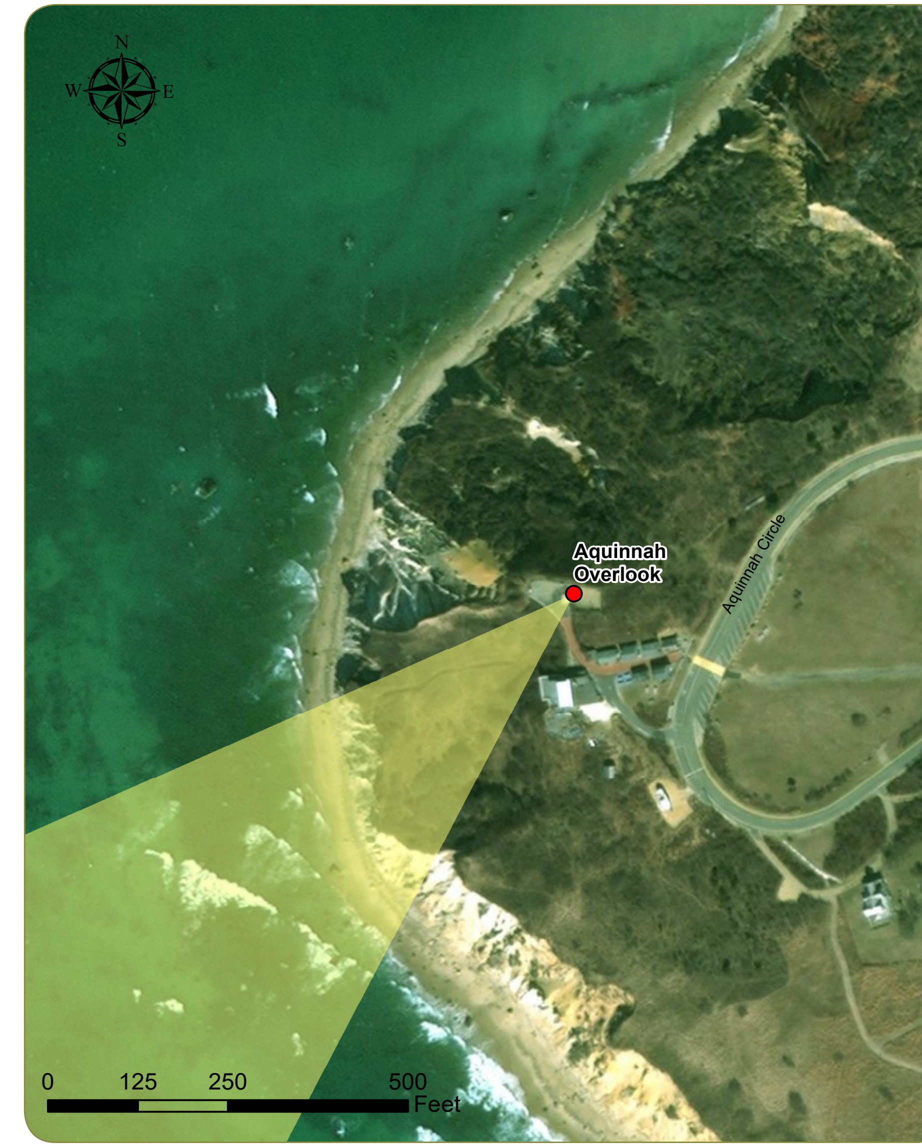
Camera: Canon EOS 5D Mark IV

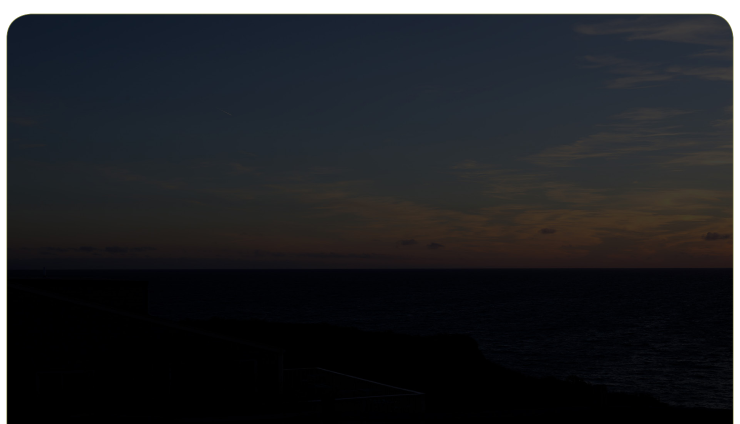
Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

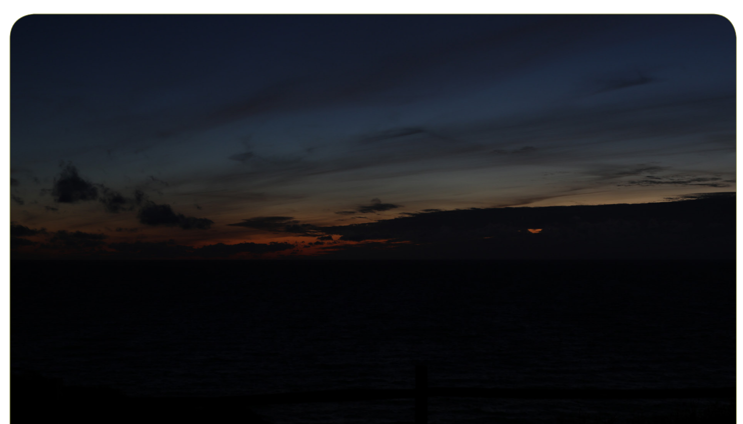
Camera Height: 145.5 feet AMSL



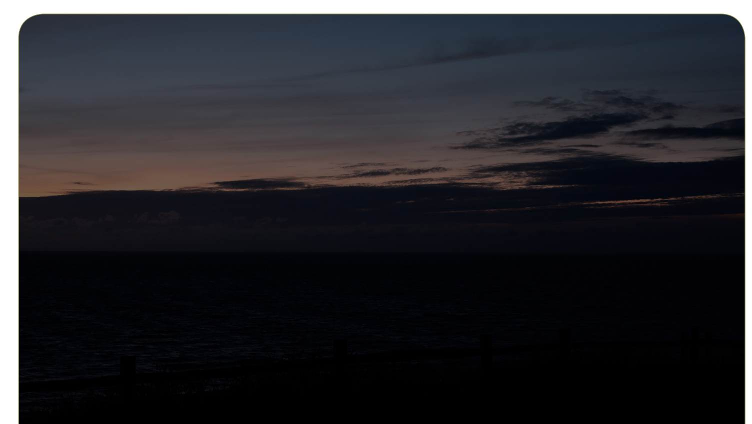




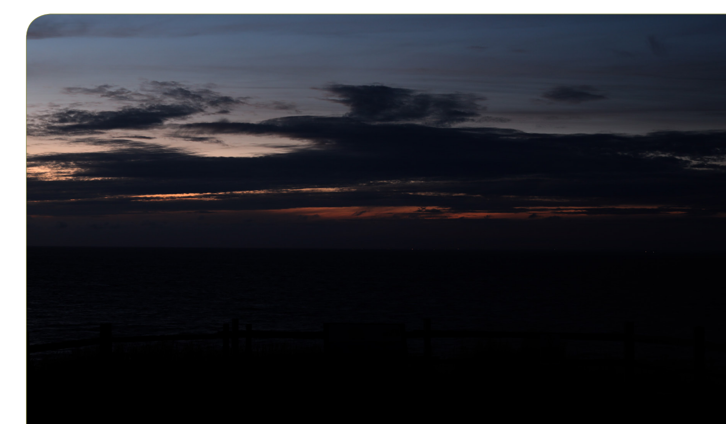
Context Photo: View to the South-Southwest



Simulation Photo: View to the Southwest



Context Photo: View to the West-Southwest



Context Photo: View to the West-Northwest

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 19N: Nighttime view from Aquinnah Overlook, Aquinnah
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 19N: Nighttime view from Aquinnah Overlook, Aquinnah
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Moshup Beach

Viewpoint Information

County: Dukes
Town: Aquinnah
State: Massachusetts
Location: Martha's Vineyard
Latitude: 41.34136540° N
Longitude: 70.83225588° W
Direction of View: Southwest (226°)
Distance to Nearest Visible Turbine: 20.2 miles

Visual Resources

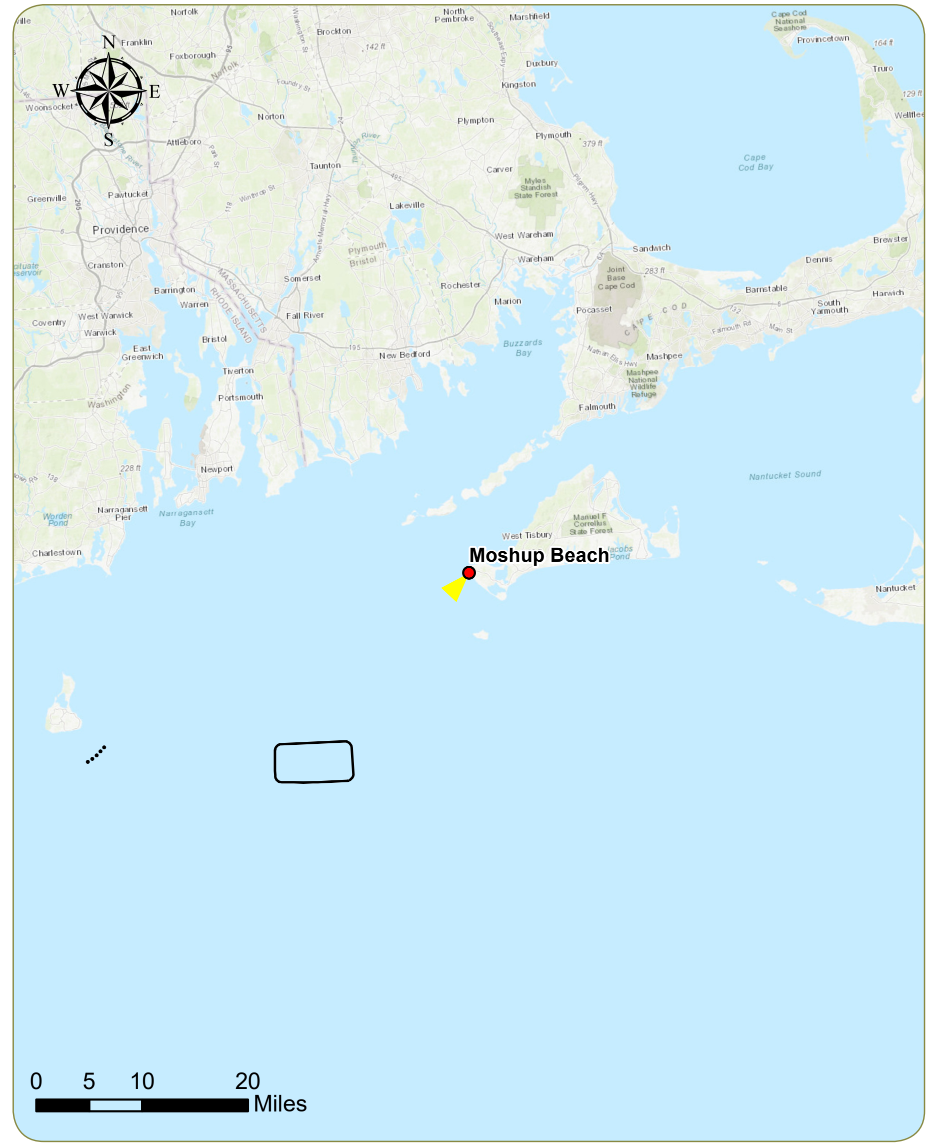
Landscape Similarity Zone: Coastal Dunes
Viewer Type: Resident, Tourist
Aesthetic Resource: Gay Head West Tisbury State Scenic Area, Moshup Beach

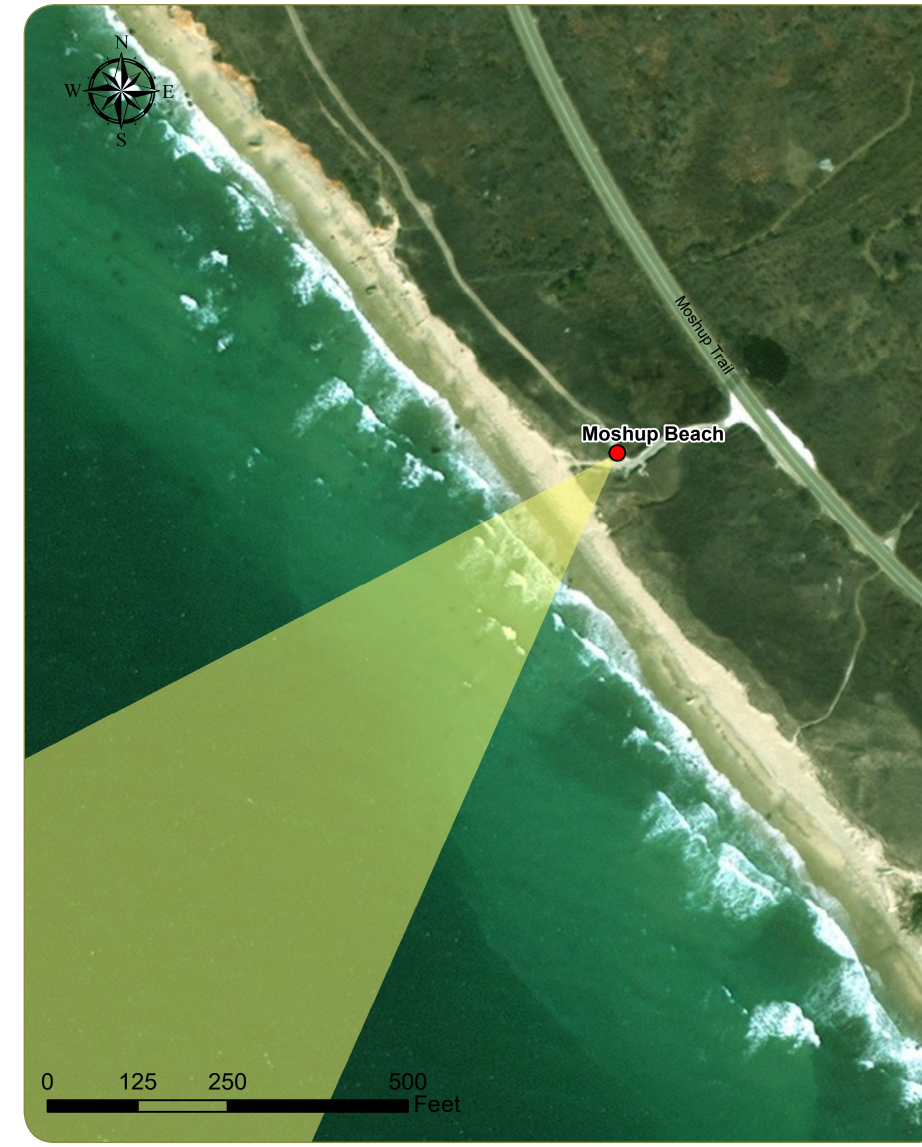
Environmental Data

Date Taken: 11/25/2017, 12/26/2017 (Sunset)
Time: 11:08 AM, 4:14 PM (Sunset)
Temperature: 57° F
Humidity: 69%
Visibility: >10.0 miles
Wind Direction: South-Southwest
Wind Speed: 13.8 mph
Conditions Observed: Partly Cloudy

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 23.1 feet AMSL






Context Photo: View to the South


Context Photo: View to the South-Southwest


Simulation Photo: View to the Southwest


Context Photo: View to the West-Southwest

Timelapse Video Simulation:
https://vimeo.com/323546163/b2b2f4bda5

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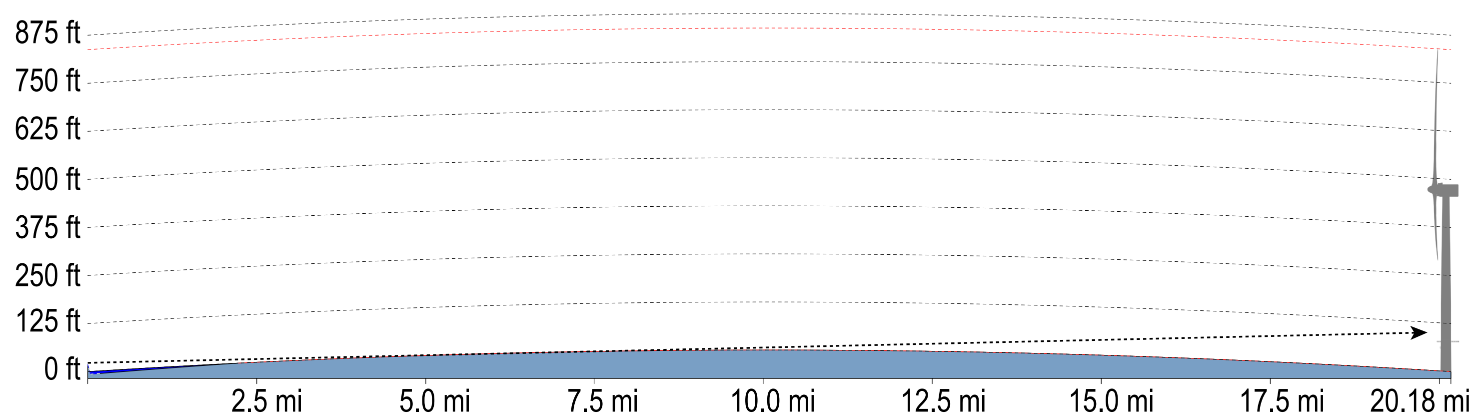
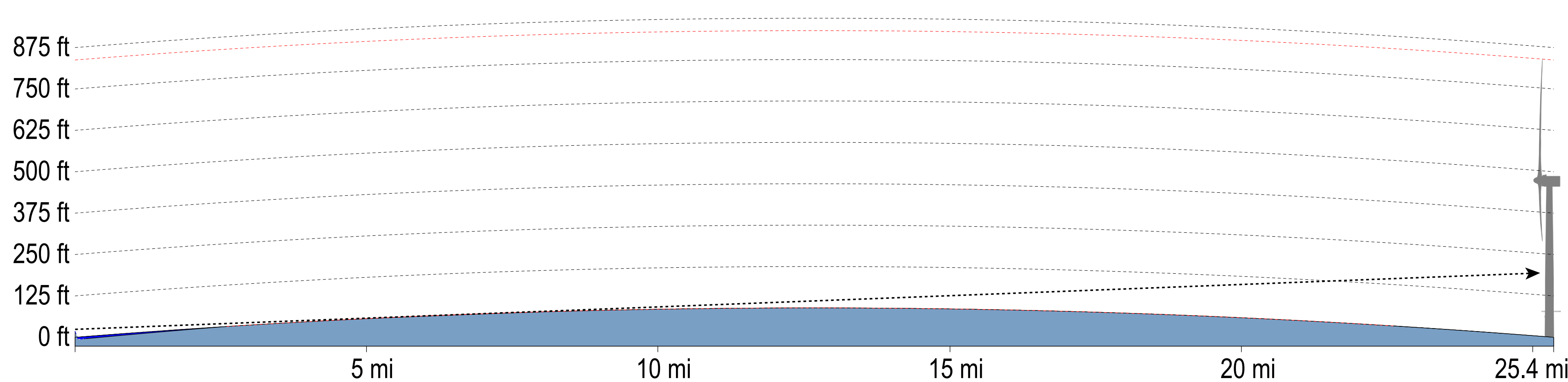
Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 20A: View from Moshup Beach, Aquinnah
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 20A: View from Moshup Beach, Aquinnah

Sunset Simulation MWA

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 20A: View from Moshup Beach, Aquinnah
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Gay Head Lighthouse

Viewpoint Information

County: Dukes

Town: Aquinnah

State: Massachusetts

Location: Martha's Vineyard

Latitude: 41.34833342° N

Longitude: 70.83453587° W

Direction of View: Southwest (229.3°)

Distance to Nearest Visible Turbine: 20.5 miles

Environmental Data

Date Taken: 8/4/2017

Time: 9:19 AM

Temperature: 75.0 °F

Humidity: 79%

Visibility: >10 miles

Wind Direction: South

Wind Speed: 9.2 mph

Conditions Observed: Clear with Fog

Visual Resources

Landscape Similarity Zone: Maintained Recreational Area

Viewer Type: Resident, Tourist

Aesthetic Resource: Gay Head Lighthouse, Gay Head West Tisbury Unit State Scenic Area

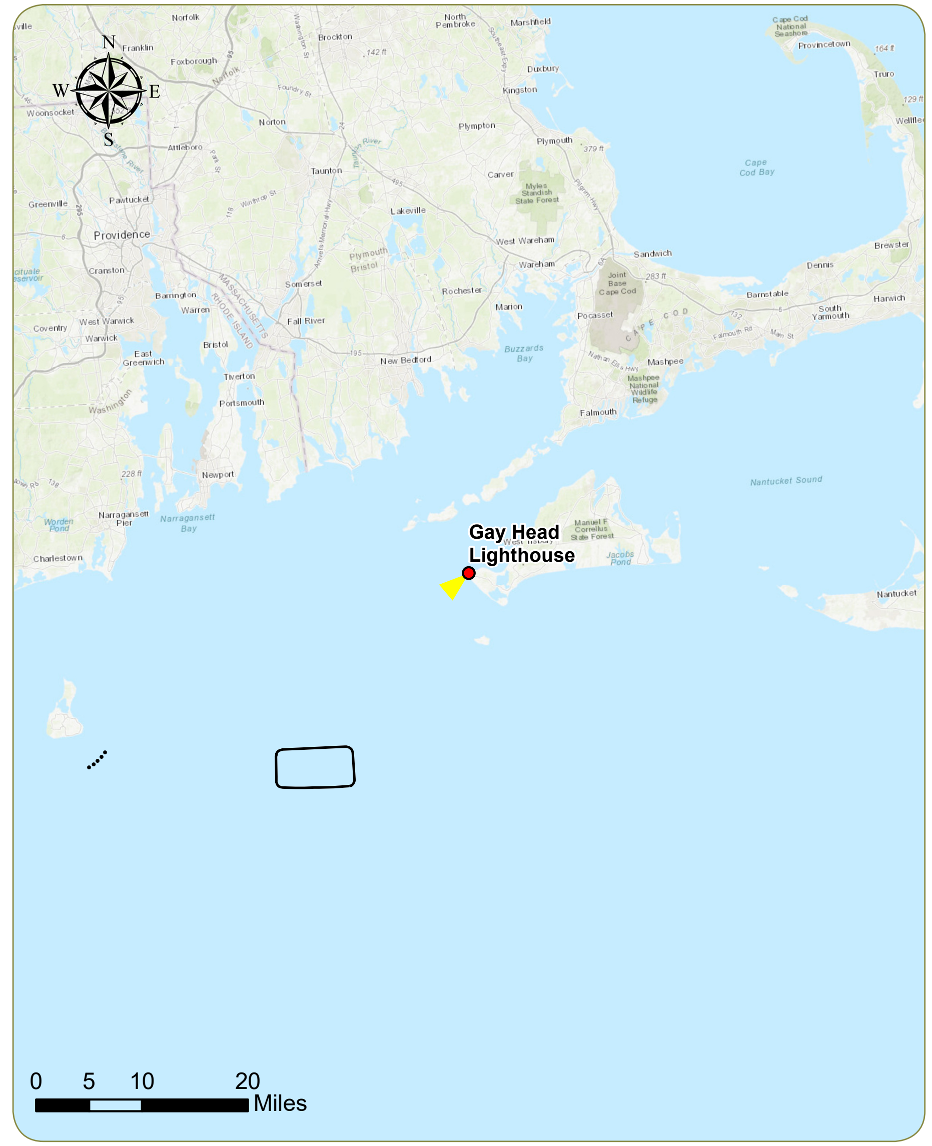
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

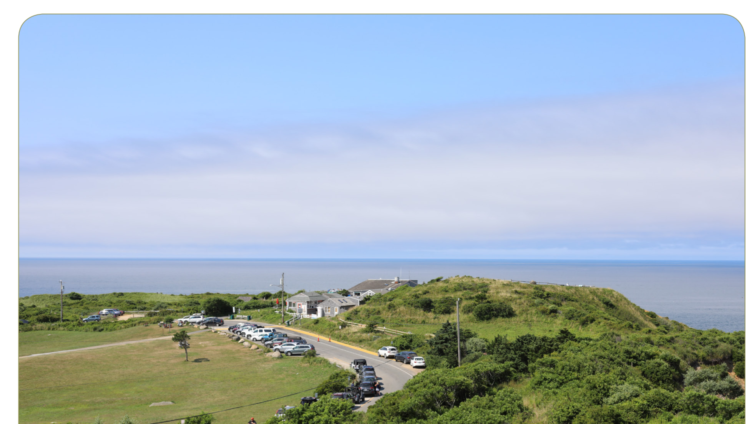
Lens Focal Length: 50 mm

Camera Height: 162.1 feet AMSL



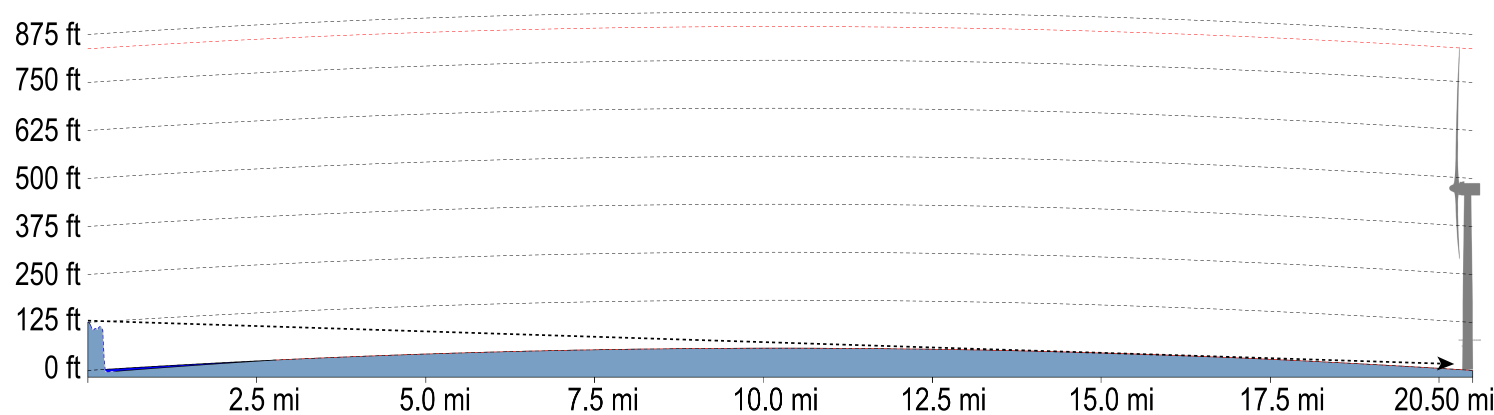

Context Photo: View to the South-Southeast


Context Photo: View to the South-Southwest

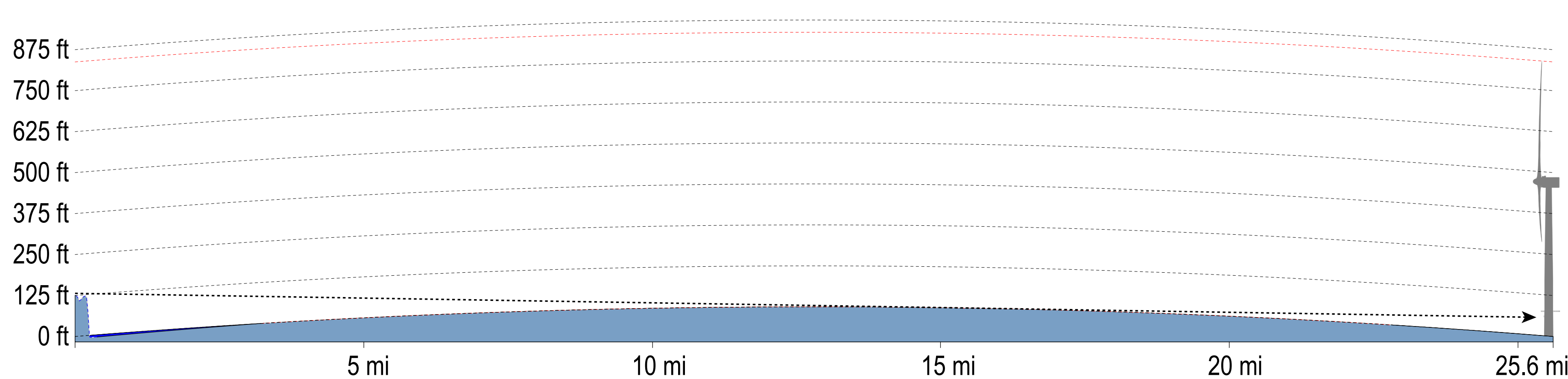

Simulation Photo: View to the Southwest


Context Photo: View to the West-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 21: View from Gay Head Lighthouse, Aquinnah

Simulation MWA

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 21: View from Gay Head Lighthouse, Aquinnah
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Philbin Beach

Viewpoint Information

County: Dukes

Town: Aquinnah

State: Massachusetts

Location: Martha's Vineyard

Latitude: 41.33742167° N

Longitude: 70.82893542° W

Direction of View: Southwest (231.0°)

Distance to Nearest Visible Turbine: 20.1 miles

Environmental Data

Date Taken: 8/9/2017

Time: 3:30 PM

Temperature: 77.0 °F

Humidity: 47%

Visibility: >10 miles

Wind Direction: Southwest

Wind Speed: 10.4 mph

Conditions Observed: Clear

Visual Resources

Landscape Similarity Zone: Shoreline Beach

Viewer Type: Resident, Tourist

Aesthetic Resource: Gay Head West Tisbury Unit State Scenic Area, Philbin Beach

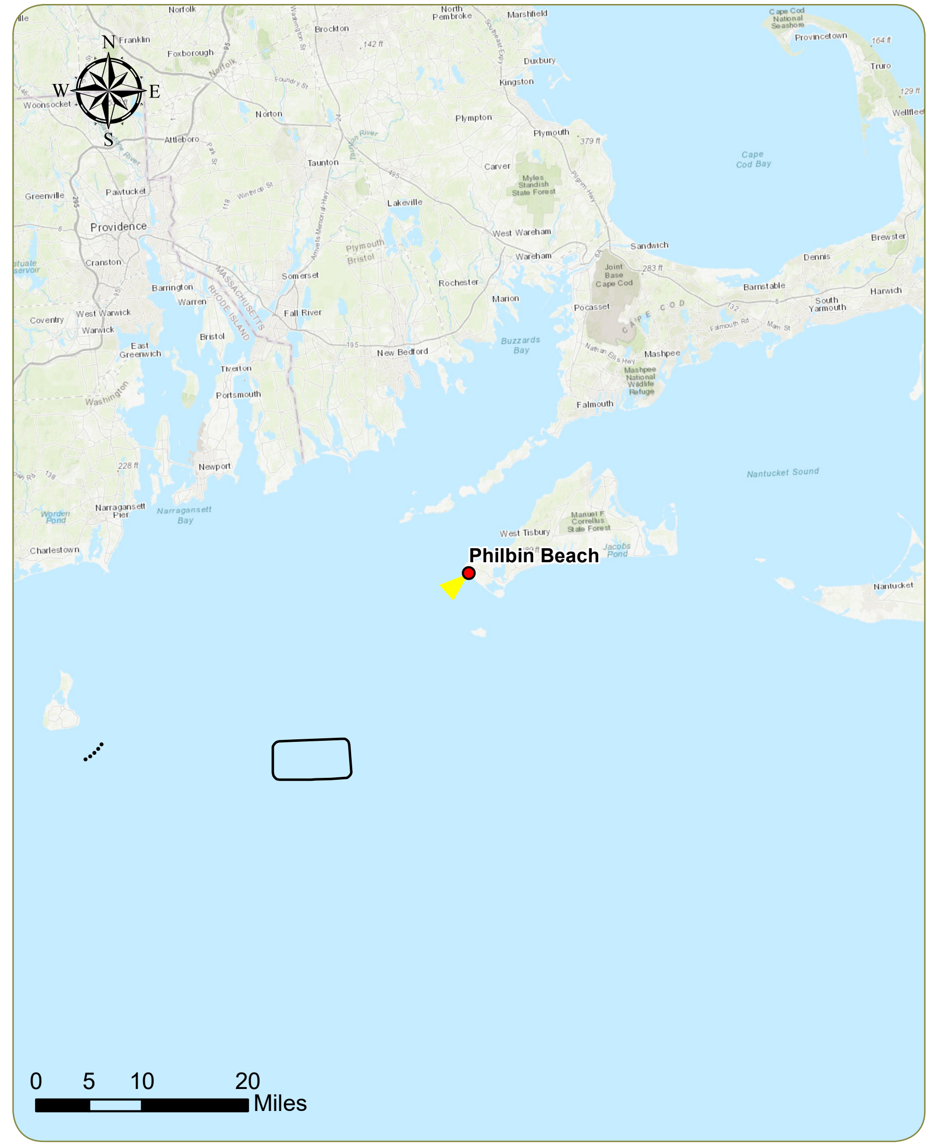
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

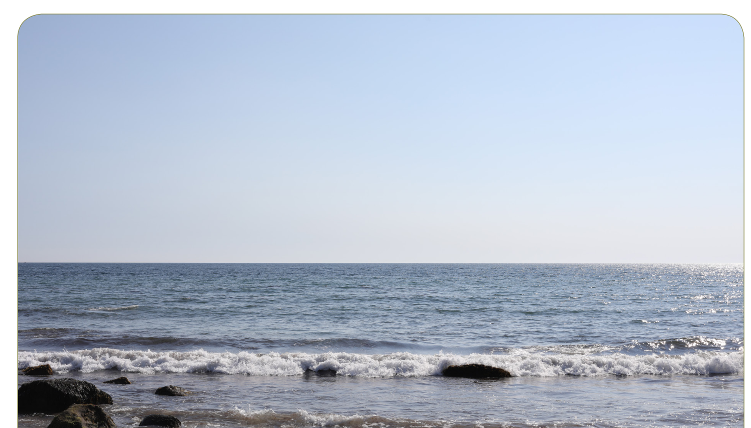
Lens Focal Length: 50 mm

Camera Height: 10.5 feet AMSL



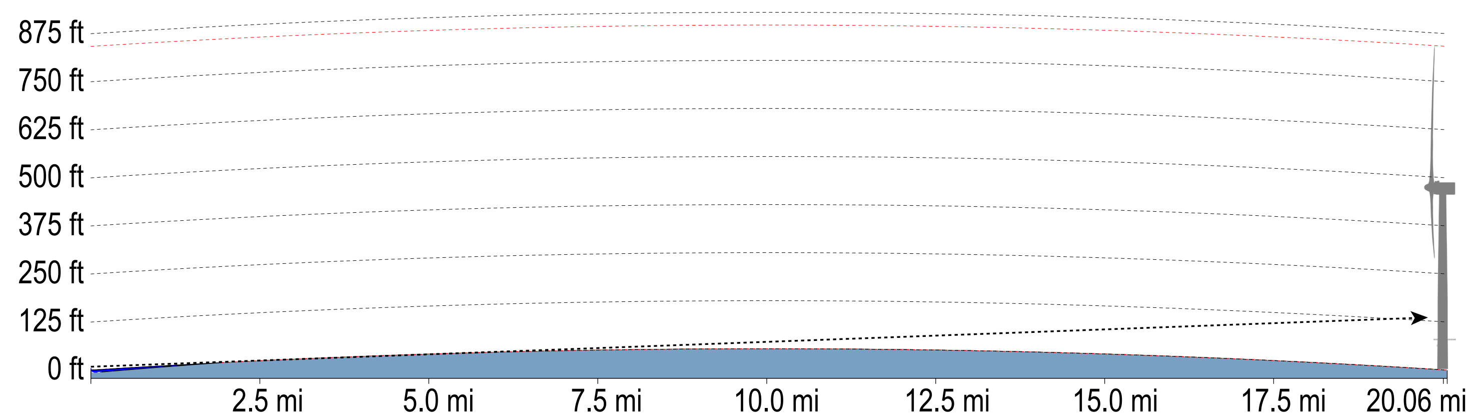

Context Photo: View to the South


Context Photo: View to the South-Southwest

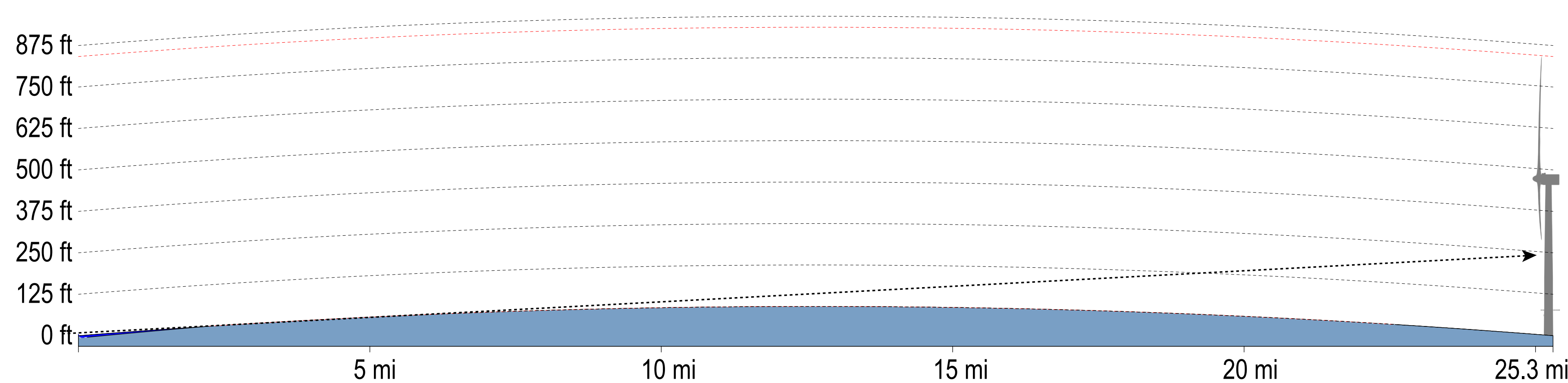

Simulation Photo: View to the Southwest


Context Photo: View to the West

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 22: View from Philbin Beach, Aquinnah

Simulation MWA

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 22: View from Philbin Beach, Aquinnah
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 22: View from Philbin Beach, Aquinnah

Peaked Hill Reservation

Viewpoint Information

County: Dukes
Town: Chilmark
State: Massachusetts
Location: Martha's Vineyard
Latitude: 41.35521014° N
Longitude: 70.73535009° W
Direction of View: Southwest (235.1°)
Distance to Nearest Visible Turbine: 24.2 miles

Visual Resources

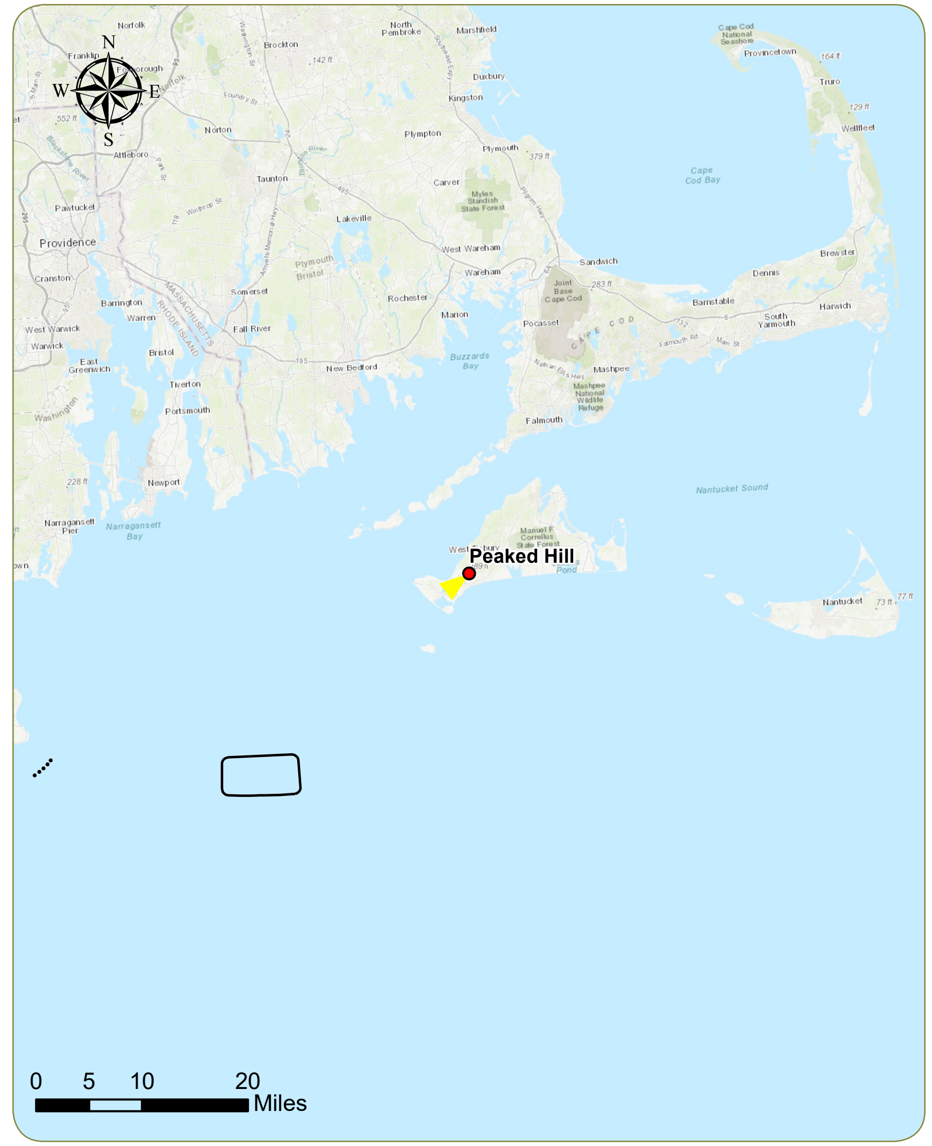
Landscape Similarity Zone: Forest
Viewer Type: Resident, Tourist
Aesthetic Resource: Identified by the Wampanoag of Gay Head

Environmental Data

Date Taken: 8/9/2017
Time: 2:31 PM
Temperature: 59.0 °F
Humidity: 96%
Visibility: 0.2 miles
Wind Direction: Southwest
Wind Speed: 3.5 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 305.1 feet AMSL



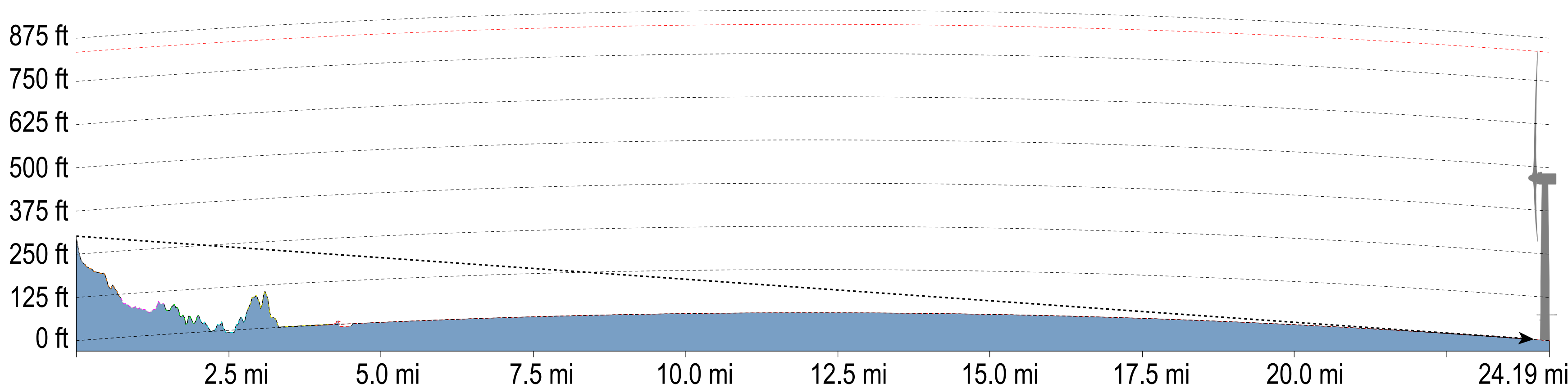

Context Photo: View to the South


Context Photo: View to the Southwest

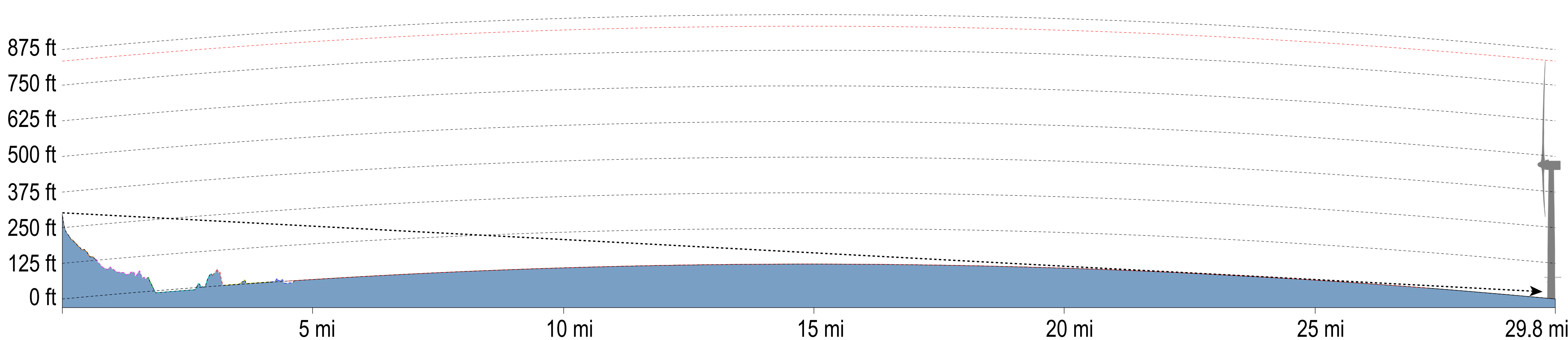

Simulation Photo: View to the Southwest


Context Photo: View to the South-Southwest

Nearest Turbine Visible



Furthest Turbine Visible



Existing Conditions

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 24: View from Peaked Hill Reservation, Chilmark
Appendix C: Sheet 115 of 141

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Simulation MWA

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 24: View from Peaked Hill Reservation, Chilmark
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South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 24: View from Peaked Hill Reservation, Chilmark

Lucy Vincent Beach

Viewpoint Information

County: Dukes

Town: Chilmark

State: Massachusetts

Location: Martha's Vineyard

Latitude: 41.33951222° N

Longitude: 70.72570867° W

Direction of View: Southwest (237.3°)

Distance to Nearest Visible Turbine: 23.8 miles

Visual Resources

Landscape Similarity Zone: Coastal Dunes

Viewer Type: Resident, Tourist

Aesthetic Resource: Gay Head West Tisbury Unit State Scenic Area, Lucy Vincent Beach

Environmental Data

Date Taken: 8/9/2017, 12/9/2017 (Sunset)

Time: 12:55 PM, 4:03 PM (Sunset)

Temperature: 77.0 °F

Humidity: 60%

Visibility: >10.0 miles

Wind Direction: South-Southwest

Wind Speed: 11.5 mph

Conditions Observed: Clear

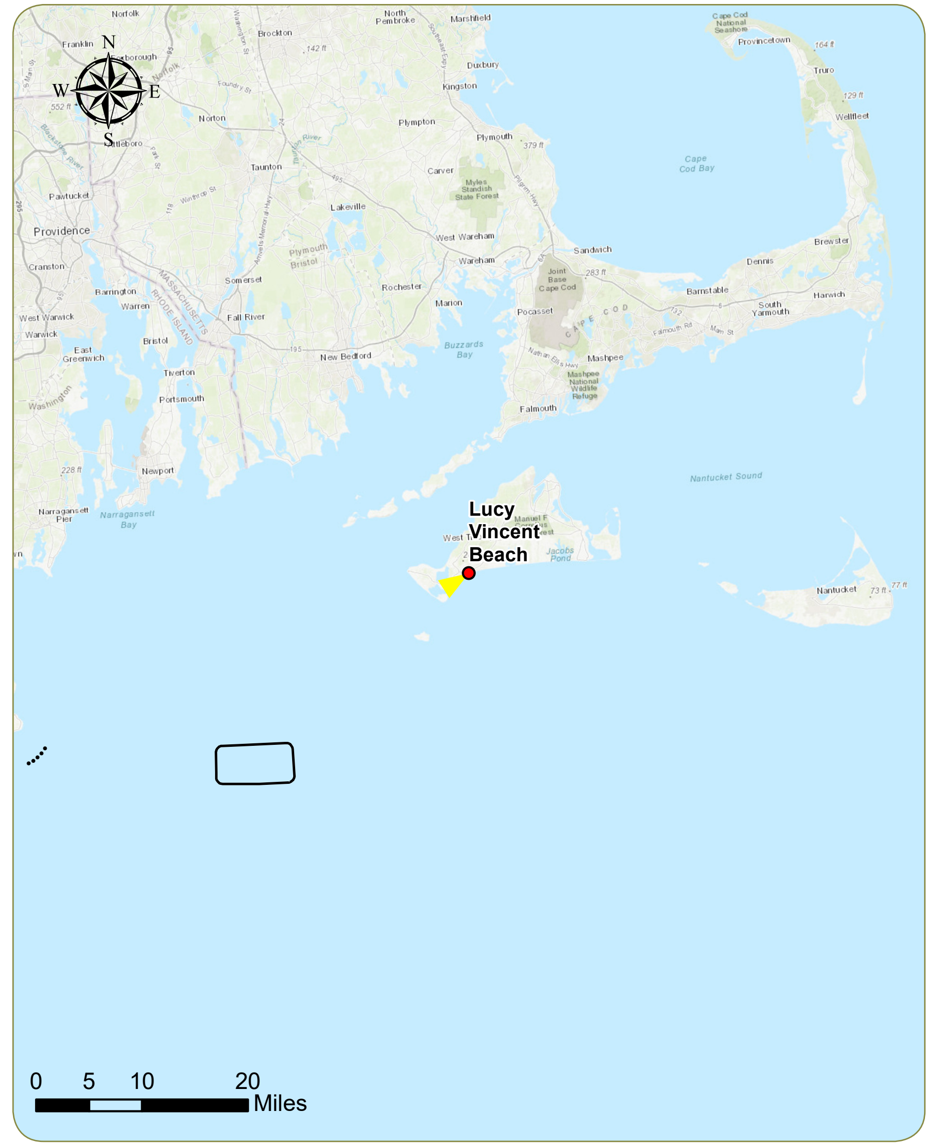
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 27.7 feet AMSL



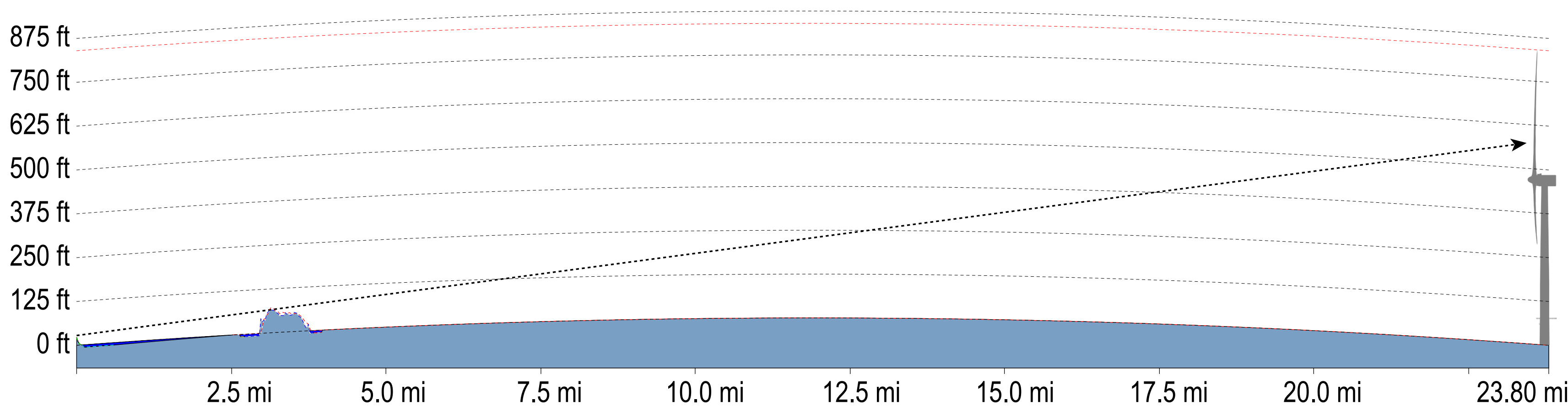

Context Photo: View to the Southeast


Context Photo: View to the South-Southeast

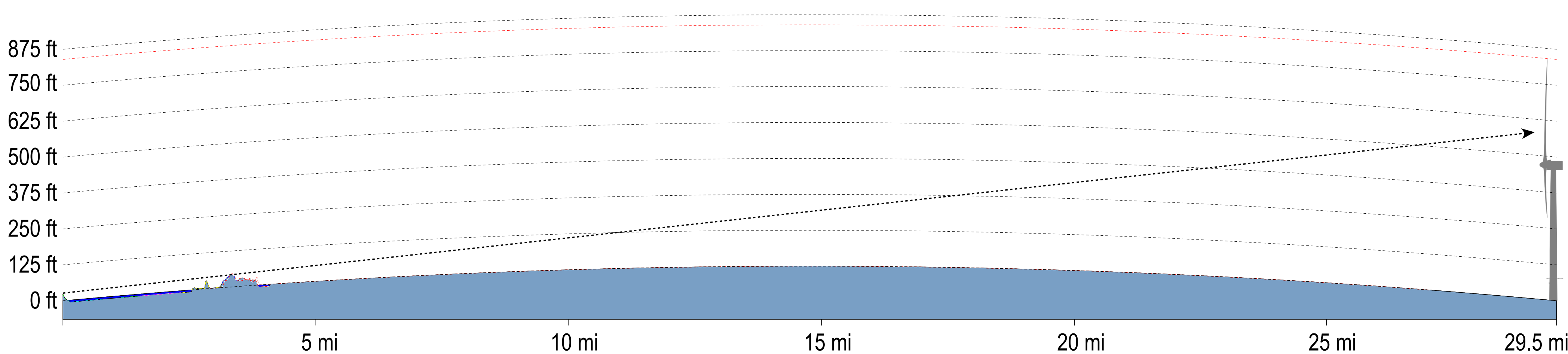

Simulation Photo: View to the Southwest


Context Photo: View to the West

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 25: View from Lucy Vincent Beach, Chilmark
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 25: View from Lucy Vincent Beach, Chilmark
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 25: View from Lucy Vincent Beach, Chilmark
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Nobska Lighthouse

Viewpoint Information

County: Barnstable

Town: Falmouth

State: Massachusetts

Location: Mainland, MA

Latitude: 41.51575034° N

Longitude: 70.65511464° W

Direction of View: Southwest (225.6°)

Distance to Nearest Visible Turbine: 35.3 miles

Visual Resources

Landscape Similarity Zone: Maintained Recreation Areas

Viewer Type: Resident, Tourist

Aesthetic Resource: National Register of Historic Places, Church Street/Nobska Point State Historic District, Nobska Beach Association Beach

Environmental Data

Date Taken: 8/9/2017, 1/1/2017 (Sunset)

Time: 6:23 PM, 4:10 PM (Sunset)

Temperature: 63.0 °F

Humidity: 97%

Visibility: 6.0 miles

Wind Direction: Calm

Wind Speed: Calm

Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 53.7 feet AMSL

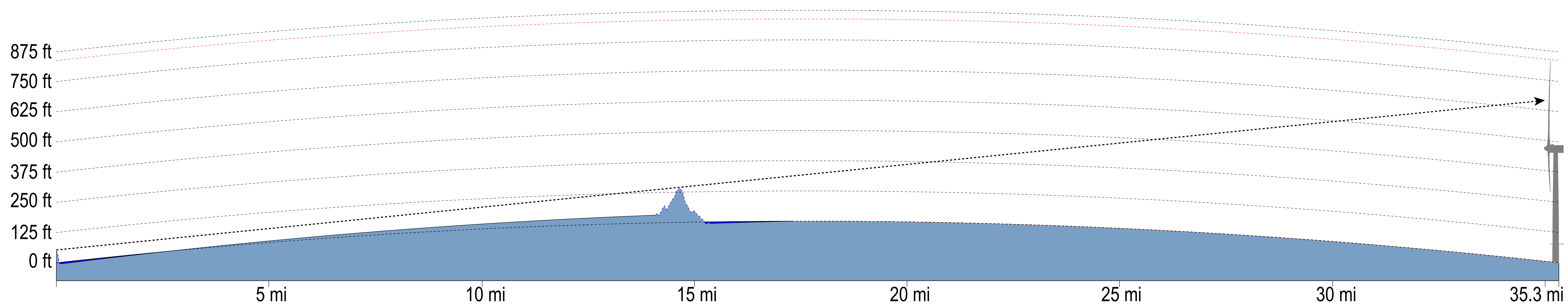

Context Photo: View to the South-Southeast


Simulation Photo: View to the Southwest

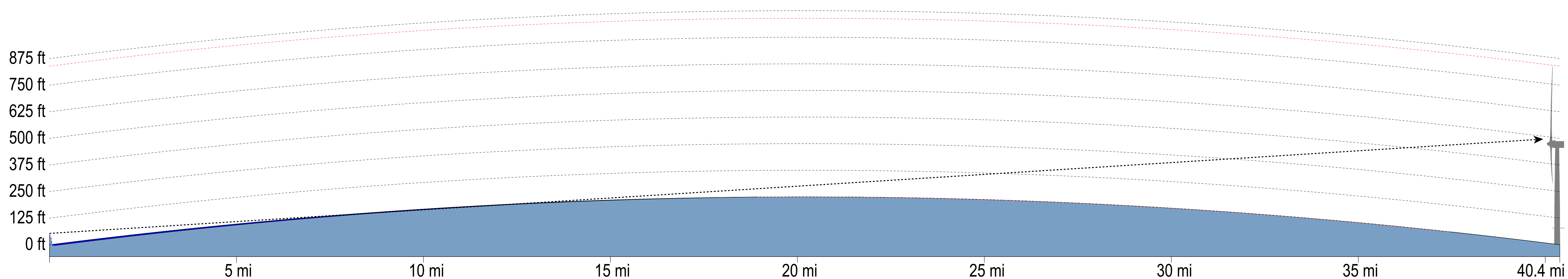

Context Photo: View to the West-Southwest


Context Photo: View to the West-Northwest

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 26A: View from Nobska Lighthouse, Falmouth

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 26A: View from Nobska Lighthouse, Falmouth
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Sunset Simulation MWA

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 26A: View from Nobska Lighthouse, Falmouth
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South Beach State Park

Viewpoint Information

County: Dukes
Town: Edgartown
State: Massachusetts
Location: Martha's Vineyard
Latitude: 41.34982218° N
Longitude: 70.53103379° W
Direction of View: West-Southwest (224.5°)
Distance to Nearest Visible Turbine: 32.4 miles

Visual Resources

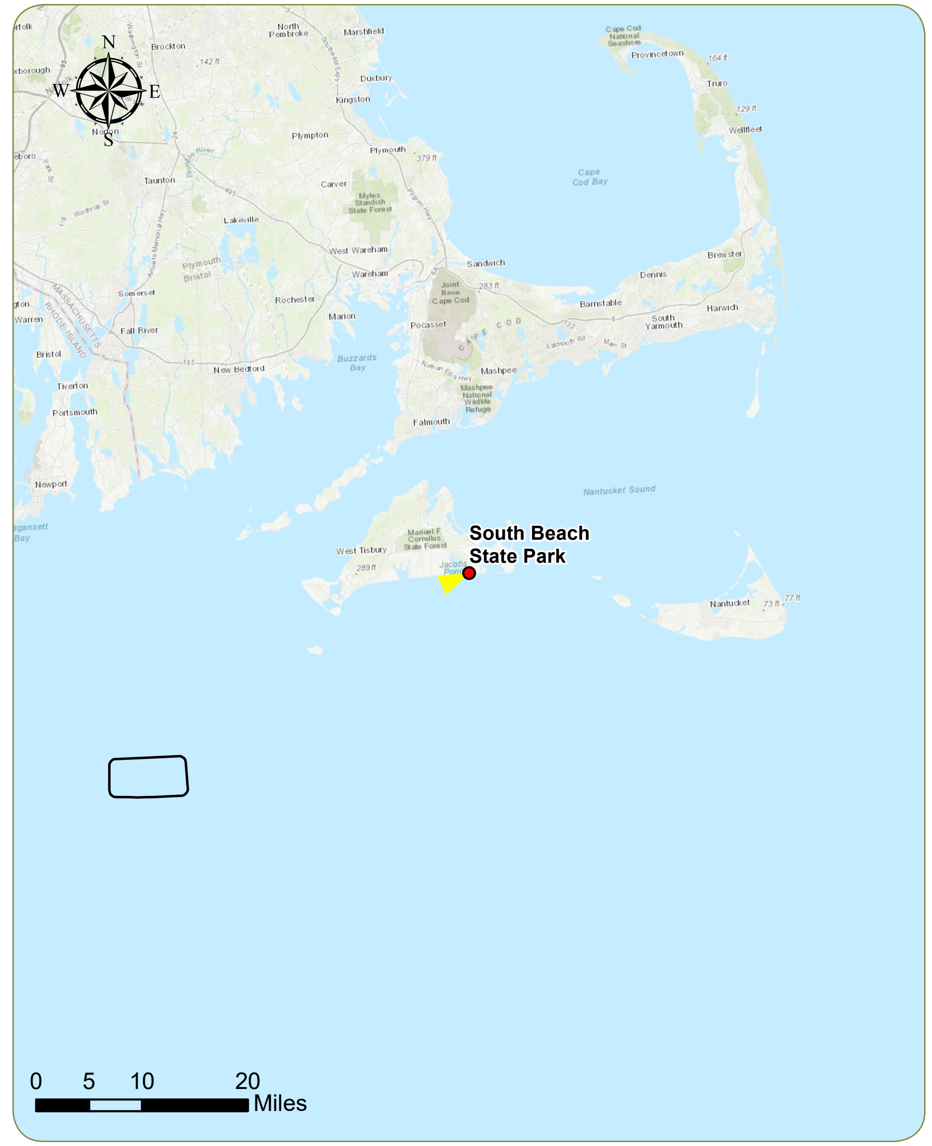
Landscape Similarity Zone: Shoreline Beach
Viewer Type: Resident, Tourist
Aesthetic Resource: South Beach State Park

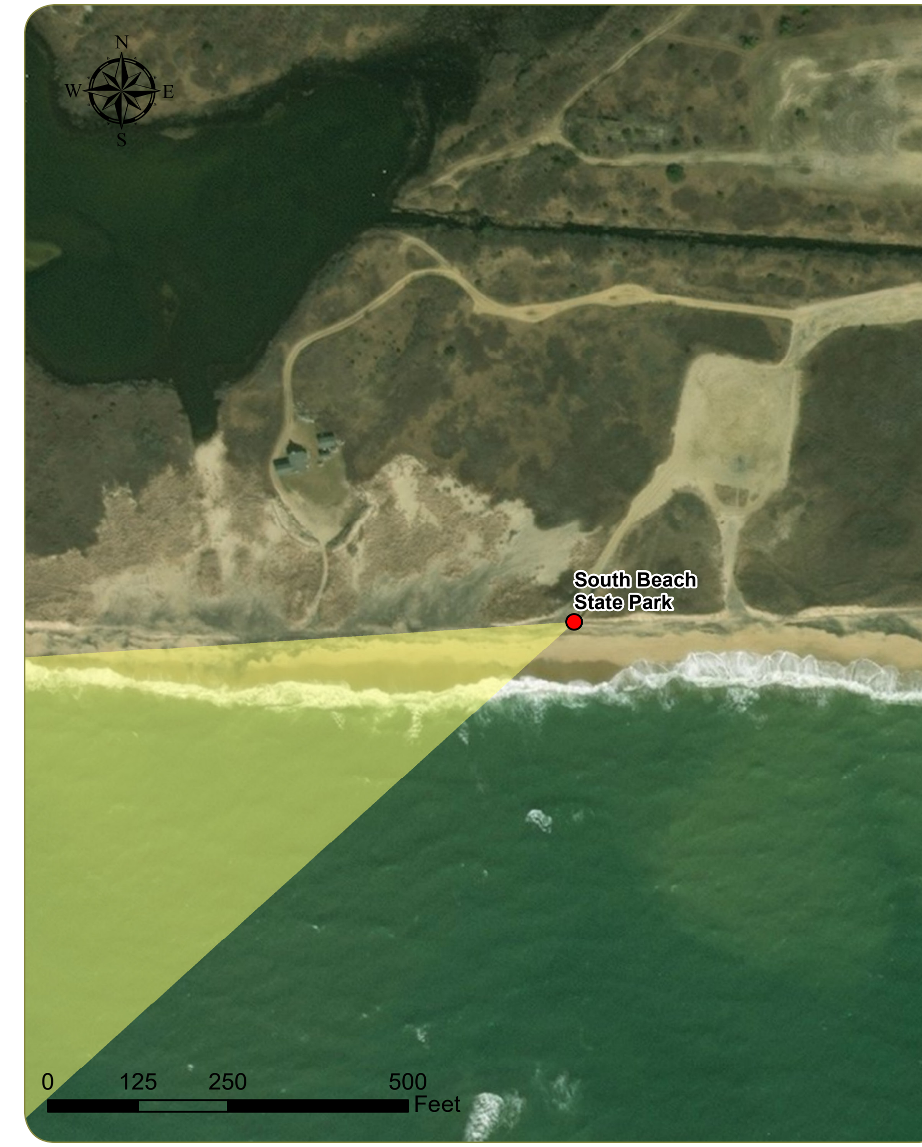
Environmental Data

Date Taken: 8/9/2017, 11/20/2017 (Sunset)
Time: 9:42 AM, 4:13 PM (Sunset)
Temperature: 75.9 °F
Humidity: 56%
Visibility: >10.0 miles
Wind Direction: Variable
Wind Speed: 4.6 mph
Conditions Observed: Clear

Camera Information

Camera: Canon EOS 5D Mark IV
Resolution: 30.4 Megapixels
Lens Focal Length: 50 mm
Camera Height: 17.0 feet AMSL





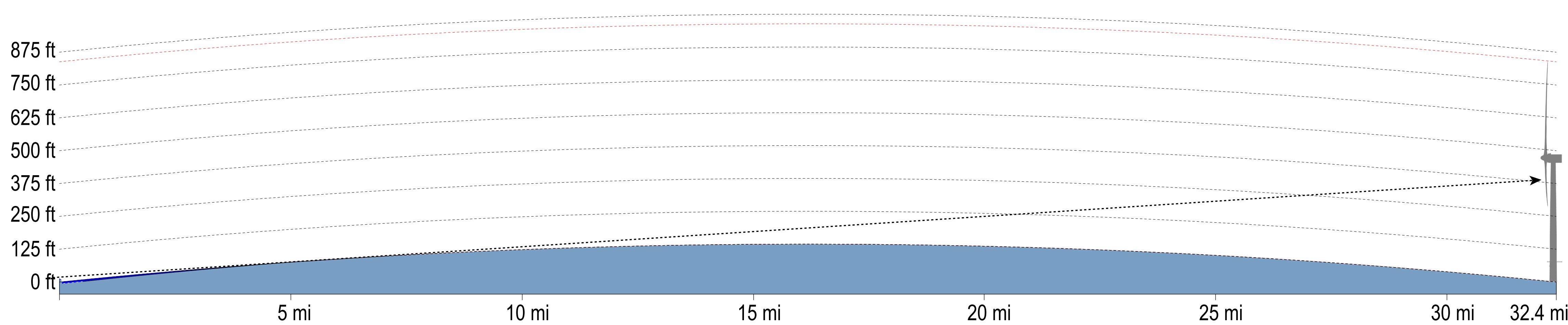

Context Photo: View to the Southwest


Simulation Photo: View to the West-Southwest

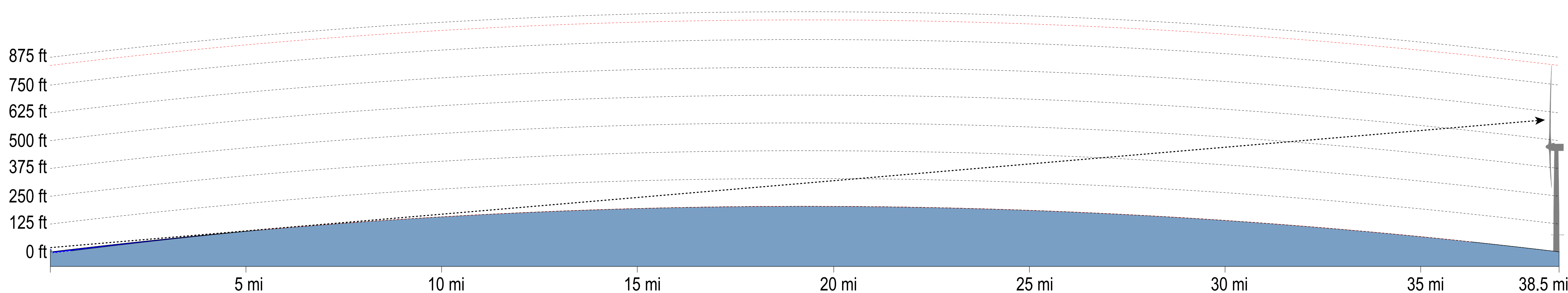

Context Photo: View to the West


Context Photo: View to the West-Northwest

Nearest Turbine Visible



Furthest Turbine Visible



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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 27: View from South Beach State Park, Edgartown
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South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 27: View from South Beach State Park, Edgartown

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 27: View from South Beach State Park, Edgartown

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Nomans Land Island NWR

Viewpoint Information

County: Dukes

Town: Chilmark

State: Massachusetts

Location: Nomans Land Island

Latitude: 41.25711675° N

Longitude: 70.83080627° W

Direction of View: West-Southwest (239°)

Distance to Nearest Visible Turbine: 15.9 miles

Visual Resources

Landscape Similarity Zone: Shoreline Bluffs

Viewer Type: No Access

Aesthetic Resource: Nomans Land Island National Wildlife Refuge

Environmental Data

Date Represented: 12/12/2017, 12/12/2017 (Sunset)

Time Represented: 8:30 AM, 4:10 PM (Sunset)

Temperature: NA

Humidity: NA

Visibility: >10.0 miles

Wind Direction: East-Southeast

Wind Speed: NA

Conditions Observed: Clear

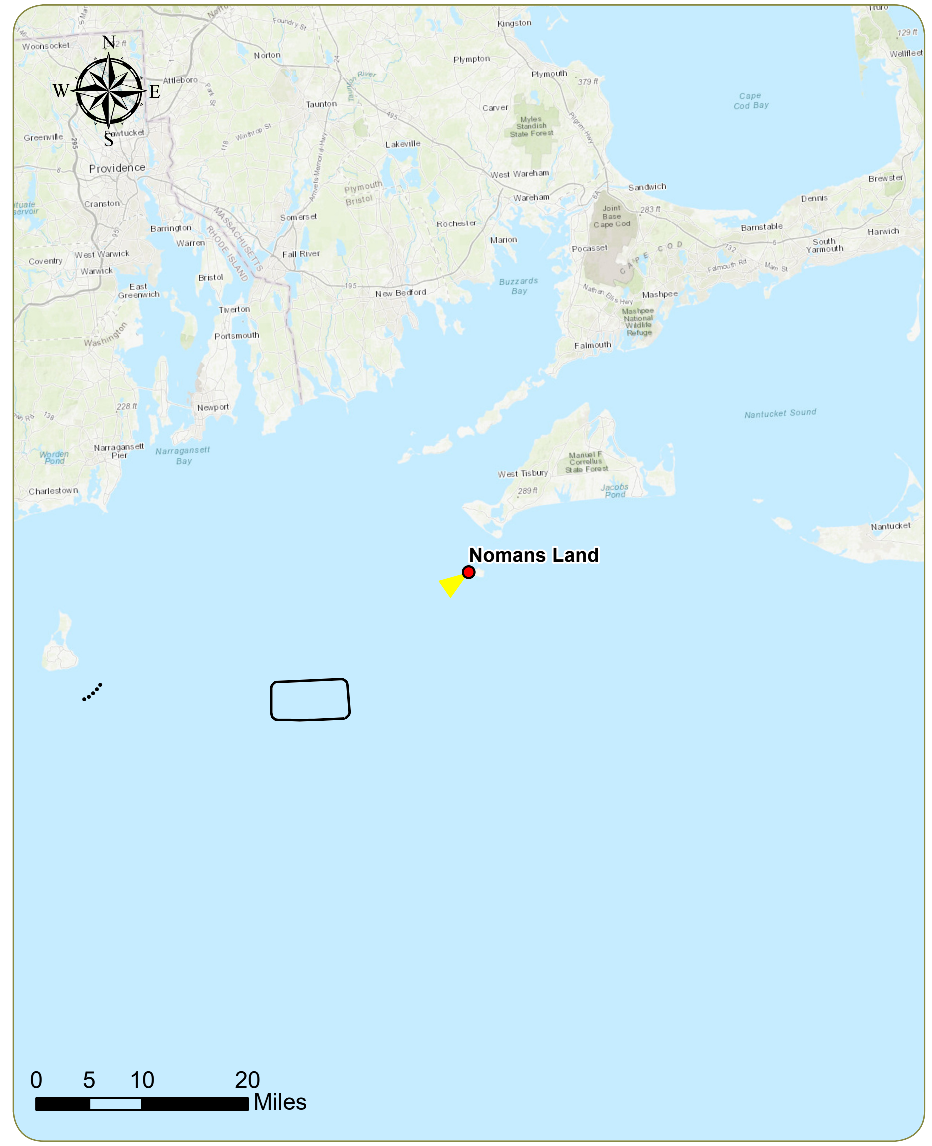
Camera Information

Camera: Canon EOS 5D Mark IV

Resolution: 30.4 Megapixels

Lens Focal Length: 50 mm

Camera Height: 42.1 feet AMSL

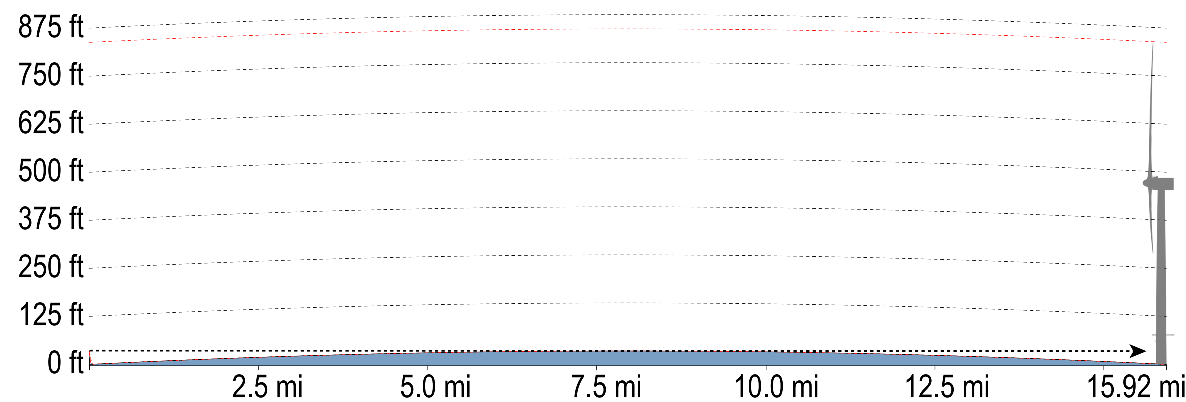


Source - Vineyard Gazette 2014

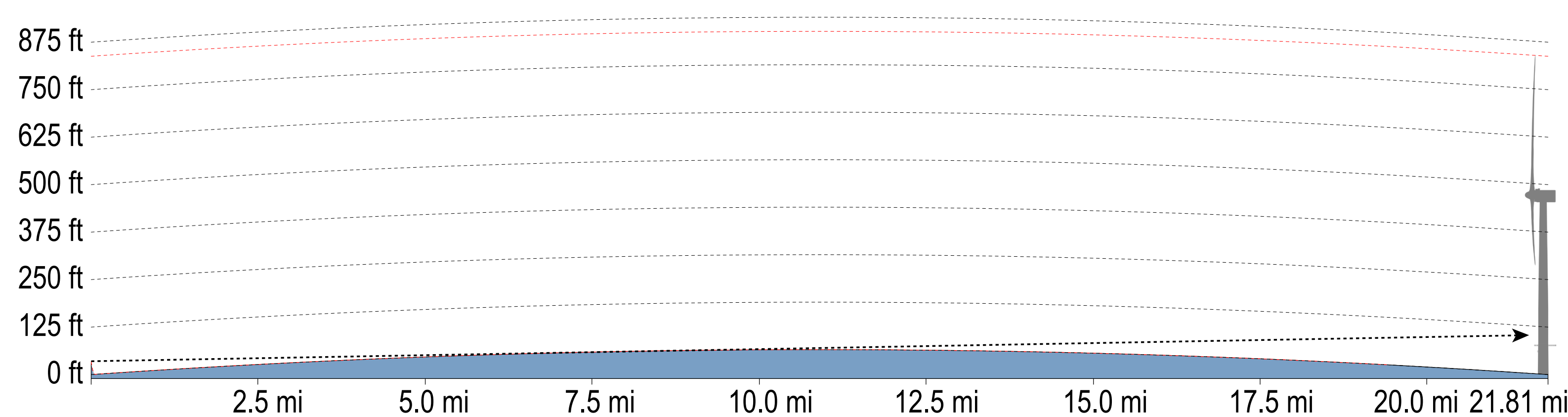
Simulation Photo: View to the West-Southwest

Source - Gore Lamar USFWS Public Domain WikiCommons

Nearest Turbine Visible



Furthest Turbine Visible



South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 29: View from Nomans Land Island NWR, Chilmark

Due to the difficulty of access to Nomans Land Island, this photo rendering is based on the National Elevation Dataset, aerial photographs, and prior photo documentation of Nomans Land Island. The existing elements in the scene are estimated and may differ from an actual photograph from this particular location.

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 29: View from Nomans Land Island NWR, Chilmark

Due to the difficulty of access to Nomans Land Island, this photo rendering is based on the National Elevation Dataset, aerial photographs, and prior photo documentation of Nomans Land Island. While the scale and perspective of the wind farm relative to the viewer perspective is accurate, the existing elements in the scene are estimated and may differ from an actual photograph from this particular location.

South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 29: View from Nomans Land Island NWR, Chilmark

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Due to the difficulty of access to Nomans Land Island, this photo rendering is based on the National Elevation Dataset, aerial photographs, and prior photo documentation of Nomans Land Island. While the scale and perspective of the wind farm relative to the viewer perspective is accurate, the existing elements in the scene are estimated and may differ from an actual photograph from this particular location.

Atlantic Ocean

Viewpoint Information

Location: Atlantic Ocean/Outer Continental Shelf

Latitude: 41.10079451° N

Longitude: 71.34928133° W

Direction of View: East (93.2°)

Distance to Nearest Visible Turbine: 8.6 miles

Environmental Data

Date Represented: 6/21/2018

Time Represented: 12:00 PM

Temperature: N/A

Humidity: N/A

Visibility: >10.0 miles

Wind Direction: N/A

Wind Speed: N/A

Conditions Represented: Clear

Visual Resources

Landscape Similarity Zone: Open Water

Viewer Type: Tourist, Fishing Community

Aesthetic Resource: Atlantic Ocean

Camera Information

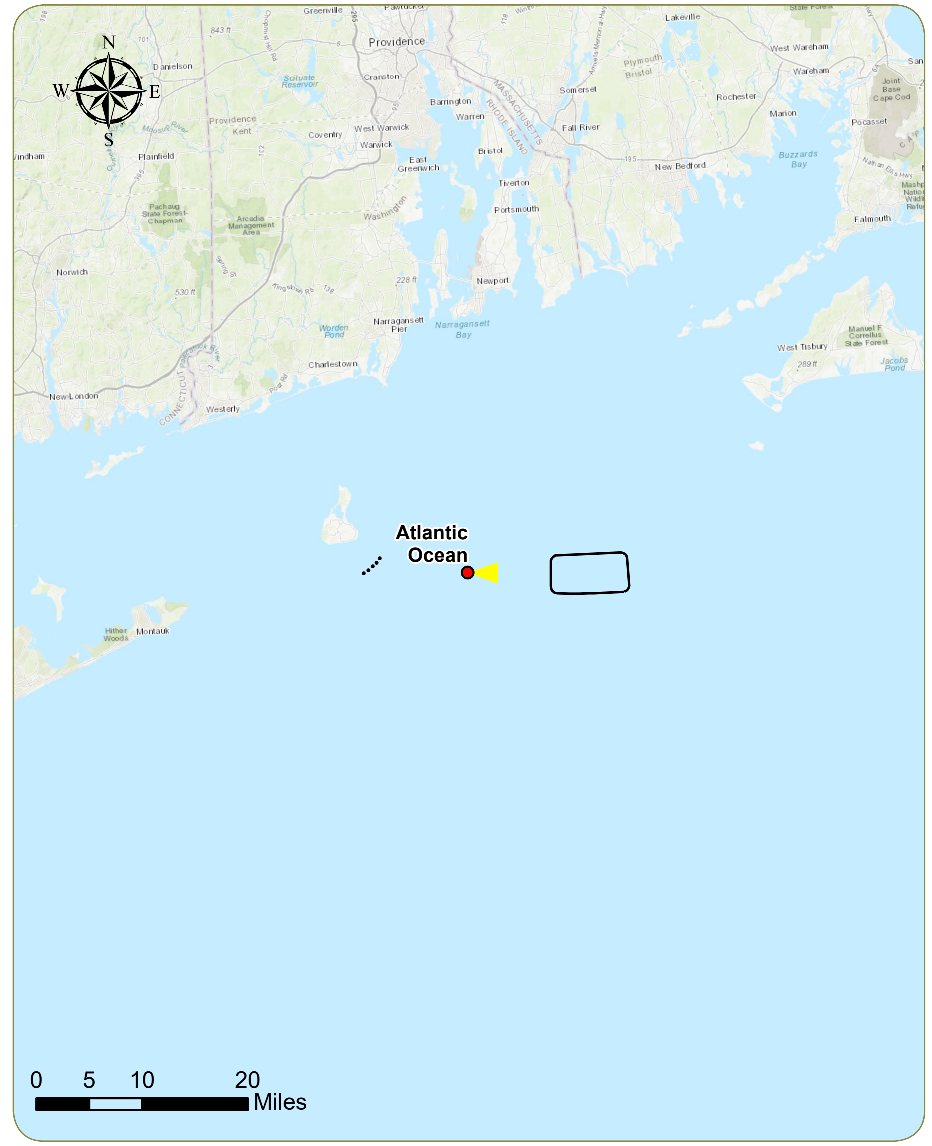
Camera: NIKON D90

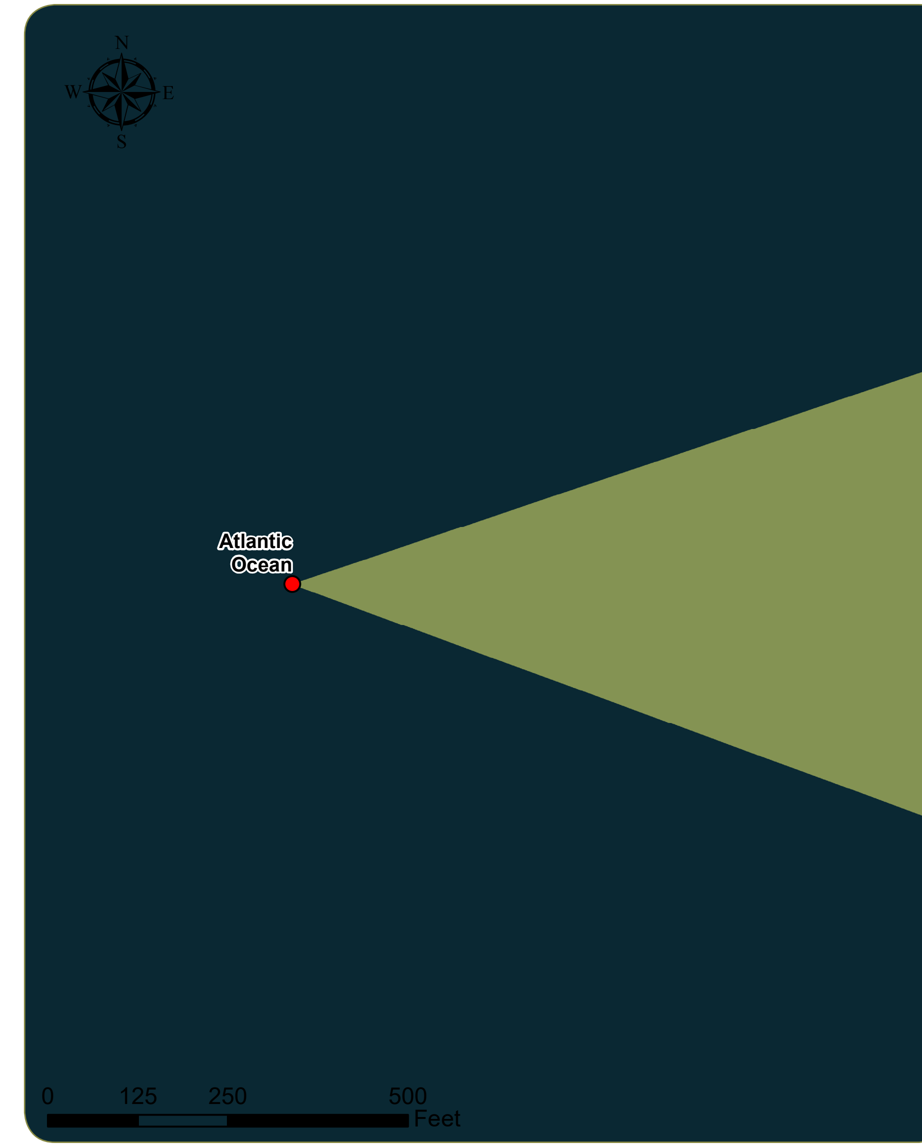
Resolution: 12 Megapixels

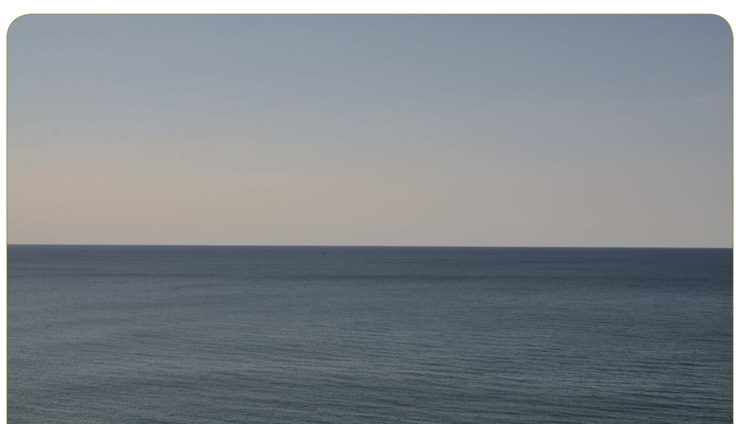
Lens Focal Length: 35 mm

Camera Height: 147.0 feet AMSL

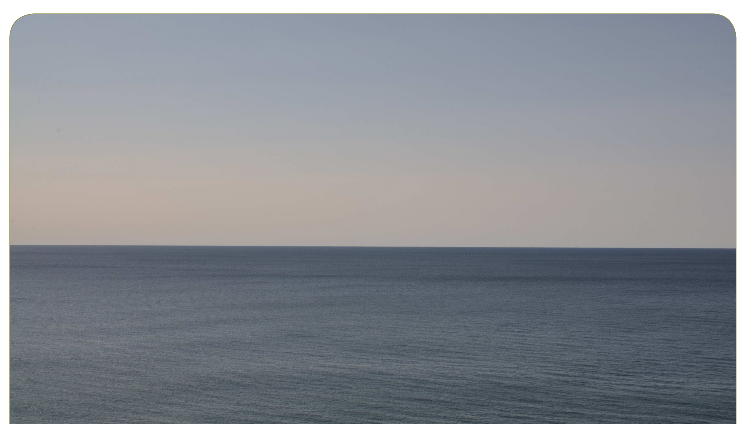
Hypothetical view assumes a viewer positioned on the top deck of a typical cruise ship in a high traffic passenger vessel channel



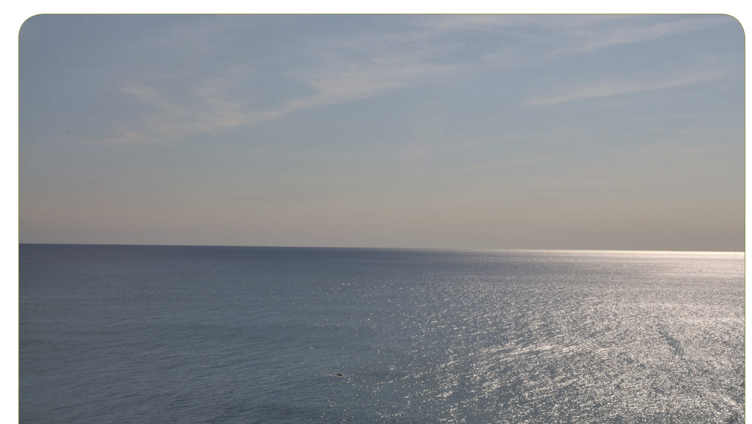




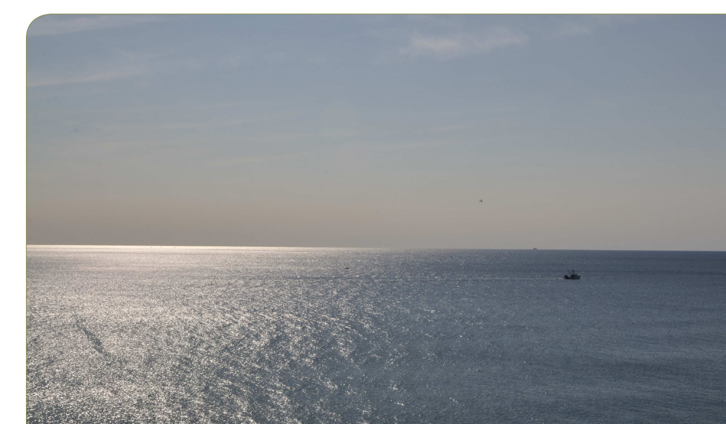
Context Photo: View to the East-Northeast



Simulation Photo: View to the East

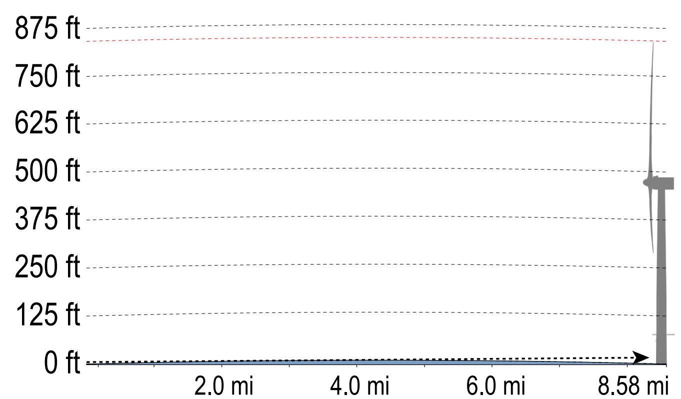


Context Photo: View to the Southeast

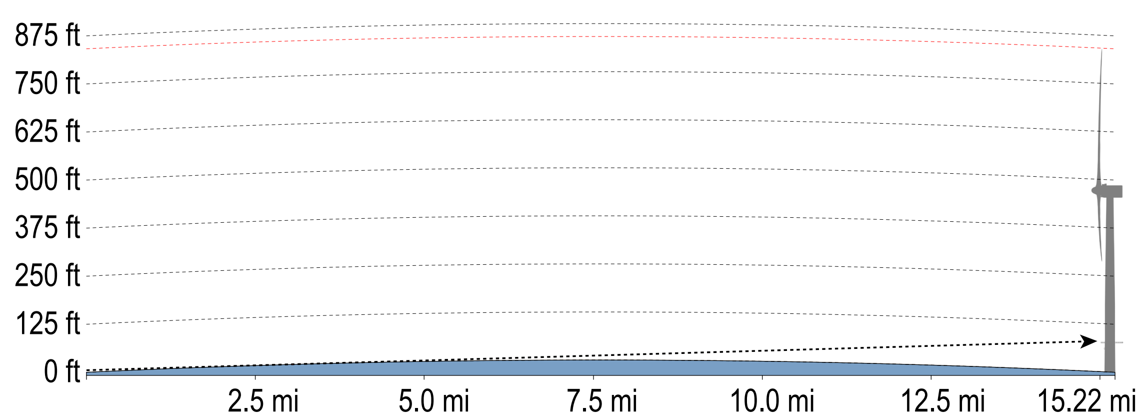


Context Photo: View to the South

Nearest Turbine Visible



Furthest Turbine Visible



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This photograph is intended to represent a point of concentrated passenger vessel traffic based on the Automatic Identification System (AIS) vessel traffic records. This photograph was not taken from the Atlantic location, but it is intended to represent the likely conditions found on the open Atlantic Ocean. Actual conditions may vary, but considering the viewer location and elevation relative to the Project, the scale and arrangement of the wind turbines is portrayed accurately.

South Fork Wind Farm

New York/Rhode Island, US

Viewpoint 30: View from Atlantic Ocean, Outer Continental Shelf

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Photo Rendering: Proposed Conditions MWA

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This photograph is intended to represent a point of concentrated passenger vessel traffic based on the Automatic Identification System (AIS) vessel traffic records. This photograph was not taken from the Atlantic location, but it is intended to represent the likely conditions found on the open Atlantic Ocean. Actual conditions may vary, but considering the viewer location and elevation relative to the Project, the scale and arrangement of the wind turbines is portrayed accurately.

South Fork Wind Farm
New York/Rhode Island, US
Viewpoint 30: View from Atlantic Ocean, Outer Continental Shelf

Appendix D

Resumes of Rating Panel Members

Walter L. Kalina, AICP

Senior Project Manager

employment history

Senior Planner, Environmental Design & Research, Landscape Architecture and Engineering, P.C.; May 2016-Present.

Associate Vice President, Principal Planner VI (2015-2016), Section Group Manager (2011-2014), Principal Planner, Associate, Manager of Planning & Ecology Group (2004-2010), Senior Planner (2001-2003); CHA Consulting, Inc., Syracuse, New York, 2001-2016

Manager of Design, Principal Planner; McKenna Associates; Novi, Michigan; 1998-2001. Responsible for management of staff of planners, urban designers, and landscape architects at one of the largest planning firms in the Midwest.

Environmental Resource Analysist; Environmental Design & Research, P.C., Syracuse & Rochester, NY, 1993-1884.

Associate Environmental Scientist & Land Use Planner; Terrestrial Environmental Specialists, Phoenix, NY; 1981-1983. Responsibilities included land use planning studies, aquatic ecology studies, recreational studies, vegetation studies, site selection for solid waste sanitary landfills, visual and noise impact and mitigation, SEQRA environmental impact statements, and regulatory compliance.

education

Syracuse University, Maxwell School of Citizenship,
Masters of Arts in Public Administration, 1998.

State University of New York, School of Landscape Architecture, Masters of Landscape Architecture, 1998.

Syracuse University, College of Arts & Sciences,
Bachelor of Arts in Geography & Urban Planning, 1980.

professional certification

Certified Planner, American Institute of Certified Planners.

professional affiliations

Member, American Planning Association.
Member, American Institute of Certified Planners.

representative project experience

Interstate 81 (I-81) Viaduct Project, City of Syracuse, Onondaga County, NY – Prepared Visual Impact Assessment Report and Visual Impact section of Draft Environmental Impact Statement in compliance with Federal Highway Administration requirements for New York State Department of Transportation (NYSDOT) PIN 3501.60, D031085 – the replacement of approximately 5 miles of elevated highways.

Downtown Revitalization Initiative (DRI), City of Jamestown, NY – Served as Project Manager and Lead Planner responsible for preparing sections of DRI Final Report on Priority Projects in coordination with the City's Local Planning Committee for submittal to New York State as part of $10 million downtown revitalization grant awarded to the City.

Montgomery County Agricultural and Farmland Protection Plan Update, Montgomery County, NY – Project manager and lead planner in preparing the Agricultural and Farmland Protection Plan that identified key issues facing agriculture in the community, recommended strategies for capitalizing on advantages and overcoming barriers, and advanced the viability of farming as an enterprise and a way of life on behalf of Montgomery County. The purpose of the planning for agriculture is to maintain the quality and accessibility of the sector's primary natural and economic resources.

Town of Henrietta Multiple Dwellings Study, Town of Henrietta, NY - Project Manager and Lead Planner providing planning expertise related to an in-depth review and analysis of existing land use plans and regulations, and possible zoning amendments related to multiple dwellings and other land uses within the Town of Henrietta.

Copenhagen Wind Project, Lewis County, NY – Prepared a NEPA Environmental Assessment and project QA/QC of Environmental Assessment Report on behalf of the U.S. Fish and Wildlife Service (USFWS), highlighting the impacts on federal threatened and endangered species for a proposed 47-turbine, approximately 79 MW wind energy project.

Broome County Coporate Park, Town of Conklin, Broome County, NY – Prepared QA/QC of environmental permitting reports in support of the final design and Stoirmwater Pollution Preventation Plan (SWPPP) for a proposed 900,000 square foot warehouse located in the Broome County Coporate Park. Also responsible for project coordination between mutliple consultants.

Zoning Ordinance Revisions, City of Auburn, NY – Prepared sections of the City of Auburn Downtown Form-Based Zoning Code for a proposed 562-acre Downtown/Owasco River Corridor BOA area characterized by at least 13 identified brownfield sites totaling 60 acres, and numerous other vacant and/or underutilized sites, many of which are suspected of contamination. The objectives of this project includes developing a market-driven, economically feasible plan for riverfront and downtown redevelopment; encouraging cleanup and return of brownfield, vacant and underutilized sites to productive economic and social use; and implementing key strategies needed to support more immediate area-wide redevelopment activities.

National Veterans Recourse Complex (NVRC), Syracuse University, Onondaga County, NY – Provided SEQRA compliance services and served as a technical resource to the Syracuse University Campus Design and Planning Department, including preparation of Environmental Assessment Form and coordination on project permitting for the proposed demolition of Hoople Hall, and the constructing of the NVRC.

NYS Thruway Authority – *Prior to EDR*, assisted the NYSTA with SEQRA compliance documentation and agency coordination for the proposed construction of six wind turbines at several Thruway interchanges in western New York State. (2011-2012)

Town of Richfield, Otsego County, NY – *Prior to EDR*, provided SEQRA assistance to the Town of Richfield Planning Board as part of its review of the proposed Monticello Hills Windfarm along NYS Route 20 in the Town of Richfield. (2011-2013)

Town of Madison, Madison County, NY – *Prior to EDR*, provided site plan and SEQRA environmental review services to the Madison Town Board and Planning Board for a proposed large-scale windfarm in the Town. Also provided project review of the Madison Marketplace project along NYS Route 12B in the Town. (2011-2012)

Comprehensive Land Use Plan, Town of Hartwick, Otsego County, NY – *Prior to EDR*, prepared the Town's first Comprehensive Plan including recommendations on future land use and strategies for a host of neighborhood planning issues including business development, open space protection and the adoption of formal zoning regulations.

Village of Sidney, Delaware County, NY – *Prior to EDR*, assisted the Village engineer with various projects including SEQRA environmental reviews of both private and public sector projects, a pre-development funding study under the Restore New York program for a mixed use housing study, and flood recovery projects. (2008-2012)

City of Auburn, Cayuga County, NY – *Prior to EDR*, assisted the City Planning Department to seek funding under the EPA Brownfield Assessment Grant Program, preparation of sections of the Owasco River Corridor Greenway Study, and NEPA/SEQRA compliance sections of the NYS Department of Transportation Design Approval Document for the Owasco River Trail. (2011-2014)

Town of Lockport, Niagara County, NY – *Prior to EDR*, assisted the Town of Lockport with SEQRA environmental review of the Town's proposed Lockport Ice Arena and Sports Center. (2009-2010)

NYS Department of Agriculture & Markets (NYS DAM), Agriculture & Farmland Preservation Plan, Town of Groveland, Livingston County, NY – *Prior to EDR*, prepared the Agriculture and Farmland Protection Plan through a grant from NYS DAM. Prepared the Future Land Use Plan and assisted the Planning Board with an update of its zoning ordinance and Right-to-Farm law. The projects required public participation and public hearings.

NYS Department of State (NYS DOS) City of Auburn Brownfield Opportunity Area Program (BOA) – *Prior to EDR (working closely with EDR)*, assisted the City Planning Department to seek funding under the Environmental Protection Act (EPA) Brownfield Assessment Grant Program, preparation of sections of the Owasco River Corridor Greenway Study, and State Environmental Quality Review Act (SEQRA) compliance sections of the NYS Department of Transportation (NYS DOT) Design Approval Document for the Owasco River Trail.

NYS DOS, City of Auburn BOA – Supporting the team conducting outreach activities, preparing a draft and final Nomination Report, and undertaking revisions to the City Zoning Code to accommodate redevelopment plans within the BOA boundary area. Challenges include demonstrating a creative and progressive approach that indicates an understanding of the obstacles associated with redevelopment of urban brownfield sites within a mixed-use setting that satisfies the priorities of the Auburn Downtown / Owasco River Corridor Step 2 BOA.

NYS DOS, Endicott Johnson BOA, Broome County, NY – *Prior to EDR*, assisted the Planning Department with funding application and the Nomination Study of the Endicott-Johnson Industrial Spine BOA.

Town of Salina, Onondaga County, NY – *Prior to EDR*, provided various planning services to the Town Board, Planning Board and Code Enforcement Officer including site plan reviews, SEQRA compliance reviews, preparation of zoning code amendments, drafting design guidelines for the Buckley Road corridor, and revitalization recommendations for the Mattydale neighborhood.

NYS DAM Agriculture & Farmland Protection Plan, Town of Rush, Monroe County, NY – *Prior to EDR*, provided site plan and project SEQRA review assistance to the Town Board and Planning Board. Prepared the Agriculture and Farmland Protection Plan through a grant from the NYS DAM. Prepared updates of land use information and GIS map sections of the Town's Comprehensive Plan.

Kellie Anne Connelly, RLA

Principal, Landscape Architecture & Planning

education

Harvard University Graduate School of Design,
Master of Landscape Architecture, 2000.

SUNY College of Environmental Science and Forestry, Bachelor of Landscape Architecture, 1995.

SUNY College of Technology at Alfred,
Associate in Applied Science, 1991.

professional certification

Registered Landscape Architect, State of New York, License #1875

Registered Landscape Architect, Commonwealth of Massachusetts, License #1214

publications

"Protecting the Rural Landscape: Visual Quality Guidelines for Plymouth, Massachusetts and the New England Region." Graduate School of Design, Harvard University. Cambridge, Massachusetts

"Toward a Joint Palestine-Israel Industrial Development in al-Shoka and Karem Shalom: An Assessment of Location and Future Planning Flexibility." Graduate School of Design, Harvard University. Cambridge, Massachusetts

Studio Works Seven. Graduate School of Design, Harvard University. Cambridge, Massachusetts

employment history

Instructor, Rhode Island School of Design, Providence, RI, 2014 – Present.

Principal Landscape Architect, Terraink, Inc., Arlington, MA, 2010 – Present.

Project Manager, Gregory Lombardi Design, Inc., Cambridge, MA, 2008 – 2010.

Visiting Professor, Site Design and Grading Seminar; Rhode Island School of Design

Project Manager, Shadley Associates, Lexington, MA, 2007 – 2008.

Project Manager, Visual Expert, EDR Companies, Syracuse, NY, 2003 – 2007.

Adjunct Professor, SUNY College of Environmental Science and Forestry, Syracuse, NY, 2003 – 2007.

Landscape Architect, Reisen Design Associates, Cambridge, MA, 1999 – 2003.

Landscape Architect, Jacques Whitford Company, Inc., Woburn, MA, 1998 – 1999.

Project Manager, Pressley Associates, Inc., Cambridge, MA, 1995 – 1998.

representative project experience

Lighthouse Wind, NY - Evaluate visual impacts, rating panel for wind turbines in Somerset and Yates Counties, Western New York.

Offshore MD - Evaluate visual impacts, rating panel for wind turbines offshore of Maryland.

Moosehead Lake Recreational Resource Assessment, ME - Investigation coordination of recreational resources in the Moosehead Lake Region, Maine.

Antrim Wind Power, NH - Provided Expert Witness with Court Testimony. Authored a Visual Impact Assessment (VIA) for a 28.8-MW, 9-turbine wind farm project in the Town of Antrim, Hillsborough County, New Hampshire. The VIA described the visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated existing visual resources. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Block Island Wind Farm, RI - Evaluated visual impacts for wind turbines and transformer station improvements on Block Island, Rhode Island.

Howard Wind Farm, NY - Evaluated visual impacts for wind turbines in Steuben County, New York.

Allegheny Wind, PA - Evaluated visual impacts for wind turbines in Cambria and Blair Counties, Pennsylvania.

New England East-West Solution (NEEWS) - Evaluated visual impacts for transmission line and transformer station improvements in New England.

Interstate Reliability - Evaluated visual impacts for transmission line and transformer station improvements in NE.

Southern Rhode Island Transmission Project – *Prior to Terraink*, Expert Witness with Court Testimony that was not challenged. Oversaw preparation of the Visual Impact Assessment (VIA) and the Supplemental Tower Hill Tap Line VIA prepared for the proposed upgrade and extension of approximately 26 miles of an existing L-190 115 kilovolt transmission line in southern Rhode Island. Coordinated fieldwork, defined landscape similarity zones and viewer groups, identified sensitive resources/receptors, supervised the development of viewshed maps and visual simulations, participated in the preparation of the VIA report and provided expert witness testimony on visual issues.

Tompkins County Public Safety Communications System - *Prior to Terraink*, directed preparation of Visual Impact Assessment component of the Draft Environmental Impact Statement (DEIS) prepared for the siting of nine new towers for wireless communications in Tompkins County, New York. Coordinated fieldwork, defined landscape similarity zones and viewer groups, identified sensitive resources/receptors, supervised the development of viewshed maps and visual simulations and participated in the preparation of the VIA report.

New York State Statewide Wireless Network - *Prior to Terraink*, participated in the preparation of the Generic Visual Impact Assessment (GVIA) report component of the DEIS prepared for the siting of wireless communications towers throughout New York State. Defined landscape similarity zones and viewer groups, identified sensitive resources/receptors, supervised the development of visual simulations and participated in the preparation of the GVIA report.

Visual Impact Assessment, Top Notch Wind Power Project - *Prior to Terraink*, evaluated visual impacts for Fairfield, Norway and Little Falls in Herkimer County, New York. The VIA report described visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated visual resources and viewer groups. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Visual Impact Assessment, Cohocton Wind Power Project - *Prior to Terraink*, evaluated visual impacts for Visual Impact Assessment (VIA) report for an 82 MW, 41-turbine project proposed in the Town of Cohocton in Steuben County, New York. The VIA report described visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated visual resources and viewer groups. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Visual Impact Assessment, Marble River Wind Farm - *Prior to Terraink*, assessed visual impacts for Visual Impact Assessment (VIA) report from 200 MW, 109-turbine project proposed for a 19,310-acre site in the Town of Clinton and Ellenburg in Clinton County, New York. The VIA report described visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated visual resources and viewer groups. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Visual Impact Assessment, Jordanville Wind Power Project - *Prior to Terraink*, coordinated study and prepared Visual Impact Assessment (VIA) report for a proposed 150 MW 75-turbine project proposed in the Towns of Stark and Warren in Herkimer County, New York. The VIA report described visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated visual resources and viewer groups. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Visual Impact Assessment, Dairy Hills Wind Farm - *Prior to Terraink*, evaluated visual impacts for Visual impact Assessment (VIA) report for a 160 MW, 80-turbine project proposed in the Towns of Castile, Covington, Perry, and Warsaw in Wyoming County, New York. The VIA report described visible components of the proposed project, defined the visual character of the study area, and inventoried and evaluated visual resources and viewer groups. The study also evaluated potential project visibility within the study area, identified key views and assessed visual impacts associated with the proposed wind power project.

Jamestown Board of Public Utilities Power Plant and Operations Center VIA - *Prior to Terraink*, evaluated visual impacts for Visual Assessment (VIA) report for a 40 MW clean-coal power-generating plant and operations center in Jamestown, New York. The VIA report described the analysis of project visibility, including view shed analysis and field verification. Visual impacts of the project were assessed by creating computer models of the proposed facilities and computer-assisted visual simulations of potential impacts as viewed from representative viewpoints. The report listed conclusions concerning potential visually sensitive receptors and identified mitigation options, which included recommendations regarding design and siting, the color and texture of built materials and lighting.

Richard C. Smardon, MLA, PhD
Certified Environmental Professional (CEP)

education

University of California, PhD in Environmental Planning, 1982.

University of Massachusetts, Master of Landscape Architecture, 1973.

University of Massachusetts, Bachelor of Sciences in Environmental Design, 1970.

professional certification

Certified Environmental Professional, 2013

employment history

Independent Consultant, 2002.

Vice-President, Integrated Site, Landscape Architects, PC, 1990-2002.

Intermittent Faculty appointment, USCOE Water Exp. Station, Vicksburg, 1988-1990.

Chief technical Consultant, Ecology Compliance Ltd., Syracuse, NY, 1981-1983.

Intermittent Faculty appointment, US Geological Survey, Reston, VA. 1980-1982.

Post Graduate Research Landscape Architect, UC Berkeley, CA, 1977-1979.

Landscape Architect, USDA Pacific SW For. & Range Exp. Station, 1977.

Environ. Impact Assessment Specialist, USDA Ext. Serv. OSU Corvallis 1975-1976.

Associate Planner, Ex. Office of Env. Affairs, Boston and Amherst, MA, 1973-1975.

Env. Planner/Land. Arch with Wallace, Floyd, Ellenzweig and Moore 1972-1973.

Project Manager, Pressley Associates, Inc., Cambridge, MA, 1995 – 1998.

representative project experience

Antrim Wind Farm, NH - Consultant to legal counsel for critiquing opposition VIA for Antrim wind farm project in New Hampshire.

Scenic Hudson - Consultant to Scenic Hudson for assessing multiple electric transmission line corridor impacts in the Hudson River Valley.

Offshore Wind, MA - Sub consultant to ESS Group for review visual simulations of offshore wind off Massachusetts for BOEM.

Loveless Farm, Skaneateles, NY – Review of Supplemental Visual and Environmental Impact Mitigation Measures.

Portageville Rail Bridge - Sub consultant to C & S for methodology for Portageville Rail Bridge Visual Impact Assessment.

Offshore Wind, MA - Consultant to Cape Cod Commission to develop visual impact assessment methodology for offshore wind farms within Massachusetts state jurisdiction.

Wireless Telecommunication Facility, NY - Review of Visual Resource Evaluation Report for Proposed Wireless Telecommunication Facility in Town of Livingston NY for Scenic Hudson.

Carvel Property Development, NY - Review of Visual Resources and Community Character, Carvel Property Development Towns of Pine Plains, Milan, Dutchess County NY.

New York Regional Interconnect (NYRI), NY - Review of visual impacts associated with proposed Route of the New York Regional Interconnect (NYRI) from Marcy NY to Orange County NY supported by multi county association

Maine - Consultant to Plum Creek for visual quality control work for 26,000-acre development in the Moosehead Lake region Maine.

Archer Mine, NY - Critique and review of Archer Mine in the Town of Milan, NY

LNG Terminal, NY - Expert Reviewer for NYS Department of State for visual portions of LNG Terminal proposed for Long Island Sound – included written response in regard to NYS CZM considerations plus Long Island Sound visual landscape compatibility issues.

Long Island Offshore Wind Farm, NY - Visual quality control expert for Long Island offshore wind farm working with several other firms - project tabled.

Cobleskill Stone Quarry Expansion, NY - Consultant to Save Our Schoharie for review of visual impact section of Cobleskill Stone quarry expansion project.

Tahoe Regional Planning Agency - Expert reviewer for Tahoe Regional Planning Agency for visual shoreline development standards for Lake Tahoe, California and Nevada.

California Energy Commission - External Reviewer to California Energy Commission for revamping Visual Impact Assessment Procedures

Cape Wind Turbine Farm - Neutral third-party VIA overview for the Cape Wind Turbine Farm.

Thalle Quarry Expansion, NY - Review of VIA of dolomite quarry expansion in Fishkill, NY for Scenic Hudson, Inc. resulted in negotiated mitigation measures.

St. Lawrence Cement Facility, NY - Neutral third-party overview of VIA for St. Lawrence Cement facility proposed for Hudson, New York.

External reviewer for NYS Department of Environmental Conservation Policy Procedure memorandum on visual resource assessment.

Co-Generation Plant, NY - Review and Critique of VIA for Bowline 3 Proposed co-generation Plant in Haverstraw, NY. Work included visual inventory of key viewpoints, computer visibility analysis, simulations from river edge viewpoints and direct testimony. Visual plus fisheries impacts resulted in dry cooling recommended by the administrative law judge and the NYSDEC Commissioner.

Bescicorp Newsprint Recycling and Co-Generation Facility, NY - Project manager for VIA work for three different sites. Recently completed PSC/DEC joint hearings in fall of 2003.

Torne Valley Energy Center, MO - Project manager for VIA quality control for Black and Veatch, Kansas City.

Bethlehem Energy Center, NY - Project manager for VIA critique for NYSDEC, Albany.

Twin Tier Co-generation power Plant in Loundsbury, NY – assisted in VIA for this project with Young Associates (Green, NY). Work in included visual inventory, visibility assessment and landscape classification within a 5-mile radius along the Susquehanna River.

Athens Co-generation Facility on Hudson River, NY - Project manager for counter VIA for Scenic Hudson, Poughkeepsie, NY. Included redo of VIA, simulations and testimony in PSC hearings. Resulted in major new visual mitigation measures.

Route 8 (Riparius) over the Hudson River, NY - Project Manager for VIA, section 4(f) plus wild and scenic river assessment-subcontractor to Barton and Loguidice, Syracuse.

Route 17, Five-Mile Point to Occanum, NY - Project Manager for VIA. Subconsultant to Harza Northeast, Utica, NY.

Hoosick Mine, VT - Project Manager for VIA of proposed limestone mine near Bennington, Vermont. Subcontractor to Spectra, Latham. NY- included testimony in joint NYSDEC hearings.

Hydroelectric Facility, NY - Visual analysis of proposed small hydroelectric facility in Barbarsville Falls NY for Nature Conservancy, Troy, NY. Resulted in one of the few projects refused a FPC license because of aesthetic and economic grounds.

Niagara Mohawk Power Corporation Public Involvement Plan, NY – qualified as one of the consulting firms assisting Niagara Mohawk in environmental planning, public relations, public participation, visual analysis and innovative design solutions for electronic transmission facilities throughout the State of New York.

Project Independence Cogeneration Facility, Scriba, NY - Project Manager for VIA redo with Environmental Design and Research for Sithe Energies, Oswego, NY.

Snoqualmie Falls Relicensing, WA - aesthetic & visual impact review for existing hydro facility in Snoqualmie, WA. Subconsultant to EBASCO, Bellingham WA. Very controversial project involving low flow maintenance. Native American sacred significance of the falls plus regular VIA issues.

St. Elizabeth's Hospital Proposed Medical Office Complex - as Project manager we developed a scoping process for assessing aesthetic impact for this project as part of the State Environmental Quality Review Act (SEQRA) > Outcome was a more fully tuned site and landscaping plan that incorporated visual mitigation to minimize impact to surrounding residences.

Deerfield Landfill Site Evaluation, NY – Project manager for a VIA, wetland assessment and wild life species review was conducted for a proposed land fill site in upstate New York for a local citizens group (CALIS). This contributed toward elimination of the site from consideration as a landfill.

Jocelyn Gavitt, RLA
Principal

education

SUNY College of Environmental Science and Forestry, Master of Science in Landscape Architecture, 2007.

Cornell University, Bachelor of Science in Landscape Architecture, 1993.

University of Copenhagen, Denmark International Study Program, 1992.

professional certification

Registered Landscape Architect, New York State License #1768-1

Registered Landscape Architect, North Carolina State License #910

employment history

Principal, Gavin Associates, Cazenovia, NY, 2003-Present.

Visiting Instructor, Department of Landscape Architecture, SUNY College of Environmental Science and Forestry, 2004-Present.

Principal, Trinity Architecture and Planning, Inc. Winston-Salem, NC, 1999-2001.

Landscape Architect/Project Manager, Architectural Design Associates, PA, Winston-Salem, NC, 1997-1999.

Landscape Architect/Project Manager, GS Miller Landscape Architecture, Winston-Salem, NC, 1995-1997.

Landscape Architect/Intern, Pashek Associates, PA, Pittsburgh, PA, 1993-1995.

Landscape Architect/Intern, Fallingwater, Mill Run, PA, 1993.

representative project experience

Cassadaga Wind Project, Chautauqua County, NY - Provided expert visual assessment for a 62 turbine, 126 MW project.

Merrimack Valley Reliability Project, NH & MA - Provided expert visual assessment for a new 345 kV transmission line and associated transmission line rebuilds along an existing 17-mile National Grid and Public Service of New Hampshire right-of-way in southern New Hampshire.

New England East-West Solution (NEEWS), New England States - Provided expert visual assessment for a proposed 75-mile, 345 kV and 115 kV Transmission Line.

Block Island Wind Project, MA - Provided expert visual assessment for the proposed Block Island Wind Farm and associated on-shore transmission facilities. The wind farm is a 30 MW facility located in the Atlantic Ocean, 3 miles off the coast. On-shore facilities include electrical lines, switchyards, and substations.

Allegany Wind Project, Cattaraugus County, NY - Provided expert visual assessment for a 29-turbine, 72.5 MW project.

Rhode Island Reliability Project, RI - Provided expert visual assessment for the Rhode Island Reliability Project and Interstate Reliability Project being proposed by National Grid. These projects involve various transmission system modifications and upgrades, including new and reconfigured overhead transmission lines and substations in Massachusetts and Rhode Island.

Howard Wind Project, Steuben county, NY - Provided expert visual assessment for a 27-wind turbine generator power project with access roads and electrical substation.

NY Regional Interconnect, NY - Provided expert visual assessment for a +/- 400 kV high voltage direct current ("HVDC") electric transmission line, and associated facilities, that would extend approximately 190 miles from Oneida County to Orange County, New York.

Dutch Hill Wind Project, Cohocton, NY - Provided expert visual assessment.

Gavitt Associates, NY - Sole proprietor of firm specializing in site design, home design and urban/community design. Organize all aspects of business management including marketing, accounting and project design. Interact with clients, contractors and government officials to implement projects. Create master plans and construction documents for many project types including community planning projects, residential architecture and landscape architecture.

SUNY College of Environmental Science and Forestry, NY - Developed, implemented and currently teach a new course elective for program. Coordinate and teach undergraduate design studios.

Trinity Architecture and Planning, Inc., NC - Founded multidisciplinary firm with two registered architects. Coordinated contracts for projects and established budgets for overall firm profitability. Identified and hired consulting firms to provide necessary support on projects such as structural, acoustical, plumbing, mechanical, and electrical engineering. Developed close working relationships with client groups and contractors. Created feasibility studies, master plans, and construction documents for all proposed site construction. Met with local and state officials and planning boards to achieve necessary approvals for construction of projects.

Architectural Design Associates, NC - Provided site design and documentation for all firm projects. Coordinated with registered architects on staff. Performed extensive research and analysis on all properties prior to designing. Completed feasibility studies and master plans. Created working drawings including layout, grading, and planting plans. Designed all details for project construction and created specifications to correlate with drawings. Fielded questions during the bidding process and supervised construction. Guided and supervised drafting technicians assisting with projects.

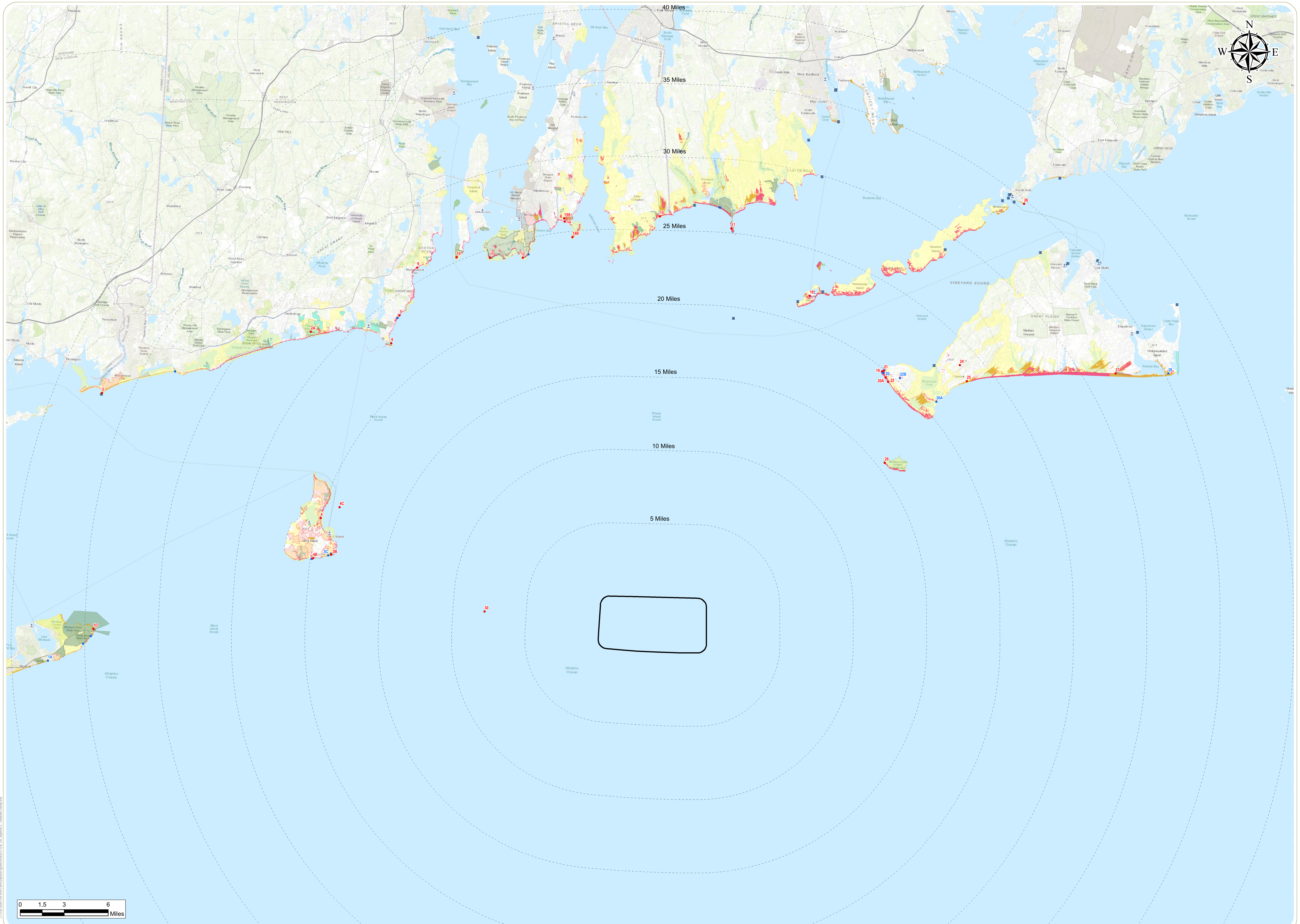
GS Miller Landscape Architecture, NC - Managed projects for key clients. Coordinated site due diligence, feasibility studies, and working drawings for various projects. Worked closely with owners, architects, engineers and contractors.

Pashek Associates, PA - Assisted with all aspects of design and construction administration on many publicly funded projects. Worked closely with clients and other professional consultants.

Fallingwater, PA - Summer internship at Frank Lloyd Wright's famously designed home for the Kaufmann Family. Designed and implemented path lighting, site drainage, steps and other projects on the estate.

Appendix E

Large Scale Viewshed Analysis Map



South Fork Wind Farm

New York/Rhode Island, US

Appendix E: Visually Sensitive Resources and Preliminary Area of Potential Effect

- Simulated Key Observation Point
- Candidate Key Observation Point
- Seaport
- Lighthouse
- Aviation Obstruction Lights Potentially Visible
- Preliminary Area of Potential Effect
- National Historic Landmark
- National Register of Historic Places
- National Natural Landmark
- Scenic Area
- Scenic Overlook
- National Wildlife Refuge
- State Wildlife Management Area
- State Parks
- State Nature Preserve
- State Beach
- Scenic Road
- National Recreation Trail
- State Bike Route
- State Fishing and Boating Access
- State Conservation Areas
- 5-Mile Increment Project Buffers
- Maximum Work Area

Notes:

1. Basemap: ESRI ArcGIS Online "World Ocean Base" map service.
2. The Project is not anticipated to be visible from areas greater than 40 miles from the proposed turbines due to the combined effects of visibility diminishment over distance and curvature of the earth.
3. The zone of visual influence was determined by GIS viewshed analysis based on a 4-meter resolution Digital Surface Model (DSM) produced from airborne lidar survey. Areas of predicted visibility take into account visual screening that would be provided by topography, buildings, structures, signs, groupings of trees or large individual trees, and other objects that may obstruct visibility from a given vantage point. In small areas of the study area where lidar data is not available, predicted visibility is based on screening effects of topography and mapped forest vegetation.
4. Viewshed analysis based on maximum blade tip height of 256 meters (840 feet).
5. This map was generated in ArcMap on April 23, 2019.
6. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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