# Cumulative Historic Resources Visual Effects Analysis – Revolution Wind Farm and Revolution Wind Export Cable Project

**AUGUST 2022**

PREPARED FOR

**U.S. Department of the Interior,**
**Bureau of Ocean Energy Management,**
**Office of Renewable Energy Programs**

PREPARED BY

**SWCA Environmental Consultants**

REDACTED

# CUMULATIVE HISTORIC RESOURCES VISUAL EFFECTS ANALYSIS – REVOLUTION WIND FARM AND REVOLUTION WIND EXPORT CABLE PROJECT

Prepared for

**U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs**
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166
Attention: Sarah C. Stokely

Prepared by

**SWCA Environmental Consultants**
15 Research Drive
Amherst, Massachusetts 01002

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# ABSTRACT

The Bureau of Ocean Energy Management (BOEM), with contractor support from SWCA Environmental Consultants (SWCA), prepared this cumulative historic resources visual effects analysis (CHRVEA) for the Revolution Wind Farm (RWF) and Revolution Wind Export Cable Project (the Project). BOEM has determined that the Project has the potential to contribute to the cumulative visual effects on historic properties (as defined at 36 CFR 800.16(l)) in combination with the potential effects of other proposed actions, most specifically other offshore wind energy development activities in the geographic analysis area (GAA). In considering the potential for cumulative visual effects of the Project on historic properties, including National Historic Landmarks (NHLs, as defined at 36 CFR 800.16(p)), the CHRVEA assists BOEM in complying with Sections 106 and 110(f) of the National Historic Preservation Act (NHPA), as amended (54 USC 306108 and 54 USC 306107), and the implementing regulations for the Section 106 process (36 CFR 800). At 36 CFR 800.10, the Section 106 regulations provide *Special requirements for protecting National Historic Landmarks* that reemphasize compliance with Section 110(f), for the agency "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to any National Historic Landmark that may be directly and adversely affected by an undertaking."

The onshore and offshore historic resources visual effects analysis (HRVEA) reports prepared for the Project by the lessee (Revolution Wind, LLC) identify historic properties (including NHLs) within a preliminary area of potential effects (APE) for visual effects analysis, the area within which visual adverse effects could result from wind turbine generator (WTG) installation (Environmental Design and Research [EDR] 2021a, 2021b, 2022a, 2022b). In a review of the HRVEA reports for the Project, BOEM has determined that the Project would result in potential visual adverse effects to the 101 historic properties within the preliminary APE of coastal Massachusetts and Rhode Island. Although the APE extends to Connecticut and Long Island, New York, no historic properties were determined to be adversely affected in those states. As BOEM presented to NHPA Section 106 consulting parties on maps in a meeting on December 17, 2021, the GAA for the National Environmental Policy Act (NEPA) analysis and the APE for the NHPA Section 106 review are the same areas. BOEM plans to delineate the final area of potential effects (APE) with releases of the finding of effect report, and this report will be shared with the consulting parties for their review and comment before the draft environmental impact statement (EIS) is issued publicly. BOEM has elected to use the NEPA substitution process for Section 106 purposes pursuant to 36 CFR 800.8(c).

Among the 101 adversely affected historic properties, the offshore HRVEA identifies five NHLs in Rhode Island and two traditional cultural properties (TCPs) in Massachusetts that would be adversely affected by the Project in the APE (EDR 2022a, 2022b). Th five NHLs consist of Block Island Southeast Lighthouse, Ocean Drive Historic District, Bellevue Avenue Historic District, The Breakers, and Marble House. [redacted]

Each of the 101 historic properties noted above retains its maritime setting, and that maritime setting contributes to the property's NRHP eligibility and continues to offer significant seaward views. These seaward views support the integrity of the maritime setting and include vantage points with the potential for an open view from each property toward RWF WTGs (EDR 2021b, 2022a).

The Project would contribute proportionally between nearly 10 and nearly 90 percent of the cumulative adverse effect, owing to the location and intensity of the foreseeable build-out attributed to other offshore wind energy development activities relative to the location of the historic property. This is based on full buildout of the Project (to up to 100 WTGs and two offshore substations [OSS]) and all other reasonably foreseeable offshore wind projects currently planned in the adjacent lease areas (modeled at 955 WTG and three OSS [EDR 2021b]). The proportion of visible WTG elements added by the project ranges from 9.6 percent at [redacted] TCP, where all modeled WTGs and OSS would

potentially be visible, to 87.2 percent at the historic U.S. Weather Bureau Station at Block Island, where the Project WTGs would be visible in greater numbers than the combination of all other future wind farms planned in adjacent OCS lease areas (41 Project WTGs would potentially be visible there versus six WTGs from other planned projects).

Intensity of visual impacts from WTG and offshore substation development would reduce with distance from historic properties and with lighting and design actions that would be undertaken by the Project to minimize impacts; however, cumulative adverse effects would not be fully eliminated at the 101 adversely affected historic properties. This CHRVEA recommends BOEM consider additional mitigation to be determined in BOEM's consultation with consulting parties.

The CHRVEA assesses the Project's offshore elements' cumulative visual effects (daytime and nighttime) on historic properties when combined with past, present, and reasonably foreseeable offshore wind energy development activities in the APE for the Project. CHRVEA analyses inform BOEM's determination of overall Project effects on historic properties and consultation on those effects. BOEM plans to provide the finding of effect report to the consulting parties before the Project EIS. BOEM remains in consultation with all consulting parties under Section 106 of the NHPA, including Native American Tribal Nations that may have concerns for properties of traditional cultural and religious significance in the APE; State Historic Preservation Offices/Division for Historic Preservation; Advisory Council on Historic Preservation; National Park Service; and other cooperating federal agencies, local governments, and historical interest groups. BOEM will continue to consult with these parties on this assessment of cumulative effects and the resolution of all adverse effects. BOEM will continue to consult with the consulting parties to resolve the adverse effects through avoidance, minimization, and mitigation measures by executing a memorandum of agreement or listing the resolution measures in the record of decision pursuant to 36 CFR 800.8(c) because BOEM has elected to use the NEPA substitution for this Section 106 consultation.

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# 1 INTRODUCTION

This cumulative historic resources visual effects analysis (CHRVEA) assesses the contribution of the Revolution Wind Farm (RWF) and Revolution Wind Export Cable Project (the Project) to cumulative visual effects on historic properties as defined at 36 CFR 800.16(l) and inclusive of National Historic Landmarks (NHLs) as defined at 36 CFR 800.16(p). Cumulative effects on historic properties are additive effects that the Project could have when combined with other past, present, or reasonably foreseeable future actions, regardless of which agency or person undertakes the actions (consistent with the definition of cumulative effects at 40 CFR 1508.1(g)(3), as amended April 20, 2022). Where the Bureau of Ocean Energy Management (BOEM) has determined that the Project has the potential to result in visual adverse effect to historic properties, this CHRVEA report analyzes where the effects of other reasonably foreseeable development activities may be additive to those of the Project, resulting in cumulative effects.

## 1.1 Project Background

BOEM is the lead federal agency responsible for the decision on whether to approve, approve with modifications, or disapprove the Project's construction and operations plan (COP) pursuant to 43 USC 1337(p). To further inform that decision, BOEM, with support from SWCA Environmental Consultants (SWCA), prepared this CHRVEA to assist in BOEM's compliance with Sections 106 and 110(f) of the National Historic Preservation Act (NHPA), as amended (54 USC 306108 and 54 USC 306107), and the implementing regulations for the Section 106 process (36 CFR 800). At 36 CFR 800.10, the Section 106 regulations provide *Special requirements for protecting National Historic Landmarks* that reemphasize compliance with Section 110(f), for the agency "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to any National Historic Landmark that may be directly and adversely affected by an undertaking."

BOEM has elected to use the National Environmental Policy Act (NEPA) substitution process for Section 106 purposes, as described in 36 CFR 800.8. These regulations provide for use of the NEPA substitution process to fulfill a federal agency's NHPA Section 106 review obligations in lieu of the procedures set forth in 36 CFR 800.3 through 800.6. Both the NEPA and NHPA processes allow consulting party participation. For more information on this substitution process see the Advisory Council on Historic Preservation (ACHP 2022) and Council on Environmental Quality (CEQ) and ACHP (2013). Consistent with the provisions for NEPA substitution, pursuant to 36 CFR 800.8(c)(4)(i)(A), BOEM will codify the resolution of adverse effects through a memorandum of agreement (MOA) for the Project.

In the COP, Revolution Wind, LLC (Revolution Wind) (formerly DWW Rev I, LLC) proposes to develop a commercial-scale offshore wind energy facility in BOEM Renewable Energy Lease Area OCS-A 0486 (Lease Area) with up to 100 wind turbine generators (WTGs), up to two offshore substations (OSSs), inter-array cables (IACs) buried under the seafloor linking the individual WTGs to the OSS, OSS interconnector cables under the seafloor linking the OSSs to each other, up to two offshore sub-seafloor export cables, a 3.1-acre landfall work area for the export cables at Quonset Point, a buried onshore transmission cable system, up to one onshore substation (OnSS) and adjacent interconnection facility (ICF) with a buried connection line, and an overhead connection from the ICF to the existing TNEC Davisville Substation (and the electrical grid in Rhode Island). The WTGs and OSSs, IACs, and OSS interconnector cables would be located in federal waters approximately 13 nautical miles (nm) (approximately 15 miles) east of Block Island, Rhode Island, and approximately 15 nm (approximately 17.25 miles) southeast of the coast of mainland Rhode Island. The offshore export cables would be buried below the seafloor surface within both federal and State of Rhode Island waters. The onshore transmission cabling, OnSS and ICF, and one grid connection would be located in Washington County,

Rhode Island. For the environmental impact statement (EIS) analysis of the Project, BOEM has identified other offshore wind energy development activities as the primary impact-producing factor that could potentially result in cumulative effects to historic properties. Specifically, the visual effects from the offshore elements (above-sea structures) of other wind energy development activities in BOEM lease areas adjacent to the Project (Figure 1) pose the greatest potential for cumulative effects to historic properties when combined with the visual effects of the offshore elements (above-sea structures) of the Project. The following discussion presents the reasonably foreseeable cumulative visual effects associated with other offshore wind energy development activities and the Project.

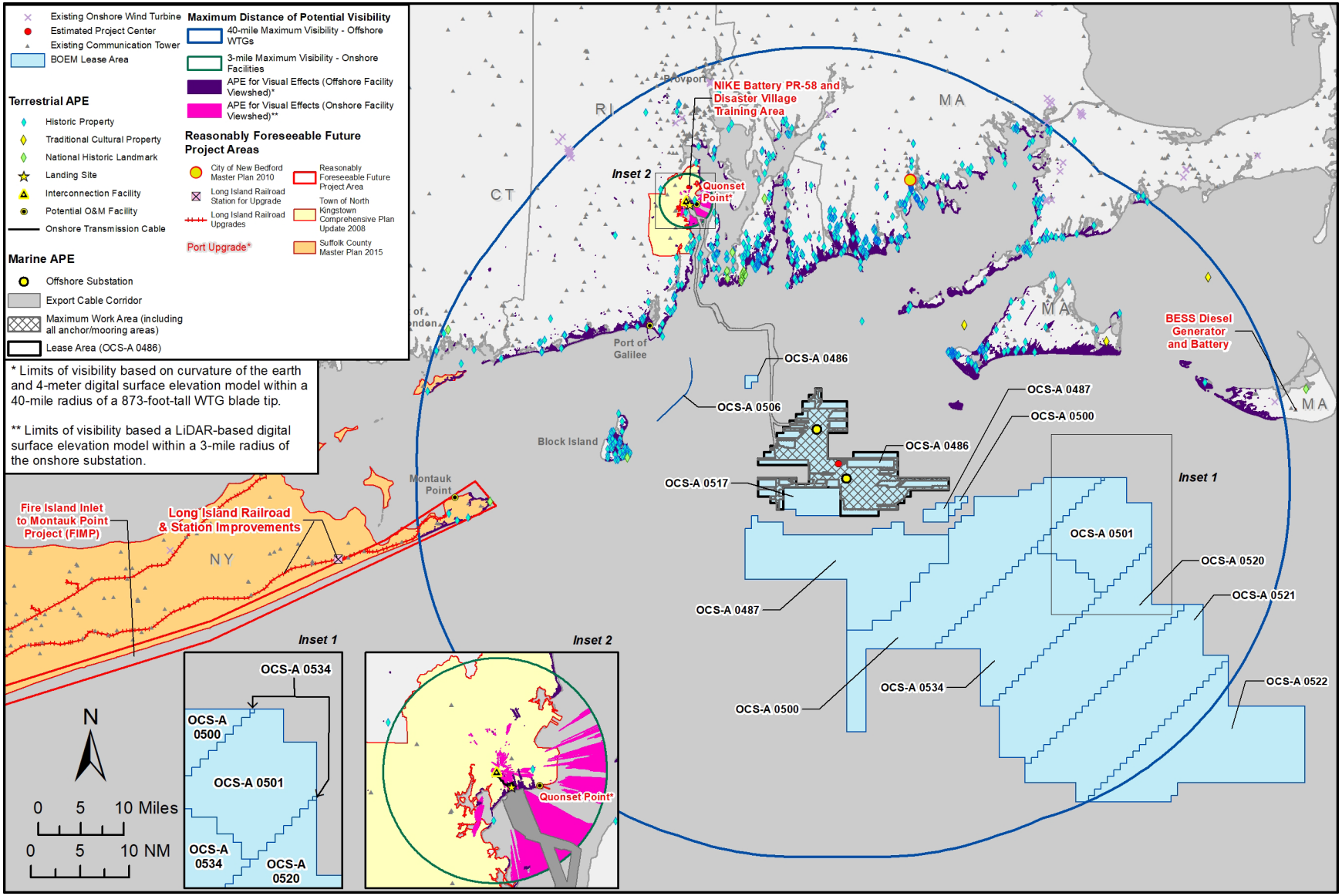


**Figure 1. Area of potential effects for the visual effects analysis within the maximum distance for potential visibility of offshore Project facilities.**

# 2 AREA OF POTENTIAL EFFECTS AND HISTORIC PROPERTIES IDENTIFIED

Visual effects from the Project have the potential to adversely affect historic properties within the Project's area of potential effects (APE). The onshore and offshore historic resources visual effects analysis (HRVEA) reports prepared for the Project by the lessee (Revolution Wind) identify historic properties (including NHLs) within a preliminary APE for visual effects analysis, the area within which visual adverse effects could result from WTG installation (Environmental Design and Research [EDR] 2021a, 2021b, 2022a, 2022b). As BOEM presented to NHPA Section 106 consulting parties on maps in a meeting on December 17, 2021, the geographic analysis area (GAA) for the NEPA analysis and the APE for the NHPA Section 106 review are the same areas. BOEM plans to delineate the final APE in the finding of effect report, which will be shared with the consulting parties for their review and comment before the draft EIS is issued publicly.

The APE encompasses the viewshed from which renewable energy structures would be visible and is hereafter referred to as the viewshed APE (see Figure 1). The viewshed APE for the Project includes the onshore coastal areas of Long Island, New York, Connecticut, Rhode Island, and Massachusetts. Visual effects associated with the Project and other offshore wind energy development activities in adjacent BOEM lease areas were assessed within the APE for the cumulative visual effects analysis. No effects are assessed to historic properties outside the APE. Offshore Project elements (e.g., WTGs) have a viewshed radius of 40 miles around the edge of the lease area and onshore elements have up to a 3-mile radius at the OnSS and ICF. These radii represent the maximum limit of theoretical visibility for each respective onshore or offshore Project component; however, these radii do not define the viewshed APE. Within these radii, the APE for viewshed resources is defined by those geographic areas only with potential visibility of Project components and excludes areas with obstructed views of Project components. On Figure 1, the viewshed APE appears in purple shading for offshore Project elements and pink shading for onshore Project elements.

The onshore and offshore HRVEA reports (EDR 2021a, 2022a) analyze the viewshed APE for the Project. The HRVEA study for offshore Project elements (EDR 2022a, 2022b) identifies aboveground historic properties that would be subject to visual adverse effects from offshore Project facilities (i.e., WTGs and OSSs). Viewshed analysis applied geographic information system modeling to take into account the true visibility of the Project (e.g., visual barriers such as topography, vegetation, and non-historic structures that obstruct the visibility of the Project components). As a result, this cumulative effects analysis addresses those historic properties found to be adversely affected by visual effects from the Project.

Visual effects on historic properties tend to risk the alteration of characteristics that qualify a property for the National Register of Historic Places (NRHP) when these effects diminish the integrity of setting and/or feeling of that property. The National Park Service (NPS) defines setting and feeling as follows:

- Setting is the physical environment of a historic property and refers to the character of the place in which the property played its historical role. The physical features that constitute the setting of a historic property can be either natural or human made, including such elements as topographic features, vegetation, features/landscape structures, and relationships between buildings and other features or open space. These features and their relationships are considered between the property and its outside surroundings as well as inside the boundaries of the property (NPS 1997).
- Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's

> historic character. A historic property retaining original design, materials, workmanship, and setting might relate the feeling of its historic period of significance—its historic feel (NPS 1997).

The offshore HRVEA for the Project assesses the "overall sensitivity of an above-ground historic property to visual impacts" in considering whether the potential visibility of WTGs and OSSs could affect the integrity of a historic property and, thereby, its ability to convey its historic significance (EDR 202a:103):

> EDR's assessment of potential visual effects to above-ground historic properties is intentionally conservative and intended to identify possible impacts that may warrant further consideration through future consultation with agencies and other stakeholders during the Section 106 consultation process. (EDR 2022a:97
>
> [Q]uantitative assessment was intended to provide a baseline level of effects which was then supplemented with a qualitative assessment of the contribution of a property's maritime setting to its historic significance, the level of Project visibility, relationship of specific views towards the Project to the location, design, and historic use of . . . above-ground historic properties, and the overall sensitivity of each above-ground historic propert[y] to visual effects. (EDR 2022a:98)

The offshore HRVEA recommends historic properties to BOEM for further consideration regarding the potential for adverse effects to result from the Project (EDR 2021b, 2022a, 2022b). BOEM, in its review of the HRVEA reports, determined potential adverse effects from visual impacts from offshore WTGs and, potentially, from OSSs to 101 historic structures, buildings, sites, and districts on Block Island, Rhode Island; Martha's Vineyard, Chappaquiddick Island, and the Elizabeth Islands, Massachusetts; as well as along coastal mainland Rhode Island and Massachusetts (see Figure 1). Of the 101 historic properties in the viewshed APE that could be susceptible to visual adverse effects from the offshore components of the Project, 37 are listed on the NRHP (five of which are also NHLs) and the remaining 64 are properties that have been determined to be eligible for the NRHP (a total of 33) or (a total of 31) are included in the inventories of the Rhode Island Historical Preservation and Heritage Commission (RIHPHC), Massachusetts Historical Commission (MHC), or local entities with final determinations of NRHP eligibility pending. Two of these aboveground historic properties within the viewshed APE are NRHP-eligible Traditional Cultural Properties [redacted]. Table 1 presents these 101 aboveground historic properties by order of their distance to the nearest possible Project WTG and detailed mapping is presented in Appendix A.

For the 101 historic properties listed in Table 1 that would have adverse effects from offshore Project elements, the offshore HRVEA concludes the following:

> The introduction of the wind turbines would likely constitute a change in the physical environment of an above-ground historic property. This is particularly true for those properties for which open views of the ocean are integral, such as lighthouses and recreation areas. In some cases, the potential visual effects on above-ground historic properties may be mitigated by the presence of modern infrastructure which diminishes the existing integrity of setting, the presence of commercial shipping vessels on the ocean, and the effect of distance on visibility. However, even those properties which would likely experience reduced visual effects resulting from existing modern elements, partially obstructed visibility by landscape features (vegetation and topography) or other buildings would be potentially affected by the Project due to its unprecedented size and scale. (EDR 2022a:146).

See Section 2.1 for further summary of the 101 adversely affected historic properties.

The HRVEA assessed where visual adverse effects to historic properties could potentially result from proposed Project WTGs and OSSs. This CHRVEA report further assesses where the WTGs and OSSs proposed for other offshore wind energy development activities may combine with those of the Project to produce cumulative visual effects on historic properties in the APE.

**Table 1. Aboveground Historic Properties Subject to Adverse Effects within the Viewshed Area of Potential Effects for Offshore Development, in Order of Distance to nearest Revolution Wind Farm Wind Turbine Generator**

| Survey ID | Visually Sensitive Resource | Municipality | County | State | Property Designation | Distance to nearest RWF WTG (miles) |
|---|---|---|---|---|---|---|
| TCP-3 | [redacted] TCP | [redacted] | [redacted] | MA | NRHP-eligible (BOEM determined) | 6 |
| 300 | Sakonnet Light Station | Little Compton | Newport | RI | NRHP-listed resource | 12.7 |
| 297 | Warren Point Historic District | Little Compton | Newport | RI | NRHP-eligible resource (RIHPHC determined) | 12.9 |
| 299 | Abbott Phillips House | Little Compton | Newport | RI | RIHPHC historic resource | 13 |
| 504 | Flaghole | Chilmark | Dukes | MA | MHC historic inventory site | 13.3 |
| 296 | Stone House Inn | Little Compton | Newport | RI | NRHP-listed resource | 13.4 |
| 503 | Simon Mayhew House | Chilmark | Dukes | MA | MHC historic inventory site | 13.5 |
| 496 | 71 Moshup Trail | Aquinnah | Dukes | MA | MHC historic inventory site | 13.7 |
| 484 | Vanderhoop, Edwin DeVries Homestead | Aquinnah | Dukes | MA | NRHP-listed resource | 13.7 |
| 480 | Gay Head - Aquinnah Shops Area | Aquinnah | Dukes | MA | MHC historic inventory site | 13.7 |
| 474 | Flanders, Ernest House, Shop, Barn | Aquinnah | Dukes | MA | MHC historic inventory site | 13.8 |
| 495 | 3 Windy Hill Drive | Aquinnah | Dukes | MA | MHC historic inventory site | 13.9 |
| 479 | Gay Head Light | Aquinnah | Dukes | MA | NRHP-listed resource | 13.9 |
| 485 | Tom Cooper House | Aquinnah | Dukes | MA | MHC historic inventory site | 14 |
| 497 | Leonard Vanderhoop House | Aquinnah | Dukes | MA | MHC historic inventory site | 14 |
| 490 | Theodore Haskins House | Aquinnah | Dukes | MA | MHC historic inventory site | 14.1 |
| 486 | Gay Head - Aquinnah Coast Guard Station Barracks | Aquinnah | Dukes | MA | MHC historic inventory site | 14.1 |
| 491 | Gay Head - Aquinnah Town Center Historic District | Aquinnah | Dukes | MA | NRHP-listed resource | 14.2 |
| 303 | Gooseneck Causeway | Westport | Bristol | MA | MHC historic inventory site | 14.8 |
| 304 | Gooseberry Neck Observation Towers | Westport | Bristol | MA | MHC historic inventory site | 14.8 |
| 540 | Spring Street | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 14.9 |
| 590 | Capt. Mark L. Potter House | New Shoreham | Washington | RI | RIHPHC historic resource | 14.9 |
| 276 | Tunipus Goosewing Farm | Little Compton | Newport | RI | NRHP-Eligible Resource (RIHPHC Determined) | 15 |
| 543 | WWII Lookout Tower – Spring Street | New Shoreham | Washington | RI | NRHP-Eligible Resource (RIHPHC Determined) | 15.1 |
| 251 | Westport Harbor | Westport | Bristol | MA | MHC historic inventory site | 15.2 |
| 290 | Bellevue Avenue Historic District NHL | Newport | Newport | RI | NHL | 15.2 |

| Survey ID | Visually Sensitive Resource | Municipality | County | State | Property Designation | Distance to nearest RWF WTG (miles) |
|---|---|---|---|---|---|---|
| 548 | Block Island Southeast Light | New Shoreham | Washington | RI | NHL | 15.2 |
| 595 | New Shoreham Historic District | New Shoreham | Washington | RI | Local Historic | 15.3 |
| 536 | Spring Cottage | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.3 |
| 531 | Old Harbor Historic District | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC-determined) | 15.3 |
| 538 | Captain Welcome Dodge Sr. | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.3 |
| 541 | Caleb W. Dodge Jr. House | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.3 |
| 535 | Spring House Hotel | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.4 |
| 545 | Pilot Hill Road and Seaweed Lane | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.4 |
| 222 | Ocean Drive Historic District NHL | Newport | Newport | RI | NHL | 15.7 |
| 298 | Marble House NHL | Newport | Newport | RI | NHL | 15.7 |
| 597 | Ochre Point – Cliffs Historic District | Newport | Newport | RI | NRHP-listed resource | 15.8 |
| 546 | WWII Lookout Tower at Sands Pond | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.8 |
| 552 | Sea View Villa | Middletown | Newport | RI | RIHPHC historic resource | 15.9 |
| 295 | Rosecliff/Oelrichs (Hermann) House/ Mondroe (J. Edgar) House | Newport | Newport | RI | NRHP-listed resource | 15.9 |
| 293 | The Breakers NHL | Newport | Newport | RI | NHL | 15.9 |
| 516 | Corn Neck Road | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 15.9 |
| 302 | Clam Shack Restaurant | Westport | Bristol | MA | MHC historic inventory site | 15.9 |
| 301 | Horseneck Point Lifesaving Station | Westport | Bristol | MA | MHC historic inventory site | 15.9 |
| 553 | Whetstone | Middletown | Newport | RI | RIHPHC historic resource | 16 |
| 284 | The Bluff/John Bancroft Estate | Middletown | Newport | RI | RIHPHC historic resource | 16 |
| 288 | Clambake Club of Newport | Middletown | Newport | RI | NRHP-listed resource | 16 |
| 530 | Old Town and Center Roads | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16 |
| 526 | Beach Avenue | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.1 |
| 519 | Mitchell Farm | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.1 |
| 523 | Indian Head Neck Road | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.2 |
| 168 | Westport Pt. Revolutionary War Properties | Westport | Bristol | MA | MHC historic inventory site | 16.2 |
| 261 | Indian Avenue Historic District | Middletown | Newport | RI | NRHP-listed resource | 16.2 |
| 278 | St. Georges School | Middletown | Newport | RI | NRHP-listed resource | 16.3 |
| 528 | Hygeia House | New Shoreham | Washington | RI | NRHP-listed resource | 16.3 |

| Survey ID | Visually Sensitive Resource | Municipality | County | State | Property Designation | Distance to nearest RWF WTG (miles) |
|---|---|---|---|---|---|---|
| 527 | U.S. Weather Bureau Station | New Shoreham | Washington | RI | NRHP-listed resource | 16.3 |
| 549 | Miss Abby E. Vaill/1 of 2 Vaill cottages | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.4 |
| 550 | Hon. Julius Deming Perkins / ”Bayberry Lodge” | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.4 |
| 542 | Lakeside Drive and Mitchell Lane | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.5 |
| 280 | Land Trust Cottages | Middletown | Newport | RI | NRHP-eligible resource (RIHPHC determined) | 16.6 |
| 482 | Russell Hancock House | Chilmark | Dukes | MA | MHC historic inventory site | 16.6 |
| 163 | Westport Point Historic District (1 of 2) | Westport | Bristol | MA | NRHP-eligible resource (MHC determined) | 16.7 |
| 164 | Westport Point Historic District (2 of 2) | Westport | Bristol | MA | NRHP-listed resource | 16.7 |
| 551 | Mohegan Cottage/Everett D. Barlow House | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.7 |
| 266 | Paradise Rocks Historic District | Middletown | Newport | RI | RIHPHC historic resource | 16.8 |
| 547 | Lewis- Dickens Farm | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.8 |
| 525 | Island Cemetery/Old Burial Ground | New Shoreham | Washington | RI | RI Historical Cemetery | 16.8 |
| 279 | Kay St.-Catherine St.-Old Beach Rd. Historic District/The Hill | Newport | Newport | RI | NRHP-listed resource | 16.9 |
| 532 | Beacon Hill Road | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.9 |
| 533 | Nathan Mott Park | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 16.9 |
| 515 | Block Island North Lighthouse | New Shoreham | Washington | RI | NRHP-listed resource | 17.1 |
| 522 | Champlin Farm | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 17.1 |
| 517 | Hippocampus/Boy’s Camp/ Beane Family | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 17.2 |
| 520 | U.S. Lifesaving Station | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 17.4 |
| 518 | U.S. Coast Guard Brick House | New Shoreham | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 17.4 |
| 521 | Peleg Champlin House | New Shoreham | Washington | RI | NRHP-listed resource | 17.5 |
| 469 | Hancock, Captain Samuel - Mitchell, Captain West House | Chilmark | Dukes | MA | NRHP-eligible resource (MHC determined) | 17.6 |
| 508 | Scrubby Neck Schoolhouse | West Tisbury | Dukes | MA | MHC historic inventory site | 18 |
| 345 | Point Judith Lighthouse | Narragansett | Washington | RI | NRHP-listed resource | 18.2 |
| 245 | Bailey Farm | Middletown | Newport | RI | NRHP-listed resource | 18.3 |
| 226 | Beavertail Light | Jamestown | Newport | RI | NRHP-listed resource | 18.4 |
| 582 | Horsehead/Marbella | Jamestown | Newport | RI | NRHP-listed resource | 18.6 |
| 333 | Ocean Road Historic District | Narragansett | Washington | RI | NRHP-listed resource | 18.9 |
| 335 | Dunmere | Narragansett | Washington | RI | NRHP-listed resource | 19.1 |

| Survey ID | Visually Sensitive Resource | Municipality | County | State | Property Designation | Distance to nearest RWF WTG (miles) |
|---|---|---|---|---|---|---|
| 86 | Puncatest Neck Historic District | Tiverton | Newport | RI | RIHPHC historic resource | 19.4 |
| 576 | Fort Varnum/Camp Varnum | Narragansett | Washington | RI | NRHP-eligible resource (RIHPHC determined) | 19.6 |
| 156 | Salters Point | Dartmouth | Bristol | MA | MHC historic inventory site | 19.7 |
| 578 | Dunes Club | Narragansett | Washington | RI | NRHP-listed resource | 19.8 |
| 329 | Life Saving Station at Narragansett Pier | Narragansett | Washington | RI | NRHP-listed resource | 19.8 |
| 330 | The Towers Historic District | Narragansett | Washington | RI | NRHP-listed resource | 19.8 |
| 591 | Narragansett Pier MRA | Narragansett | Washington | RI | NRHP-listed resource | 19.8 |
| 328 | The Towers/Tower Entrance of Narragansett Casino | Narragansett | Washington | RI | NRHP-listed resource | 19.9 |
| TCP-1 | [redacted] TCP | [redacted] | [redacted] | MA | NRHP-eligible resource (BOEM determined) | 20 |
| 343 | Brownings Beach Historic District | South Kingstown | Washington | RI | NRHP-listed resource | 21.8 |
| 444 | Tarpaulin Cove Light | Gosnold | Dukes | MA | NRHP-listed resource | 22.2 |
| 391 | Clark's Point Light | New Bedford | Bristol | MA | NRHP-listed resource | 24.6 |
| 390 | Fort Rodman Historic District | New Bedford | Bristol | MA | NRHP-eligible resource (MHC determined) | 24.6 |
| 392 | Fort Taber Historic District | New Bedford | Bristol | MA | NRHP-listed resource | 24.6 |
| 386 | Butler Flats Light Station | New Bedford | Bristol | MA | NRHP-listed resource | 25.6 |
| 389 | 744 Sconticut Neck Road | Fairhaven | Bristol | MA | MHC historic inventory site | 25.9 |
| 449 | Nobska Point Lighthouse | Falmouth | Barnstable | MA | NRHP-listed resource | 28 |

Source: EDR (2022a:Attachment A)

Notes: MA = Massachusetts, RI = Rhode Island.

In Table 1, consistent with the HRVEA, "historic districts within the [viewshed ]APE were counted as a single property regardless of the number of contributing properties located within the [viewshed ]APE in each district, as it was considered a conservative approach to address potential impacts to the entirety of the district rather than just select properties. Available documentation for NHL and NRHP-listed districts did not always indicate the total number of contributing properties, or which properties are considered to be contributing to the significance of a given district. . . . As described above [under Property Designation], properties considered potentially NRHP-eligible include properties identified by RIHPHC, MHC, county level, local-level, or other municipal sources" (EDR 2022a:19).

## 2.1 Historic Properties with the Potential for Visual Adverse Effects from the Project

For the offshore Project elements, the HRVEA identifies a total of 451 aboveground historic properties within the viewshed APE, including 12 NHLs (EDR 2022a, 2022b). For the onshore Project elements, the HRVEA for the OnSS and ICF (EDR 2021a) identifies two of the aboveground historic properties in the viewshed, APE one of which was also addressed in the in the offshore HRVEA (EDR 2022a). Of the historic properties identified in the HRVEA reports, 101 historic properties in the viewshed APE would

be subject to adverse effects from the offshore elements of the Project, including five NHLs (EDR 2022a, 2022b). Although the Project may have visual effects, including cumulative visual effects, at more of the 451 historic properties identified by the offshore HRVEA in the viewshed APE, these effects would not rise to the level of adverse effect (BOEM 2022). The Criteria of Adverse Effect under NHPA Section 106 (36 CFR 800.5(a)(1)) states that an undertaking would have an adverse effect on a historic property when an undertaking would alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5(a)(1)). Project-specific visual effects would not rise to the level of adverse effect at other than the 101 historic properties even where BOEM could later determine that the specific effects—including cumulative effects—of other future wind farm developments would be adverse. Likewise, at historic properties where BOEM finds cumulative adverse effects to result from the current Project specifically, BOEM may or may not find cumulative effects to be adverse specifically in relation to other reasonably foreseeable offshore wind projects.

In the HRVEA, the 101 historic properties where Project-specific adverse effects would result are grouped by resource type and are discussed thematically. A description, historic character, and basis for the NRHP eligibility of each resource type were summarized, along with a discussion of key examples within each resource type (EDR 2022a). An overview of this discussion is provided below in the same order of the presentation provided within the offshore HRVEA. Historic properties in the APE that have individual NRHP-eligibility determinations were considered individually for effects and the historic districts that may contain these and other individual historic properties were also assessed for effects as individual districts. This means that effects to historic districts and the contributing properties within them were considered as a whole, inclusive of those portions of the district that may extend beyond the APE.

> Potential impacts to above-ground historic properties within the [APE] which have individual designations apart from the historic districts in which they are located were evaluated on an individual basis. Potential impacts to historic districts within the [APE] were considered to the entirety of the district as one property, rather than to each of the contributing properties, as not all contributing properties within historic districts are located in the [viewshed ]APE. This approach is considered to be conservative as far as addressing potential impacts to historic districts as a whole. (EDR 2022a:18)

### *2.1.1 Native American Sites, Buildings, Districts, and Traditional Cultural Properties*

Six TCPs are identified in the viewshed APE by the HRVEA (EDR 2022a). Three of these resources in Massachusetts were originally documented due specifically to their identification by Tribal Nations as TCPs: [redacted] The [redacted] TCP have previously been determined NRHP eligible by BOEM in consensus with the MHC. Of the six TCPs in the APE, the Project may result in visual adverse effects to the [redacted] TCP and the [redacted] TCP.

[redacted] TCP is described in the HRVEA as follows:

> This above-ground historic property, determined . . . eligible for listing in the National Register by BOEM under Criterion A, [redacted]

[redacted]
contributing resources within the TCP district were identified during Section 106 consultations [redacted] . . . Views to and across the waters surrounding locations within the TCP are sensitive to visual changes and may be affected by the introduction of new features to the existing viewsheds. (EDR 2022a:40)

The [redacted] TCP is described in the HRVEA as follows:

[redacted]
The maritime setting of the TCP is integral to its historical and cultural significance. [redacted]
The [redacted] TCP is potentially eligible for listing in the National Register under:

- Criterion A [redacted];
- Criterion B [redacted];
- Criterion C [redacted];
- Criterion D for its potential to yield information [redacted]. (EDR 2022a:42)

The common attributes of this historic property type with respect to visual setting are described by the HRVEA (EDR 2022a:42–43) as follows:

TCPs are . . . acknowledged to be of high cultural [redacted] significance[redacted] . . . TCPs located within the [viewshed ]APE are generally thought to possess the following common attributes with respect to their visual setting:

- Significance [redacted] within the [viewshed ]APE/location [redacted];
- [redacted];
- Associations with events or persons significant [redacted];
- [redacted]
- [redacted]
- [redacted];
- [redacted]
- [redacted].

### 2.1.1.1 ASSESSMENT OF INTEGRITY

Using the results of the simulations that best represent the views from, and visual setting of, this property type (see Appendix B in EDR 2022a), an assessment of integrity was conducted by EDR on the adversely affected TCPs:

Due to the importance of views [redacted], as well as the visual character [redacted] that contribute to the significance of some previously identified archaeological sites and TCPs, the introduction of modern, man-made vertical elements such as turbines could become focal points and have an adverse effect on the integrity of setting that directly contribute to the significance of these properties located within the [viewshed ]APE.

With respect to the three [redacted]identified TCPs within the [viewshed ]APE, the assessment suggests [visual adverse effects] to the [redacted] TCP is unlikely. The visibility of the offshore facilities is substantially attenuated by distance from the property and terrestrial viewpoints located within or along its boundaries. [redacted] this assessment suggests the highly sensitive viewsheds associated with the historic property would not be adversely affected by the project.

The Project does, however, have the potential to cause [visual adverse effects] to the [redacted] TCPs:

- The turbines will be visible along the horizon from several points within the [redacted] TCP, including those [redacted] identified [redacted] as particularly sensitive. The turbines and [OSS] will be visible along portions of the ocean horizon when viewed [redacted] and may become focal points [redacted]. As noted above, under common daytime viewing conditions, the distance from the nearest turbines and atmospheric conditions would reduce the visual contrast of the offshore facilities against the water and sky. However, the introduction of new man-made visual elements to a

largely unobstructed view [redacted], when visual contrast is high, may diminish the TCP's integrity of setting and feeling. Although expected to be less obtrusive when viewed from [redacted], the turbines may be clearly visible to observers [redacted] during other high contrast conditions.

- While only blade tips would be exposed above the ocean horizon from some viewpoints [redacted] and would be difficult to discern even under high contrast conditions, views from areas closer to the Project [redacted] would have views of the rotors and nacelles of the WTGs. The relative size of the individual rotors and nacelles would appear small from distances of 25 miles, but the number of turbines spanning a wide portion of ocean horizon would potentially become a focal point for observers. Under [redacted] conditions the WTGs would be backlit, increasing the contrast between the sky and the new man-made elements spread across the horizon. Given the potential importance of [redacted] this TCP, the introduction of WTGs may diminish the TCP's integrity of setting and feeling. (EDR 2022a:102)

### *2.1.2 Historic Buildings and Structures*

There are 251 historic buildings and structures included in the offshore viewshed APE (EDR 2022a) and one in the onshore viewshed APE (2021a). Historic properties of this type "consist mostly of vernacular residences or groupings of residences, with some limited variety of building types within the districts, in addition to historic markers and public parks" (EDR 2022a:102). The variety of buildings and structures associated with this type extends to neighborhood commercial districts and buildings (including industrial sites) and includes supporting infrastructure, such as area bridges, that in composite makeup these settlement areas and supported the livelihoods of the local residents. In other cases, the historic residence has changed to commercial, municipal, institutional, educational, religious, or transportation use or for other non-residential repurposing (EDR 2022a).

> The overall character of these individual above-ground historic properties and districts is residential or intended for public enjoyment, as opposed to the grand mansions and summer "cottages" built by wealthy industrialist families that typified the Estates and Estate Complexes property type. . . . These above-ground historic properties are typically listed due to each resource's unique significance or the combined significance of the resources forming an historic district, and usually qualify under National Register Criteria A and C. These factors are shared among the resource to a degree which justifies their grouping as an above-ground historic property type. (EDR 2022a:43)

> This above-ground historic property type is typically situated along or near the ocean, and most of these residences [and related buildings and structures] were associated in some way with the maritime economy. The existing views from this above-ground historic property type often include views and vistas of the Atlantic Ocean. (EDR 2022a:102).

Of these historic buildings and structures, 48 in Rhode Island and Massachusetts have been determined by the HRVEA to be subject to adverse effects from the offshore elements of the Project (EDR 2022a). Of the full 251 historic properties of this type in the viewshed APE, Rhode Island contains 86, Massachusetts 163, and Connecticut two (EDR 2022a).

In Rhode Island, The Kay Street-Catherine Street-Old Beach Road Historic District, also known as The Hill, is an example representative of historic buildings and structures that would be adversely affected by the Project:

> This district is located in Newport, Rhode Island, approximately 17 miles (27.4 km) from the nearest [Project] turbine. . . . The Kay Street-Catherine Street-Old Beach Road Historic District consists of 900 structures and includes several individually designated historic sites, including the 1763 Touro Synagogue, the oldest standing synagogue in North America. The district was formed largely before the seasonal estates of the Newport Historic District . . . While the Kay Street-Catherine Street-Old Beach Road Historic District attracted some notable residents, and features some impressive buildings designed by prominent architects, it has maintained its relatively modest, unadorned residential character to a large extent. The district is significant as a pre-Civil War, Rhode Island maritime community. It was listed in the NRHP in 1973. (EDR 2022a:43)

In Massachusetts, the Gay Head - Aquinnah Town Center Historic District is an example representative of historic buildings and structures that would be adversely affected by the Project:

> This district is located in the Town of Aquinnah, Massachusetts, approximately 14 miles (22.5 km) from the nearest [Project] turbine. . . . The Gay Head - Aquinnah Town Center Historic District consists of eight contributing and two non-contributing resources encompassing approximately seven acres. The district boundaries are centered at the intersection of South Road and Church Street. The buildings in this district embody the original mid-nineteenth century civic institutions and public buildings of the community and are all either one- or one-and-one-half-story buildings. Craftsman and Greek Revival architectural elements are present alongside building[s] with no discernable popular style whatever. The district is significant as one of the oldest and most intact communities in Gay Head and has associations with the local Native American families as well. . . . It was listed on the NRHP in 1999. (EDR 2022a:44)

The HRVEA further describes the common attributes of these historic properties with respect to their visual setting as follows:

> The Historic Buildings and Structures within the [viewshed ]APE have historically served as the homes and associated landscapes of residents in the coastal areas of Rhode Island, and Massachusetts. The residences of this type are distinct from the Estates and Estate Complexes and Recreational Properties in their perennial or domestic use and less ostentatious design. These above-ground historic property types often are adjacent to and offer clear views of the ocean or are significant due to their development as residential communities. For many above-ground historic properties of this type, a relationship with the Atlantic Ocean is essential to their historic integrity. . . . Historic Homes and Structures are important elements of cultural heritage within the [viewshed ]APE, within the majority of examples found along or near the shoreline of Massachusetts. While no official documentation relative to the maritime significance of this specific above-ground historic property type is known, several common features are mentioned across the breadth of the individual nomination forms that may be considered as the common attributes with respect to their visual setting:
>
> - Historic maritime (fishing and shipping) economy;
> - Location along or near the water;
> - Views and vistas of the Atlantic Ocean;

- Vernacular design and locally sourced materials;
- Landscape design derived from the natural environment; and
- Local historic associations. (EDR 2022a:44)

#### 2.1.2.1 ASSESSMENT OF INTEGRITY

Incorporating the results of the simulations that best represent the views from, and visual setting of, these historic buildings and structures (see Appendix B in EDR 2022a), the HRVEA provided an assessment of the potential visual effects of the Project, which would affect the integrity of setting and/or feeling:

> For the properties of this type located near or along the shoreline, views of the Project would be unobstructed. However, from the centers of many of the larger cultural landscapes and residential districts where properties of this type are located, Project visibility would be minimal. In addition, not all of the properties of this type derive their significance from their relationship to the ocean. Applying the Criteria of Adverse Effect per Section 106 § 800.5 (as summarized above), the Project has the potential to cause an adverse visual effect to a total of 49 Historic Buildings and Structures within the [viewshed ]APE. The Project is not anticipated to result in potential adverse effects to 203 properties of this type within the [viewshed ]APE. (EDR 2022a:103)

> Historic buildings and structures . . . occur throughout the study area and in a variety of local contexts. Location and orientation of such properties is critical to understanding the nature of any associated maritime settings. Many historic houses were oriented to local roadways, with the front and rear elevations parallel to the nearby road's alignment. Local roadways along the region's shorelines often parallel the water's edge and historic homes frequently shift in orientation along such coastal roads. This variation in orientation may strongly influence the associated views of marine waters that may form important elements of a property's historic setting. . . . Historic seaside villages, ports and other districts in the study area are commonly characterized by dense development and narrow roadways. The maritime setting for such districts is often obvious and may be expressed through the design and orientation of homes, commercial properties and other buildings, parks, docks, piers, and breakwaters. Depending on the specific characteristics of each district, open ocean views may or may not be available from the majority of historic buildings and other areas within a village. Further, marine viewsheds may encompass limited areas due to the complexity of the shoreline and presence of points, necks, or islands that screen views towards the open ocean. Where ocean versus bay views are available but are tangential to the dominant aspects of maritime viewsheds, changes to those distant ocean views may not diminish the integrity of a seaside village or other historic district. Where ocean views are a dominant aspect of the maritime setting, changes to such viewsheds may diminish the integrity of a historic district, even where views are limited to immediate shoreline sections. (EDR 2022a:96–97)

### *2.1.3 Lighthouses and Navigational Aids*

There are 20 lighthouses and navigational aids identified in the viewshed APE. This historic property type, lighthouses in particular, "may be broadly defined as water-related navigation aids to transportation and defense consisting of a light tower, featuring prominent views of the sea, and dominance of the surrounding landscape generally shared among all the individual properties" (EDR 2022a:44). The reasons these historic properties are considered eligible for the NRHP, usually under Criteria A or C, includes their architecture and technology, site, landscape, and other factors (EDR 2022a).

> These structures present themselves as prominent and iconic features on the coastal landscape, possess elevated views of the ocean horizon, and are sited specifically for those elevated views. (EDR 2022a:44–45)

Of these lighthouses and navigational aids, 10 in Rhode Island and Massachusetts have been found by the HRVEA to be subject to adverse effects from the Project. Of the full 20 historic properties of this type in the viewshed APE, Massachusetts contains 10, Rhode Island nine, and New York one (EDR 2022a).

The Block Island Southeast Lighthouse NHL is a representative example, in the HRVEA, of this historic property type that would be adversely affected by the Project in Rhode Island:

> This property is located approximately 12 miles (19.3 km) south of the coast of mainland Rhode Island, on Mohegan Bluff, on the southeast shore of Block Island, approximately 14 miles (22.5 km) from the nearest [Project] turbine. . . . Built in 1874 and fully operational by 1875, Block Island South East Lighthouse [*sic*] consists of a five-story brick tower and a two-and-a-half-story, brick duplex keeper's residence. The duplex residence is connected to a one-and-a half-story kitchen by a hyphen of the same height. It is a rare surviving example of a lighthouse built during a brief period of Victorian Gothic design influence at the U.S. Lighthouse Board and the sole surviving lighthouse of its high-style design. In 1993, the lighthouse structure and dwelling were moved approximately 250 feet (76.2 m) back from the edge of the bluffs to prevent the loss of the above-ground historic property to erosion. The light tower and dwelling were moved as a single mass, including the above-ground elements of the foundations, to retain the historic fabric. The new location preserves the historic relationship of the lighthouse with seacoast … Southeast Lighthouse was designated an NHL in 1995. (EDR 2022a:46)

The Gay Head Light is a representative example, in the HRVEA, of this historic property type that would be adversely affected by the Project in Massachusetts:

> This property is located on the southwestern tip of Martha's Vineyard, Massachusetts, approximately 14 miles (22.5 km) from the nearest [Project] turbine. . . . The cylindrical brick lighthouse tower was built in 1856 and automated in 1961. There are no existing associated buildings remaining, although the tower was once part of a greater Coast Guard complex. The lighthouse was listed in the NRHP as part of the "Lighthouses of Massachusetts" Thematic Group Nomination in 1987. . . . In 2015, the lighthouse was moved away from the eroding cliff face to a new position approximately 135 feet (41.1 m) to the southeast. (EDR 2022a:46)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> Lighthouses and other historic navigation aids in the study area include properties that were intended to serve mariners plying large areas of open water and other properties that served specific navigation routes through the complex and treacherous waters of the region's bays. All of these properties have an obvious association with maritime settings, but the scale of those settings will vary due to the conformation of the local landscape and seas and the design and purpose of each navigation aid. (EDR 2022a:95)

The common attributes of this historic property type with respect to visual setting are described by the HRVEA (EDR 2022a:47) as follows:

- Direct physical location and/or historic functional relationship with the sea;
- Elevated and prominent views of the sea;

- Visual prominence of the surrounding landscape;
- Isolation or at least spatial dominance of the surrounding landscape; and
- Proximal relationship to shipping lanes.

#### 2.1.3.1 ASSESSMENT OF INTEGRITY

Incorporating the results of the simulations that best represent the views from, and visual setting of, this historic property type (see Appendix B in EDR 2022a), the HRVEA provides an assessment of potential Project effects on the integrity of lighthouses and navigational aids:

> New England lighthouses are popular recreation areas/tourist destinations that receive high visitation throughout the days and evenings during the summer and fall seasons. Existing features, including the light towers, the vast expanse of ocean, and the abundant human activity, remain the dominant, character-defining elements of the landscape. Historic preservation briefs and other sources of documentation (e.g., cultural resources surveys and multiple property documentation forms) issued by the National Park Service offer definitions of lighthouses and the character-defining features that give them significance, including the visual character of the lighthouse itself as a dominant vertical element of the landscape and accompanying seascape. Lighthouses typically feature open views of the ocean and can be elements of a picturesque coastal/ocean landscape. The introduction of modern, man-made vertical elements such as turbines could become new focal points in the visual setting for these sites and have an adverse effect on the elements of setting that directly contribute to the significance of this aboveground historic property type. . . . The Project is not anticipated to result in any potential visual adverse effects to 10 properties of this type within the [viewshed ]APE. . . . Manual review of these resources [by EDR] determined that location and distance from the Project would reduce, if not eliminate, the potential visual effect from RWF. (EDR 2022a:104)

### *2.1.4 Historic Cemeteries and Burial Grounds*

There are 36 historic cemeteries and burial grounds included in the viewshed APE, consisting of "cemeteries identified by federal, state, or local governmental agencies as having historic significance" (EDR 2022a:47).

> These above-ground historic properties may be municipally owned cemeteries on public land, small family plots on private land, or abandoned burial grounds. Historic cemeteries are lasting memorials to the past, provide a guide to the changing values and composition of communities in the course of their historic development. . . . Typically, cemeteries and burial grounds are not eligible for listing in the NRHP except when they satisfy NPS Criteria Consideration D: 'd. A cemetery which derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events'. (EDR 2022a:47)

Of these, one in Rhode Island was assessed by the HRVEA to be subject to adverse effects from the Project. Of the full 36 historic properties of this type in the viewshed APE, Rhode Island contains 23 and Massachusetts 13 (EDR 2022a). Rhode Island has specific mandates for documenting historic cemeteries.

> Historic cemeteries in the State of Rhode Island are designated and protected as historic resources apart from the NRHP by the Rhode Island Historical Cemetery Commission (RIHCC) and are referred to in the official literature as Rhode Island Historical

> Cemeteries. Under Chapter 23-18 of the Rhode Island General Law (RIGL), each city and town is required to identify and register historic cemeteries and the RIHCC is empowered to "study the location, condition, and inventory of historical cemeteries in Rhode Island and to make recommendations to the general assembly relative to historical cemeteries in Rhode Island" (RIGL §23-18, 2006). (EDR 2022a:47)

The one adversely affected historic cemetery identified in the APE, the Island Cemetery/Old Burial Ground, is at New Shoreham, Rhode Island.

> This cemetery is . . . on a slope and overlooks New Harbor, Great Salt Pond, and Rhode Island Sound on a relatively open landscape, with limited screening from vegetation or buildings. (EDR 2022a:103)

The HRVEA introduces several character-defining aspects of historic properties of this type as follows:

> Historic Cemeteries and Burial Grounds are important cultural resources within the [viewshed ]APE. These types of aboveground historic properties may be found in nearly every context; urban parks, suburban landscapes, rural fields, and forests. They are often laid out in rectilinear plots in which the grave markers are arranged in parallel lines, although there may be some variation on that form. In more developed areas, neighborhoods tend to grow around the cemeteries, preserving small plots of naturalistic land for quiet reflection and communing with the past. (EDR 2022a:48)

> Historic cemeteries and burial ground vary throughout the study area. Small, private, non-denominational and family cemeteries were relatively common in New England, and many have survived to present-day. Many examples of small cemeteries were associated with specific farms or families and were frequently placed within the available agricultural lands surrounding a farmstead or near multiple associated family farms. Where such burial grounds are located near the water they may be associated with ocean or other maritime viewsheds, however, ocean vistas are less likely to have been a significant consideration in the siting of such cemeteries than their larger, more formal counterparts in the region. Where cemeteries are located within districts or other historic settlements strongly associated with maritime settings, such burial grounds may be sited to maintain a visual connection to the waters in order to maintain a sense of continuity linking the departeds' final resting places with the environment in which they lived. Cemeteries in urban locations expressing such patterns may include formal design elements associated with the "rural cemetery movement" of the 19th century, which sought to create naturalistic, park-like settings to express "an appreciation of nature and a sense of the continuity of life" [NPS 1992]. Maritime views from hillside cemeteries that were intentionally incorporated or framed by landscape designs may be more sensitive to discordant modern elements than those associated with less formal burial grounds that may not have been specifically located to provide ocean views. (EDR 2022a:96)

The common attributes of this historic property type with respect to their visual setting are described by the HRVEA (EDR 2022a:48) as follows:

- Secluded or private setting;
- Designed landscape features;
- Graves of persons of local, state, or national significance; and
- Examples of funerary art and/or architecture (i.e., a mausoleum or above-ground crypt).

#### 2.1.4.1 ASSESSMENT OF INTEGRITY

Considering the views from, and visual setting of, this historic property type, the HRVEA provides an assessment of potential Project effects on the integrity of historic cemeteries and burial grounds:

> [P]roperties of this type within the [viewshed ]APE are typically characterized by open expanses of lawn of varying sizes with several grave markers, surrounded by heavy vegetation on the outer edges. The potential effects of the Project are further mitigated because the significance and setting of these properties are characterized by inward views, and not from pristine views of the seascape or relationship to the ocean. The Project is not anticipated to result in any potential adverse effects to 35 properties of this type located within the [viewshed ]APE. (EDR 2022a:105)

The Island Cemetery/Old Burial Ground would be adversely affected by the Project because of the changes to the elevated ocean views that are maintained for this memorial resting place. Otherwise, the secluded nature of properties of this type and their rare occurrence near the shoreline greatly limits visibility, and therefore effects, of the Project.

### *2.1.5 Maritime Safety and Defense Facilities*

There are 31 maritime safety and defense facilities included in the offshore viewshed APE (EDR 2022a) and one within the onshore viewshed APE (EDR 2021a). This property type consists of "facilities erected by bureaus of the U.S. Department of Defense [DoD] or their predecessors and share historic associations with coastal defense" (EDR 2022a:48). The structures of this type tend to be eligible for the NRHP under Criteria A and C.

> These structures vary in their design and construction materials but are unified by their historic functions of rescuing and protecting maritime transportation in the area, or for coastal defense. (EDR 2022a:48)

Of these, 10 in Rhode Island and Massachusetts have been determined by the HRVEA to be subject to adverse effects from the offshore elements of the Project. Of the full 31 historic properties of this type in the viewshed APE, Rhode Island contains 20, Massachusetts nine, and New York two (EDR 2022a).

The World War Two Lookout Tower at Spring Street is a representative example of maritime safety and defense facilities that would be adversely affected by the Project in Rhode Island:

> This above-ground historic property is located on Spring Street near the southeast shore of Block Island, approximately 15 miles (24.1 km) from the nearest [Project] turbine. . . The World War Two Lookout Tower at Spring Street is a two-story cylindrical tower built during World War Two for military observation of Rhode Island Sound. The tower is attached to a one-story wood-shingled structure resembling a cottage. This structure was determined eligible for listing on the NRHP in 2012. (EDR 2022a:48)

The Fort Taber Historic District is a representative example of maritime safety and defense facilities within the adversely affected Fort Rodman Historic District in Massachusetts:

> The Fort Taber Historic District . . . consists of six contributing structures and five-gun batteries located on [approximately 10 acres at] Wharf Road in New Bedford, Massachusetts, approximately 25 miles (40.2 km) from the nearest [Project] turbine. The property is significant due to its associations with the Civil War and maritime defense in

> New England, its rare "disappearing" gun battery design, and for its subsequent history as a local park. It was listed in the S/NRHP in 1973. (EDR 2022a:48)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> The Maritime Safety and Defense Facilities within the [viewshed ]APE have served to protect and act as rescue stations for the coastal waters of Rhode Island and Massachusetts. These above-ground historic properties were constructed as government buildings that needed open views and access to the ocean to fulfill their functional roles and are therefore located immediately adjacent to the coastline to facilitate direct interaction with the water. For all aboveground historic properties of this type, a physical relationship to the Atlantic Ocean is essential to historic integrity. (EDR 2022a:49)
>
> Historic military and maritime safety properties along the shoreline will likely be associated with maritime settings. Aesthetic considerations in the siting of such facilities may or may not be expressed in the design of buildings, structures, and landscapes depending on the age and specific functions of the property. Proximity to navigation channels, defensibility, and the presence of existing shipbuilding or repair infrastructure in a broader maritime context may have been significant considerations in the siting of naval facilities. Such factors may not demonstrate a significant association with open ocean viewsheds. The study area includes several significant examples of World War II-era defense structures, including fire control or observation towers designed to monitor specific parts of the maritime environment. Early lifesaving stations were likewise intended to provide for observation of marine waters in the vicinity of known hazards or where storms posed specific risks to sea-going or coastal vessels. Lifesaving stations were also frequently located where rescue boats or other vessels might be safely launched under treacherous conditions. These locations may have included inlets, harbors or coves adjacent to open waters where rescue and recovery efforts would likely be made. (EDR 2022a:96)

The common attributes of this historic property type with respect to their visual setting are described in the HRVEA (EDR 2022a:49) as follows:

- Construction commissioned by the federal government for use by a bureau of the DoD;
- Built for interaction between the structure and ocean-going vessels;
- Location along or near the water;
- Clear views of the ocean, and/or direct access to the water; and
- Design includes living quarters and functional space.

#### 2.1.5.1 ASSESSMENT OF INTEGRITY

The Project would be visible from the 10 maritime safety and defense facilities that have been assessed by the HRVEA to be subject to adverse effects from the Project. Based on a simulation at Narragansett Beach (Viewpoint RI09), which is approximately 0.25 mile (0.40 kilometer [km]) north of Life Saving Station at Narragansett Pier in the Town of Narragansett, Rhode Island, with the project in place,

> the upper portions of the turbines are visible along the horizon. Under the conditions illustrated in this viewpoint, there is little contrast between the turbines and the background sky. The view of the turbines from this location is unobstructed and they extend throughout the view. Despite the hazy sky conditions of the selected photo, the slender profile of the turbines is visible above the dark gray of the horizon. It is also

> possible to discern the tapering turbine heights as the curvature of the earth begins to obstruct clear views to the Project. Shipping vessels appear larger in perspective than the turbines. Under clearer conditions, the turbines may contrast against the sky to a greater degree. (EDR 2022a:105)

Considering the views from, and visual setting of maritime safety and defense facilities, the HRVEA provides an assessment of potential Project effects on the integrity on maritime safety and defense facilities:

> Buildings and structures of this property type typically derive significance from present or former use as a governmental facility or from architectural character. These properties were historically dependent on direct visual and physical access to the ocean in order to successfully provide coastal defense and transportation safety. The characteristics that contribute to the significance of this property type often include the presence of modern military machinery and infrastructure. Therefore, the potential adverse effect by the introduction of man-made vertical elements, such as wind turbines along the horizon, could possibly be somewhat mitigated by the nature of these resources which caused them to be determined eligible and/or listed in the NRHP. (EDR 2022a:105)

Although each of the 10 historic properties that have been determined by the HRVEA to be subject to adverse effects from the offshore elements of the Project would retain its maritime setting that contributes to the property's NRHP eligibility, the seaward views that support the integrity of the maritime setting would be impacted because those seaward views would include relevant vantage points with the potential for an open view from each property toward RWF WTGs (EDR 2022a).

### *2.1.6 Agricultural Properties*

There are 48 Agricultural Properties included in the viewshed APE (EDR 2022a). This property type consists of "historic farm buildings and landscapes which have retained a high degree of integrity and are generally no longer used for their original purpose" (EDR 2022a:49 ).

> These above-ground historic properties feature barns, farmhouses, and large, open tracts of pastureland. They are not located at the shoreline or immediately adjacent to the sea but are situated such that the local topography places them within the [viewshed ]APE. Generally, these above-ground historic properties do not derive their significance in any direct way from the ocean or maritime activities. (EDR 2022a:49)

Of these agricultural properties, four in Rhode Island have been determined by the HRVEA to be subject to adverse effects from the Project. Of the full 48 historic properties of this type in the viewshed APE, Massachusetts contains 33 and Rhode Island 15 (EDR 2022a).

The Bailey Farm is a representative example, in the HRVEA, of agricultural properties that would be adversely affected by the Project in Rhode Island:

> This above-ground historic property is an historic farmstead located at 373 Wyatt Road in Middletown, Rhode Island, approximately 18 miles (29 km) from the nearest [Project] turbine. . . . Bailey farm consists of approximately 47 acres consisting of two separate complexes; one including a one-and-one-half-story Greek Revival farmhouse and five agricultural support buildings which date from the turn of the twentieth century, and a second complex that includes a two-and-one-half-story frame house, a garage, and two sheds, all built circa 1930. The farm's main residence is thought to have been built in the late eighteenth century but was remodeled into the Greek Revival style in 1838. Along

> with the landscapes, stone walls, streams, and road networks Bailey Farm is an excellent example of a well-preserved example of Rhode Island's agricultural heritage. It was listed on the NRHP in 1984. (EDR 2022a:49–50)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> The Agricultural Properties within the [viewshed ]APE have contributed to the early development of Rhode Island and Massachusetts. These above-ground historic properties were constructed by early settlers engaged in small-scale farming and the raising of livestock. The setting for this above-ground historic property type is typically pastoral, and while they may be just a short distance from the ocean or have been originally sited on roads that linked to ferry routes at the coast, there is no distinct maritime quality related to their significance or historic designation. (EDR 2022a:50)

> Historic agricultural properties, including farms, farmhouses, barns and related buildings and structures are relatively common in the study area. Many of these properties were built between 1700 and 1850, after which agricultural economies in New England and New York declined sharply. The historic settings for such properties typically include open, agrarian landscapes which once may have afforded open views of the seas when sited along the shoreline or at higher elevations within the coastal interior. Few of the once expansive agrarian landscapes associated with the historic use of the region's farms survive. Some have been altered by later residential and commercial development and many have been transformed by reforestation. Despite these changes, historic agricultural properties remain an important part of the region's heritage and tangible expression of several centuries of intensive farming that transformed the landscapes throughout southern New England and eastern Long Island. (EDR 2022a:95)

The common attributes of this historic property type with respect to their visual setting are described in the HRVEA (EDR 2022a:50) as follows:

- Farmhouses;
- Barns and associated ancillary buildings;
- Large, open fields;
- Fieldstone walls dividing property or grazing space; and
- Locally sourced building materials.

#### 2.1.6.1 ASSESSMENT OF INTEGRITY

Agricultural properties within the APE generally consist of "historic farm buildings and landscapes and are characterized by the presence of barns, farmhouses, and large, open tracts of pastureland" (EDR 2022a:106). The Project would be visible from the four agricultural properties in Rhode Island that have been assessed by the HRVEA to be subject to adverse effects from the Project.

Considering views from, and visual setting of, this historic property type (see Appendix B in EDR 2022a), the HRVEA provides the following assessment of potential Project effects on the integrity on the Agricultural Properties:

> Agricultural Properties are largely inland and partially screened by vegetation, although there may be partial views of RWF from isolated parts of the property. In addition, the introduction of manmade, vertical elements, such as wind turbines, along the horizon

> would not necessarily have an adverse effect on the characteristics that have qualified Agricultural Properties within the [viewshed ]APE for NRHP listing. (EDR 2022a:106)

Although, "Generally, these above-ground historic properties do not derive their significance in any direct way from the ocean or maritime activities" (EDR 2022a:49), the HRVEA addresses the four cases where adverse effects would result based on the open or maritime island settings of these particular historic properties.

### 2.1.7 Recreational Properties

There are 27 recreational properties included in the viewshed APE (EDR 2022a). This property type is "defined by the role these properties served in their original functions as places for the resort tourism economy of the late-nineteenth century to flourish" (EDR 2022a:50).

> These above-ground historic properties feature beaches, casinos, restaurants, and other buildings and structures built to entertain seasonal vacationers. They are typically located near the shoreline or immediately adjacent to the sea, and in some cases, are the beaches themselves. The enjoyment of, and interaction with, the sea are integral features of the significance of these above-ground historic properties. In many cases, the beachfront, shoreline, and adjacent ocean waters are prominent features of the historic setting due to their close association with historic recreational activities. (EDR 2022a:50)

Of these recreation properties, 14 in Rhode Island and Massachusetts have been determined by the HRVEA to be subject to adverse effects from the Project. Of the full 27 historic properties of this type in the viewshed APE, Rhode Island contains 20, Massachusetts five, and New York two (EDR 2022a).

The Clambake Club of Newport is a representative example, in the HRVEA, of recreational properties that would be adversely affected by the Project in Rhode Island:

> This property is a 4.5-acre recreation facility located at 353 Tuckerman Avenue in Middletown, Rhode Island, approximately 16 miles (25.7 km) from the nearest [Project] turbine. . . . The clubhouse was first constructed between 1903 and 1907. It was damaged by a hurricane in 1938 and rebuilt the following year. The clubhouse is a single-story, wood-framed, L-shaped building clad in weathered cedar-board siding. The south and west elevations of the clubhouse overlook Rhode Island Sound. Two outbuildings located on the property include a Chef's Cottage and a Guest Cottage. There is an area for sport shooting on the property, as well. It is significant as a rare example of a seaside recreational facility; these were once quite numerous along the New England coastline. It was listed in the NRHP in 1995. (EDR 2022a:51)

The Gay Head - Aquinnah Shops Area is a representative example, in the HRVEA, of recreational properties that would be adversely affected by the Project in Massachusetts:

> This property is a collection of nine commercial buildings overlooking the ocean at the intersection of Lighthouse and South Road in Aquinnah, Massachusetts, approximately 14 miles (22.5 km) from the nearest [Project] turbine. . . . This area has been used for commercial tourism related to the ocean and the NRHP-listed Gay Head Light since the mid-nineteenth century. The oldest extant structure within the boundaries of this inventory area was built in the mid-twentieth century. (EDR 2022a:51)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> The Recreational Properties within the [viewshed ]APE have historically provided enjoyment for visitors and summer residents in the coastal areas in Rhode Island [and New England in general]. From private, elite sports facilities, like the Clambake Club of Newport, to the simple but elegant accommodations of the Hygeia House, these above-ground historic properties served the entertainment needs of the seaside resort economy. These above-ground historic property types often are adjacent to the ocean and offer unobscured views of the ocean or direct interaction with the beach. For many above-ground historic properties of this type, views of the Atlantic Ocean are essential to their historic integrity. (EDR 2022a:51)
>
> Summer resorts, supported by steamships, rail transportation, and eventually, automobiles were developed in numerous locations in the study area in the late 19th century. These resorts varied between properties intended to serve the rising group of "upper middle income" families living in the region's cities to estate-like developments serving a more affluent set. Seaside resorts, like many other shoreline recreational, commercial, and residential properties, were often sited to take advantage of aesthetically pleasing ocean or maritime views. Depending on location and the conformation of the local shoreline, such properties may be associated with specific bay or cove viewsheds that include limited areas of the open ocean waters. Recreational activities at resorts frequently included swimming and designated beaches where residents and visitors may have spent considerable time during the summer months. Where these features are still present and express a tangible association with the historic resort property, views from beaches may be as important as views from more formal elements of the designed landscape. Likewise, historic hotels and inns became more common elements of the region's shoreline communities in the late 19th century. Such properties were often sited near harbors, ferry landings, rail stations, and public or private beaches and may be associated with similar historic maritime settings. Views to ocean waters or the more intimate bays and coves of the region may have been an integral part of the visitor's motivation for staying in such establishments. Such considerations can be expressed through the inclusion of building and landscape features clearly intended to afford views of ocean. Older taverns and inns in the study area may be found along the working harbors and ports and were intended to serve the fishing, whaling, and related participants in maritime commerce. The design and location of these properties may not show the same influence of aesthetic considerations but will likely also retain a strong association with the waterfront and maritime environment. (EDER 2022a:95)

The common attributes of this historic property type with respect to their visual setting are described by HRVEA (EDR 2022a:51) as follows:

- Functionality designed for human interaction;
- Location along or near the water;
- Views and vistas of the Atlantic Ocean;
- Landscaped lawns and gardens; and
- Ancillary buildings, such as garages, caretaker cottages, or sheds.

#### 2.1.7.1 ASSESSMENT OF INTEGRITY

The Project would be visible from the 14 recreational properties that have been assessed by the HRVEA to be subject to adverse effects from the Project. Based on a simulation at Sachuest Point (Viewpoint

AI05), which is approximately 1.5 miles (2.4 km) to the southeast from the Clambake Club of Newport (95001267) in Middletown, Rhode Island, with the Project in place,

> the turbines are visible in silhouette against the sky above the ocean in the center of the view. As illustrated in this simulation, under clear conditions there is contrast between the turbines and the sky. In addition, the number and density of the turbines create a visual mass that has a presence on the horizon. The ship seen in the view at left on the horizon is intermixed with the Project and is difficult to discern from the offshore substation also visible in the center of the view. Natural objects such as boulders and rocky sholes near the shore also occupy a portion of the view, they are forms natural to the landscape and ocean coastline and have the potential to underscore the presence of large-scale modern infrastructure on the seascape. (EDR 2022a:107)

Applying the results of the simulations that best represent the views from, and visual setting of, this historic property type (see Appendix B in EDR 2022a), the HRVEA provides an assessment of potential Project effects on the integrity on the Recreational Properties.

> [T]he Project is anticipated to result in potential adverse visual effects to . . . Recreational Properties within the [viewshed ]APE . . . given special consideration due to many of the resources' location on the seafront with an unobstructed view toward the Project, the historic relationship of each with views of the ocean, and the high level of sensitivity to visual effects. This high sensitivity to visual effects was typically attributed to the nature of these resources as publicly accessible, and specifically designed for enjoyment of the ocean horizon. (EDR 2022a:107)

### *2.1.8 Estates and Estate Complexes*

There are 28 estates and estate complexes included in the viewshed APE (EDR 2022a). This property type "consists of high-style residences, or groupings of residences, typically designed by prominent architects of the nineteenth and early twentieth centuries" (EDR 2022a:51).

> This property type consists mainly of the mansions and summer "cottages" built by wealthy industrialist families, drawn to the vicinity of Newport, Rhode Island as it became a prominent vacation and recreation area for the emerging American elite, and to Montauk Point as a naturalistic and remote enclave. (EDER 2022a:51–52)

Of these, 11 have been determined by the HRVEA to be subject to adverse effects from the Project. Of the full 28 historic properties of this type in the viewshed APE, Rhode Island contains 21 and Massachusetts seven (EDR 2022a).

The Breakers NHL, aka the Cornelius Vanderbilt II House, is a representative example, in the HRVEA, of estates and estate complexes that would be adversely affected by the Project in Rhode Island:

> The Breakers . . . is located on at Ochre Point Avenue in Newport, Rhode Island, approximately 16 miles (25.7 km) from the nearest [Project] turbine. . . . The estate was designed by Richard Morris Hunt and built between 1893 and 1895 for Cornelius Vanderbilt II. It emulates a sixteenth-century, northern Italian palazzo. Elaborate façade work and imposing mass are featured in the architecture and speak to the substantial power and wealth of the original residents. The estate is significant for its historic associations with America's first architect trained at the Ecole Des Beaux-Arts, Richard Morris Hunt, and for being the largest and perhaps most famous Newport estate built by

> wealthy patrons at the turn of the twentieth century. . . . The Breakers was individually listed in the NRHP in 1971. . . . and designated an NHL in 1994. (EDR 2022a:52)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> Estates and Estate Complexes within the [viewshed ]APE transcend the traditional residential above-ground historic property type in their grandeur and scale. These above-ground historic property types often are set upon open tracts of naturalistic or stylized designed landscapes and are often accompanied by a variety of ancillary buildings. For many above-ground historic properties of this type, views of the Atlantic Ocean are essential to their historic integrity. . . . Estates and Estate Complexes are well-known as one of the symbols of cultural heritage in Rhode Island, and the City of Newport in particular. (EDR 2022a:52)
>
> Estates built by or for wealthy families have been part of the region's landscapes for centuries and many such properties are located along the shorelines. High style, architect-designed mansions and associated landscapes are characteristic of several areas within the study area and many such properties were sited to take advantage of ocean views. The importance of maritime settings to these properties may be apparent in the design of building features such as veranda, porches, and large windows facing the water or through landscape elements and overall designs that were intended to frame specific views towards the seas. As with many other historic property types, the conformation of local shorelines and the specific orientation of each property may be important in assessing the association with specific aspects or elements of each associated viewshed. (EDR 2022a:95–96)

The common attributes of this historic property type with respect to their visual setting are described by the HRVEA as follows:

- Location along or near the water;
- Views and vistas of the Atlantic Ocean;
- Long driveways meant to offer views of the main house on approach;
- Landscaped lawns and gardens; and
- Ancillary buildings, such as garages, caretaker cottages, or sheds. (EDR 2022a:52)

#### 2.1.8.1 ASSESSMENT OF INTEGRITY

The Project would be visible from the 11 estates and estate complexes that have been assessed by the HRVEA to be subject to adverse effects from the Project. A simulation at Newport Cliff Walk (Viewpoint AI03) is located between the Bellevue Avenue Historic District NHL and the Ocean Drive Historic District NHL, and represents an accurate simulation of views from this property type:

> With the Project in place, the towers, nacelles, rotors, and offshore substation of the RWF can be seen rising above the horizon. Even at this distance [15.3 miles from the simulation point], the Project occupies a wide swath of the seascape. As illustrated by this simulation, the proposed turbines are easy to perceive and, in some instances, a visual effect may occur when multiple turbines are aligned in the viewer's field of vision. The absence of large ships or recreational boats would ensure the RWF would be the focal point on the ocean from this vantage point. (EDR 2022a:108)

Applying the results of the simulations that best represent the views from, and visual setting of, this historic property type (see Appendix B in EDR 2022a), the HRVEA provides an assessment of potential Project effects on the integrity on the Estates and Estate Complexes:

> [T]he Project is anticipated to result in potential adverse visual effects to 11 of the Estates and Estate Complexes located within the [viewshed ]APE . . . The introduction of modern, man-made vertical elements, such as turbines, could become focal points and have an adverse effect on the elements of setting that directly contribute to the significance of this aboveground historic property type, especially in cases where the design of the estate includes views of the sea in the direction of the Project. In some cases, open views of the water are relatively scarce within most portions of the estate districts, where existing buildings, vegetation, and walls often screen views of the water. Visibility would be essentially nonexistent inside the district centers. (EDR 2022a:108)

### *2.1.9 Historic Battlefields*

There are four historic battlefields included in the APE, which "consist of typically large landscapes across which the events of historic military actions took place" and "Within these battlefield landscapes, any number of more focused and specific points of significance may exist, while the collective significance of the events of the battle is broader" (EDR 2022a:52).

Of these historic properties, one historic battlefield in Massachusetts, the Westport Point Revolutionary War Properties, would be subject to adverse effects from the Project.

> Following the war the area reverted to its old whaling, trading, and ship finishing occupations, but has kept much of its historic charm. The point and the harbor have been built up in the 20th century in order to accommodate modern fishing and maritime needs, but the landscape that made the area attractive to privateers is still intact. (EDR 2022a:119)

> Westport Point is a tongue of land extending between the East and West Branches of the Westport River, tucked behind Horseneck Island. Main Street is the sole road running the length [of] the neck down to the point. Westport Harbor is west of the Point in the West Branch . . . and is filled . . . sand bars and small islands. (EDR 2022a:A-32)

The HRVEA summarizes the character-defining aspects of historic properties of this type as follows:

> These types of above-ground historic properties are typically spread out over large areas, sometimes encompassing entire town centers or portions of townships. They may include landscapes, buildings, or water features which were integral to the outcome of the struggles which took place in their midst. In some cases, these features have been significantly altered from the time of the battles. (EDR 2022a:53)

Although NPS manuals and bulletins on documenting historic battlefields "have little to say regarding the visual setting of battlefields with regard to their significance, as in most cases the significance of an historic battlefield lay in their historic context and the physical struggles that took place on them. However, there are some characteristics which may be generally common to Historic Battlefields:

- Natural features which influenced military operations;
- Military engineering works (trenches, forts);
- Sites of engagement; and
- Corridors of movement" (EDR 2022a:54).

#### 2.1.9.1 ASSESSMENT OF INTEGRITY

Historic battlegrounds "generally encompasses large areas of land, and the setting is typically diverse including a range of pristine rural landscapes and urbanized areas" and "Because of the large-scale of these battlefield properties, only small portions adjacent to the shoreline will typically experience views of RWF" (EDR 2022a:108).

Considering views from, and visual setting of, this historic property type (see Appendix B in EDR 2022a), the HRVEA provides the following assessment of potential Project effects on the integrity on the historic battlegrounds:

> [T]he Project is anticipated to result in potential adverse visual effects to one Historic Battlefield located within the [viewshed ]APE, Westport Point Revolutionary War Properties in Westport, Massachusetts . . . The properties are located on a tongue of land extending between the East and West Branches of the Westport River, tucked behind Horseneck Island, and views toward the Project are largely unobstructed. The Project is not anticipated to result in any potential adverse visual effects to [the other] three properties of this type within the [viewshed ]APE . . . Properties of this type are mostly inland and will only have visibility in isolated areas within their boundaries, or in the small areas where their boundaries touch the shoreline. The potential effects of the Project are further mitigated because the significance and setting of these properties are characterized by terrestrial conflict, and not from pristine views of the seascape or relationship to the ocean. (EDR 2022a:108–109)

# 3 CUMULATIVE VISUAL EFFECTS ANALYSIS

Modeling for the HRVEA mapped the maximum area of potential onshore visibility to/from Project WTGs and OSSs within which historic properties could occur. This area was used to establish the viewshed APE for visual effects analysis (EDR 2022a). Modeling for the CHRVEA next established the maximum potential number and positioning of Project WTGs and OSSs and other future offshore wind activities' WTGs and OSSs cumulatively visible from representative key observation points (KOPs) for historic properties (EDR 2021b) (Figure 2; see Table 1), as described in Appendix B.

## 3.1 Modeling Viewshed and Cumulative Wind Turbine Generator Visibility

### *3.1.1 Methodology*

The first step in modeling analyzed the viewshed and set the viewshed APE for the visual effects analysis within a 40-mile maximum limit from the edge of the maximum work area for the Project in the Lease Area (OCS-A 0486), and based further upon the maximum distance that WTG portions (the vertical extent of blade tips) could potentially be visible during flat sea conditions over the horizon based on the curvature of the Earth (EDR 2022a) (Figure 3). EDR describes the methods applied in this first step in the following summary:

> A viewshed analysis was conducted to determine the possible extent of the Project's visibility [the APE] within the VSA [visual study area] utilizing USGS lidar [U.S. Geological Survey] [Light Detection and Ranging] 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. 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 [national land cover database] 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 98 points representing the proposed wind turbine locations. . . , an assumed maximum blade tip height of 873 feet (266.1m), . . . and an assumed viewer height of 5.5 feet (1.7 m). Additionally, a viewshed analysis was completed to assess the visibility of the aviation obstruction lights [nighttime lighting] at a height of 534.8 feet (163m), the center tower elevation of 246.4 feet (75.1 m) to assess the potential visibility of the mid-tower aviation obstruction lights, and the turbine deck at an elevation of 69.6 feet (21.2 m) to determine potential visibility of the Coast Guard lights. The viewshed analysis . . . considers the curvature of the earth. (EDR 2022a:9) [Figure 4]

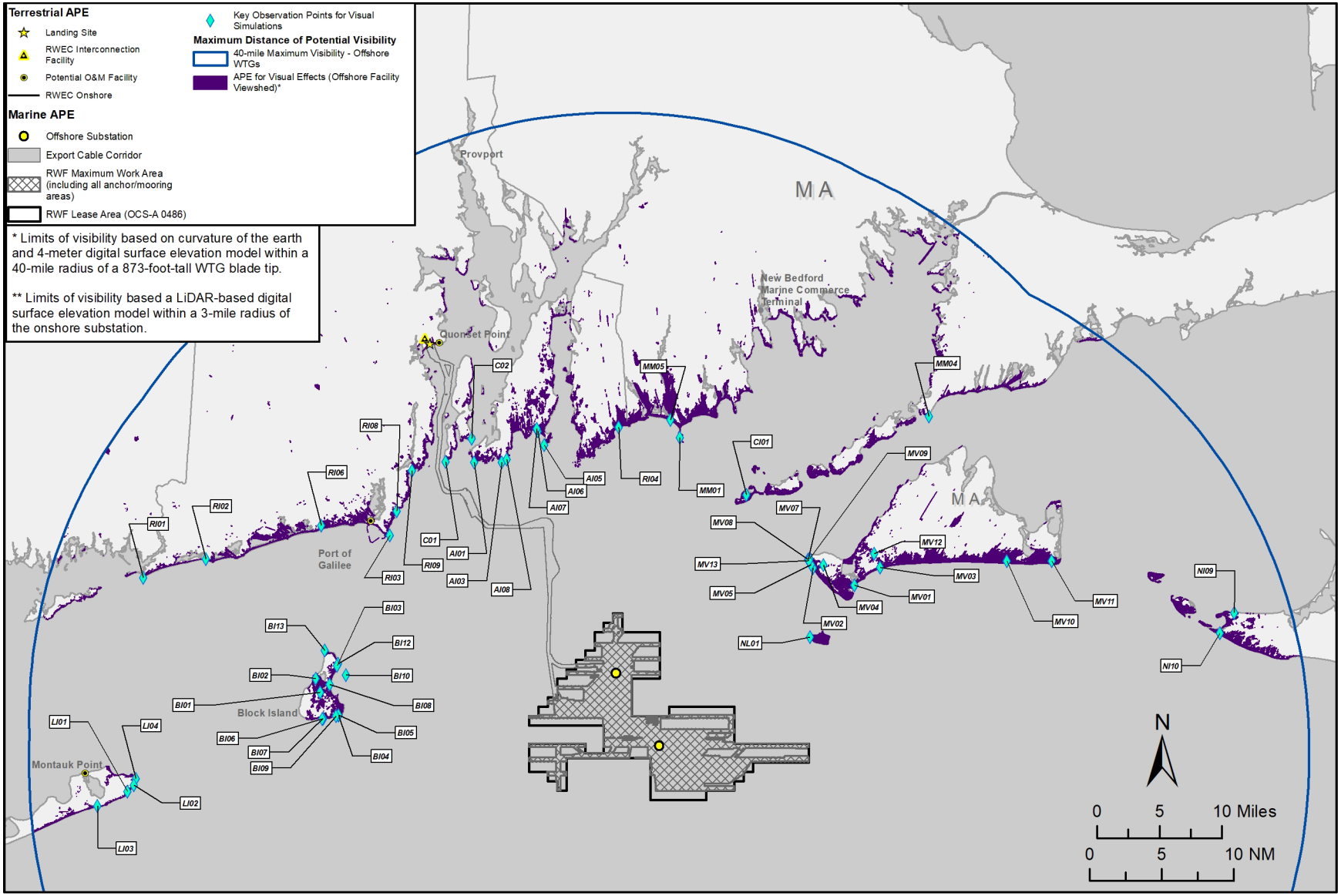


**Figure 2. Area of potential effects with key observation points.**

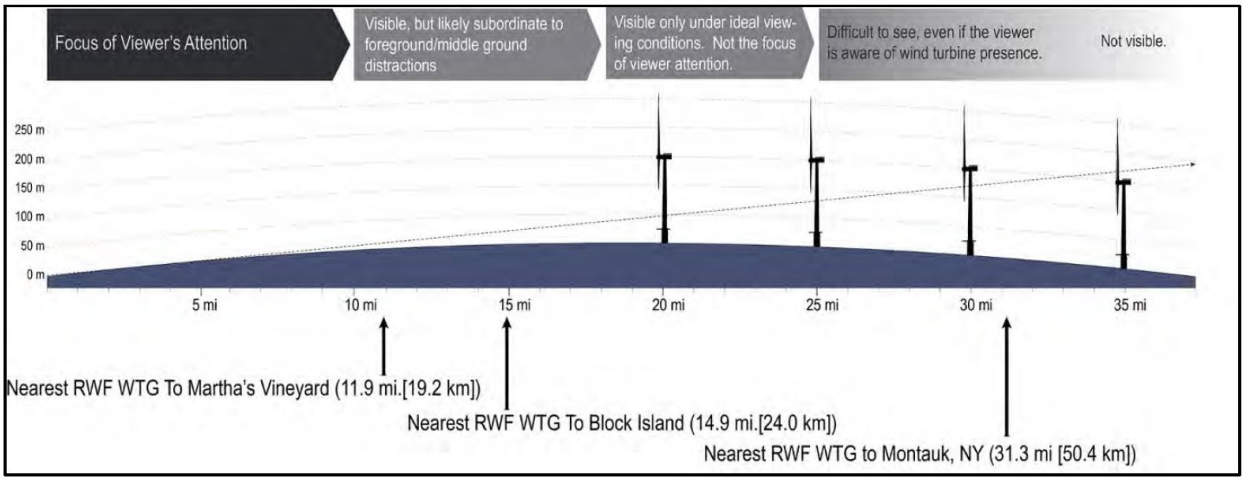


**Figure 3. Reduced turbine visibility with distance, given the curvature of the Earth (EDR 2021c:8).**

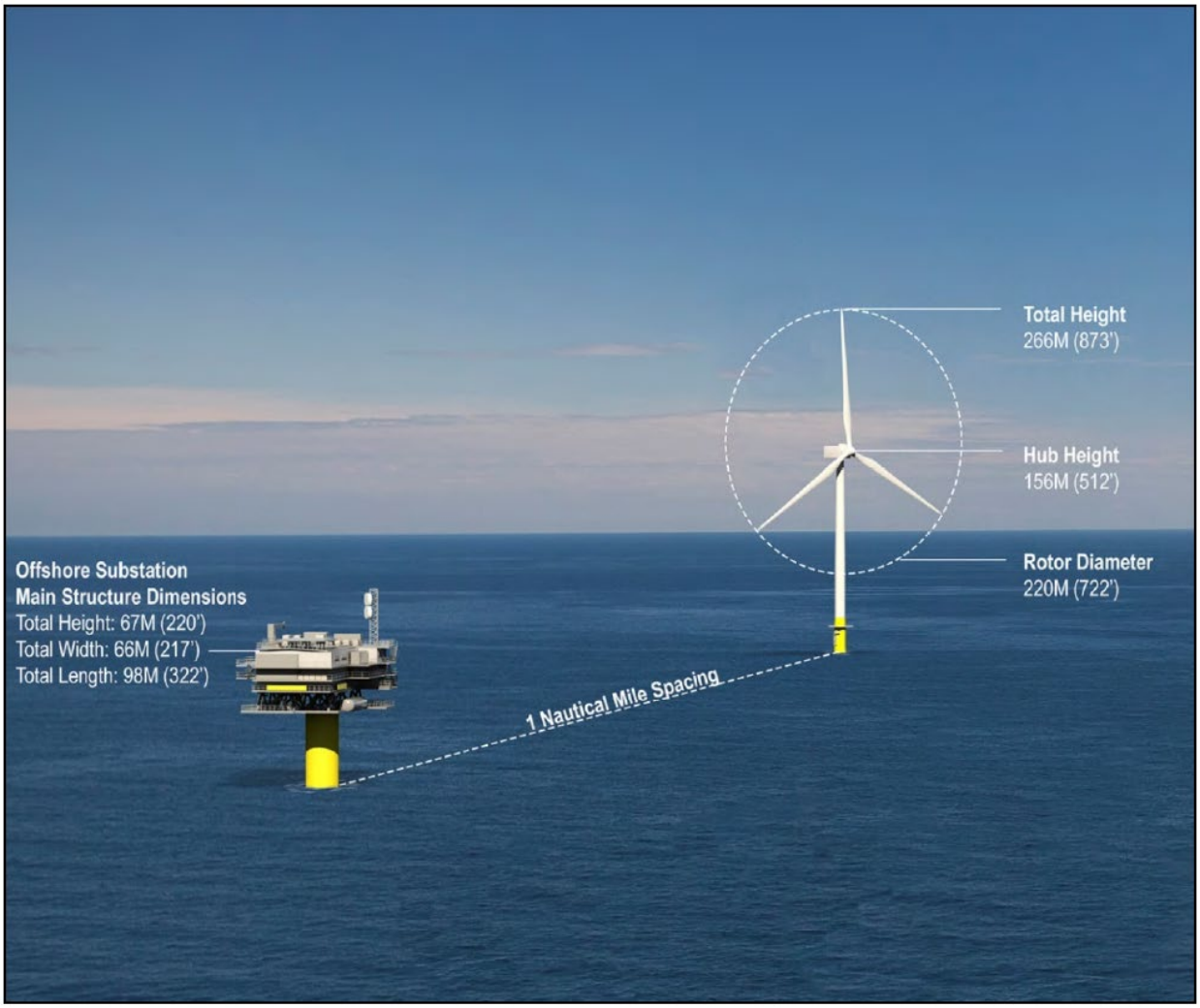


**Figure 4. Wind turbine generator dimensions used for cumulative visual simulations (EDR 2021c:3).**

> Potential visibility of the Project was evaluated in the field between June 2017 and September 2019. 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 confirmed the results of the lidar-based viewshed analysis. (EDR 2022a:12)

The HRVEA includes an analysis to characterize anticipated visibility of the RWF from each of the 101 aboveground historic properties (EDR 2022a).

> Eight distinct and empirical points of measurement were also considered in the assessment of the Project's potential visual effect on above-ground historic properties within the [viewshed ]APE. These points of measurement were determined using the viewshed analysis generated through ArcGIS as . . . further defined in the VIA (EDR, 2021[c]). They include the following:
>
> - Distance from the nearest visible turbine
> - Blade tip visibility
> - Turbine Aviation light visibility
> - Mid-tower aviation light visibility
> - Coast Guard light visibility
> - Total acreage of above-ground historic property
> - Total acreage of visibility within the above-ground historic property
> - The portion of the above-ground historic property (percent of acreage) from which the Project would be potentially visible (EDR 2022a:97)

For the viewshed model generated for the cumulative effects analysis, viewsheds were generated for individual WTG locations and distances were calculated between WTGs and visible portions of the 101 aboveground historic properties. These datasets were then synthesized to determine the distance to the nearest visible WTG, the distance to the farthest visible WTG, and cumulative counts of visible WTGs by distance ranges (e.g., WTG counts within 12 to 24 miles) for each of the 101 aboveground historic properties. The metrics generated include the total number of WTGs theoretically visible for all other proposed offshore development projects and the total proposed Project WTGs theoretically visible, which enabled the calculation of the ratio of theoretically visible proposed Project WTGs to all theoretically visible WTGs. The cumulative results are presented in Table 2.

**Table 2. Cumulative Viewshed Analysis Ordered by Number of Wind Turbine Generator/Offshore Substation Locations Theoretically Visible from Aboveground Historic Properties within the Viewshed Area of Potential Effects**

| Survey ID | EDR Resource Name | WTG/OSS Theoretically Visible | | | Potential Project Contribution (%) | Nearest Project Wind Turbine Generator (miles) |
|---|---|---|---|---|---|---|
| | | Total | Revolution Wind Farm Project | Other Future Offshore Wind Projects | | |
| TCP-3 | [redacted] TCP | 1,060 | 102 | 958 | 9.6% | 6.0 |
| 503 | Simon Mayhew House | 992 | 102 | 890 | 10.3% | 13.5 |
| TCP-1 | [redacted] TCP | 977 | 102 | 875 | 10.4% | 22.7† |
| 480 | Gay Head - Aquinnah Shops Area | 969 | 102 | 867 | 10.5% | 13.7 |
| 479 | Gay Head Light | 954 | 96 | 858 | 10.1% | 13.9 |
| 484 | Vanderhoop, Edwin DeVries Homestead | 950 | 102 | 848 | 10.7% | 13.7 |
| 508 | Scrubby Neck Schoolhouse | 895 | 102 | 793 | 11.4% | 18.0† |
| 482 | Russell Hancock House | 889 | 97 | 792 | 10.9% | 16.6 |
| 469 | Hancock, Capt. Samuel - Mitchell, Capt. West House | 878 | 89 | 789 | 10.1% | 17.6† |
| 497 | Leonard Vanderhoop House | 868 | 99 | 769 | 11.4% | 14.0 |
| 504 | Flaghole | 808 | 102 | 706 | 12.6% | 13.3 |
| 474 | Flanders, Ernest House, Shop, and Barn | 805* | 100* | 705* | 12.4% | 13.8 |
| 496 | 71 Moshup Trail | 779 | 102 | 677 | 13.1% | 13.7 |
| 485 | Tom Cooper House | 726 | 102 | 624 | 14.0% | 14.0 |
| 486 | Gay Head - Aquinnah Coast Guard Station Barracks | 634** | 102 | 532 | 16.1% | 14.1 |
| 545 | Pilot Hill Road and Seaweed Lane | 626 | 102 | 524 | 16.3% | 15.4 |
| 546 | WWII Lookout Tower at Sands Pond | 624 | 102 | 522 | 16.3% | 15.8 |
| 266 | Paradise Rocks Historic District | 605 | 102 | 503 | 16.9% | 16.8 |
| 548 | Block Island Southeast Lighthouse NHL | 599 | 102 | 497 | 17.0% | 15.2 |
| 278 | St. Georges School | 588 | 102 | 486 | 17.3% | 16.3 |
| 251 | Westport Harbor | 582 | 102 | 480 | 17.5% | 15.2 |
| 532 | Beacon Hill Road | 582 | 102 | 480 | 17.5% | 16.9 |

| Survey ID | EDR Resource Name | WTG/OSS Theoretically Visible | | | Potential Project Contribution (%) | Nearest Project Wind Turbine Generator (miles) |
|---|---|---|---|---|---|---|
| | | Total | Revolution Wind Farm Project | Other Future Offshore Wind Projects | | |
| 491 | Gay Head – Aquinnah Town Center Historic District | 575 | 102 | 473 | 17.7% | 14.2 |
| 276 | Tunipus Goosewing Farm | 574 | 102 | 472 | 17.8% | 15.0 |
| 543 | WWII Lookout Tower – Spring Street | 571 | 102 | 469 | 17.9% | 15.1 |
| 261 | Indian Avenue Historic District | 570 | 102 | 468 | 17.9% | 16.2 |
| 297 | Warren Point Historic District | 570 | 102 | 468 | 17.9% | 12.9 |
| 168 | Westport Point Revolutionary War Properties | 568 | 102 | 466 | 18.0% | 16.2 |
| 541 | Caleb W. Dodge Jr. House | 567 | 102 | 465 | 18.0% | 15.3 |
| 222 | Ocean Drive Historic District NHL | 562 | 102 | 460 | 18.1% | 15.7 |
| 547 | Lewis Farm and Dickens Farm Road | 562 | 102 | 460 | 18.1% | 16.8 |
| 516 | Corn Neck Road | 553 | 102 | 451 | 18.4% | 15.8 |
| 299 | Abbott Phillips House | 552 | 102 | 450 | 18.5% | 13.0 |
| 540 | Spring Street | 551 | 102 | 449 | 18.5% | 14.9 |
| 303 | Gooseneck Causeway | 550 | 102 | 448 | 18.5% | 14.8 |
| 304 | Gooseberry Neck Observation Towers | 550 | 102 | 448 | 18.5% | 14.8 |
| 290 | Bellevue Avenue Historic District NHL | 543 | 102 | 441 | 18.8% | 15.2 |
| 590 | Capt. Mark L. Potter House | 543 | 102 | 441 | 18.8% | 14.9 |
| 490 | Theodore Haskins House | 542 | 102 | 440 | 18.8% | 14.1 |
| 595 | New Shoreham Historic District | 540 | 102 | 438 | 18.9% | 15.3 |
| 531 | Old Harbor Historic District | 540 | 102 | 438 | 18.9% | 15.3 |
| 597 | Ochre Point – Cliffs Historic District | 536 | 102 | 434 | 19.0% | 15.8 |
| 284 | The Bluff/John Bancroft Estate | 530 | 102 | 428 | 19.2% | 16.0 |
| 535 | Spring House Hotel | 525 | 102 | 423 | 19.4% | 15.4 |
| 542 | Lakeside Drive and Mitchell Lane | 523 | 102 | 421 | 19.5% | 16.5 |
| 550 | Hon. Julius Deming Perkins/"Bayberry Lodge" | 510 | 70 | 440 | 13.7% | 16.4 |

| Survey ID | EDR Resource Name | WTG/OSS Theoretically Visible | | | Potential Project Contribution (%) | Nearest Project Wind Turbine Generator (miles) |
|---|---|---|---|---|---|---|
| | | Total | Revolution Wind Farm Project | Other Future Offshore Wind Projects | | |
| 538 | Capt. Welcome Dodge Sr. | 508 | 102 | 406 | 20.1% | 15.3 |
| 293 | The Breakers NHL | 504 | 102 | 402 | 20.2% | 15.9 |
| 551 | Mohegan Cottage | 502 | 63 | 439 | 12.5% | 16.7 |
| 288 | Clambake Club of Newport | 499 | 102 | 397 | 20.4% | 16 |
| 295 | Rosecliff/Oelrichs (Hermann) House/Mondroe (J. Edgar) House | 495 | 102 | 393 | 20.6% | 15.9 |
| 298 | Marble House NHL | 492 | 102 | 390 | 20.7% | 15.7 |
| 553 | Whetstone | 492 | 102 | 390 | 20.7% | 16.0 |
| 519 | Mitchell Farm | 486 | 102 | 384 | 21.0% | 16.1 |
| 549 | Miss Abby E. Vaill/1 of 2 Vaill cottages | 480 | 46 | 434 | 9.6% | 16.4 |
| 552 | Sea View Villa | 477 | 102 | 375 | 21.4% | 15.9 |
| 279 | Kay St.-Catherine St.-Old Beach Rd. Historic District/ The Hill | 473 | 102 | 371 | 21.6% | 16.9 |
| 523 | Indian Head Neck Road | 473 | 102 | 371 | 21.6% | 16.2 |
| 536 | Spring Cottage | 472 | 102 | 370 | 21.6% | 15.3 |
| 333 | Ocean Road Historic District | 460 | 102 | 358 | 22.2% | 18.9 |
| 163 | Westport Point Historic District (1 of 2) | 459 | 102 | 357 | 22.2% | 16.7 |
| 522 | Champlin Farm | 443 | 102 | 341 | 23.0% | 17.1 |
| 495 | 3 Windy Hill Drive | 438 | 102 | 336 | 23.3% | 13.9 |
| 164 | Westport Point Historic District (2 of 2) | 437 | 102 | 335 | 23.3% | 16.7 |
| 301 | Horseneck Point Lifesaving Station | 429 | 88 | 341 | 20.5% | 15.9 |
| 302 | Clam Shack Restaurant | 429 | 88 | 341 | 20.5% | 15.9 |
| 526 | Beach Avenue | 418 | 102 | 316 | 24.4% | 16.1 |
| 156 | Salters Point | 396 | 102 | 294 | 25.8% | 19.7 |
| 226 | Beavertail Light | 386 | 102 | 284 | 26.4% | 18.4 |

| Survey ID | EDR Resource Name | WTG/OSS Theoretically Visible | | | Potential Project Contribution (%) | Nearest Project Wind Turbine Generator (miles) |
|---|---|---|---|---|---|---|
| | | Total | Revolution Wind Farm Project | Other Future Offshore Wind Projects | | |
| 300 | Sakonnet Light Station | 373 | 102 | 271 | 27.3% | 12.7 |
| 533 | Nathan Mott Park | 371 | 102 | 269 | 27.5% | 16.9 |
| 345 | Point Judith Lighthouse | 367 | 102 | 265 | 27.8% | 18.2 |
| 525 | Island Cemetery/Old Burial Ground | 353 | 102 | 251 | 28.9% | 16.8 |
| 335 | Dunmere | 333 | 102 | 231 | 30.6% | 19.1 |
| 591 | Narragansett Pier MRA | 312 | 102 | 210 | 32.7% | 19.8 |
| 576 | Fort Varnum/Camp Varnum | 308 | 102 | 206 | 33.1% | 19.6 |
| 582 | Horsehead/Marbella | 303 | 102 | 201 | 33.7% | 18.6 |
| 330 | The Towers Historic District | 301 | 102 | 199 | 33.9% | 19.8 |
| 390 | Fort Rodman Historic District | 293 | 99 | 194 | 33.8% | 24.6 |
| 530 | Old Town and Center Roads | 287 | 102 | 185 | 35.5% | 16.0 |
| 578 | Dunes Club | 279 | 102 | 177 | 36.6% | 19.8 |
| 520 | U.S. Lifesaving Station | 263 | 72 | 191 | 27.4% | 17.4 |
| 329 | Life Saving Station at Narragansett Pier | 258 | 102 | 156 | 39.5% | 19.8 |
| 392 | Fort Taber Historic District | 253 | 95 | 158 | 37.5% | 24.6 |
| 245 | Bailey Farm | 242 | 88 | 154 | 36.4% | 18.3 |
| 343 | Brownings Beach Historic District | 240 | 102 | 138 | 42.5% | 21.8 |
| 517 | Hippocampus/Boy's camp/Beane Family | 239 | 54 | 185 | 22.6% | 17.2 |
| 391 | Clark's Point Light | 232 | 86 | 146 | 37.1% | 24.6 |
| 518 | U.S. Coast Guard Brick House | 230 | 59 | 171 | 25.7% | 17.4 |
| 521 | Peleg Champlin House | 223 | 102 | 121 | 45.7% | 17.5 |
| 515 | Block Island North Lighthouse | 213 | 102 | 111 | 47.9% | 17.1 |
| 280 | Land Trust Cottages | 206 | 72 | 134 | 35.0% | 16.6 |
| 296 | The Stone House Inn | 203 | 74 | 129 | 36.5% | 13.4 |

| Survey ID | EDR Resource Name | WTG/OSS Theoretically Visible | | | Potential Project Contribution (%) | Nearest Project Wind Turbine Generator (miles) |
|---|---|---|---|---|---|---|
| | | Total | Revolution Wind Farm Project | Other Future Offshore Wind Projects | | |
| 389 | 744 Sconticut Neck Road | 187 | 102 | 85 | 54.5% | 25.9 |
| 528 | Hygeia House | 159 | 99 | 60 | 62.3% | 16.3 |
| 386 | Butler Flats Light Station | 143 | 72 | 71 | 50.3% | 25.6 |
| 449 | Nobska Point Lighthouse | 136 | 94 | 42 | 69.1% | 28.0 |
| 86 | Puncatest Neck Historic District | 119 | 55 | 64 | 46.2% | 19.4 |
| 444 | Tarpaulin Cove Light | 104 | 31 | 73 | 29.8% | 22,1 |
| 527 | U.S. Weather Bureau Station | 47 | 41 | 6 | 87.2% | 16.3 |

Source: EDR (2021b:Attachment B)

* Estimated from the Average of other adversely affected historic buildings and structures, or the districts containing them, on Martha's Vineyard, except the Gay Head - Aquinnah Coast Guard Station Barracks.

** Averaged between adjacent properties, the Tom Cooper House and the Theodore Haskins House.† Nearest WTG is not from the Project but from another future project.

### *3.1.2 Cumulative Visual Simulations*

The second step in modeling created an evenly spaced grid for the assessment of all potential locations (within 40 miles of the maximum work area for the RWF) where WTGs and OSSs for the Project and other offshore wind energy development projects could potentially be visible from historic properties (EDR 2021b) (Figure 5). As a result, the simulation of cumulative WTG and OSS visibility from KOPs representative of the relative positioning of the 101 historic properties that would be adversely affected by offshore development considered the combined, simultaneous appearance from the APE of 1,055 WTG and five OSS locations that would be potentially visible. This includes the modeling of up to 100 WTG and two OSS locations for the Project and up to 955 WTG and three OSS locations for future offshore development projects (Table 3). Notably, although modeling considers the maximum number of WTGs and OSSs that could theoretically be visible, this provides a maximum-case scenario. To exemplify this, while 15 WTGs and one OSS are modeled by EDR (2021b) as theoretically visible for the South Fork Wind Farm, BOEM (2021) has already determined that visibility of all offshore elements of that project will not rise to the level of adverse effects for all historic properties potentially in its viewshed and has approved the installation of up to 12 WTGs for that wind farm. Therefore, this report analyzes cumulative effects from the Project conservatively in respect to total potential offshore wind project WTG/OSS visibility to/from historic properties.

**Table 3. Maximum-case Scenario Numbers of Wind Turbine Generators and Offshore Substations Modelled for the Project and Other Future Wind Projects for Cumulative Analysis (EDR 2022b)**

| Potential Offshore Wind Projects | Maximum Case Scenario of Wind Turbine Generator Numbers | Numbers of Offshore Substations Modelled |
|---|---|---|
| Revolution Wind | 100 | 2 |
| Bay State Wind | 185 | 0 |
| Beacon Wind | 157 | 0 |
| Liberty Wind | 139 | 0 |
| Mayflower Wind | 149 | 0 |
| South Fork Wind | 15 | 1 |
| Sunrise Wind | 122 | 1 |
| Vineyard Wind North | 68 | 1 |
| Vineyard Wind South | 120 | 0 |

These same KOPs used by the CHRVEA are used by the HRVEA, with the CHRVEA adding the maximum possible build-out of WTG/OSS locations modeled in the lease areas for the Project and other offshore wind energy development activities (EDR 2021b, 2022a). The HRVEA positioned KOPs at locations with representative views for the 101 historic properties in the viewshed APE that could be susceptible to visual adverse impacts from the offshore components of the Project (see Figure 2). These representative views are not intended to be located at all elements of historic properties, or even directly at historic properties, but are rather situated at approximate locations to provide open views toward Project WTGs/OSSs and consider the distance of historic properties from the Project. KOPs were placed where seaward views and potentially visible historic properties could be maximized and are considered important.

CHRVEA results were effective in considering cumulative Project effects on historic properties because the simulations illustrate realistic views of possible WTG/OSS build-out from KOPs at land areas representative of the geographies containing the 101 adversely affected historic properties on the

mainland and islands of Rhode Island and Massachusetts. These simulations include Project WTGs/OSSs in combined views with maximized numbers of WTGs/OSS locations of other proposed offshore wind energy development activities visible from these KOPs. Information on the creation of the Project cumulative visual simulations (EDR 2021b) are included in Appendix B; the methods are the same as described in the HRVEA (EDR 2022a) and consistent with the VIA (EDR 2021c). The cumulative visual simulations created for the Project by EDR (2021b) are included in Appendix C.

The modeled WTG and OSS locations were simulated on a uniform 1 × 1–nm gridding of lease areas (EDR 2021b) (see Figure 5). This is because exact WTG positioning is not knowable for the Project or other future offshore wind energy developments. Modeling of WTGs/OSSs in an evenly spaced grid provides a representative distribution of potential WTGs/OSSs in the lease areas. This approach also provides a consistent method for comparing the potential cumulative visual effects of the RWF and other offshore wind development activities. As noted above, modeling of WTGs at all potential grid locations, in greater numbers than are planned for development supports a maximum-case scenario for analysis. At each modeled location:

> The next step involves positioning the Project 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 [visible] to the horizon (ocean to sky interface). . . . This is accomplished by entering the viewer position and elevation into the Haversine Formula, which uses the radius of the earth (corrected for refraction) to calculate the mathematical distance to the horizon (D), or the point at which the sky meets the water. . . . This distance is then used to draw a horizontal line (virtual horizon). . . . WTGs 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). . . . This value was then applied to the turbine's vertical position in the model so that it appears on or below the visible horizon. . . . The proposed exterior color/finish of the WTGs 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. . . . All simulations show the WTGs with rotors oriented toward the southwest, which is generally the prevailing wind direction in the area. (EDR 2021c:52–53)
>
> The resulting simulations show a field of view of 38.7 degrees . . . because it most closely approximates normal human perception of spatial relationships and scale in the landscape. (EDR 2021c:53)

Although viewshed and cumulative WTG/OSS visibility models themselves "do not determine the level of impact, or whether the presence of structures would result in an adverse effect on historic properties; however, viewshed models can be used to help interpret the potential visual impact on historic properties," as others have noted for cumulative visual effects analysis intersecting these BOEM lease areas (ERM 2021:9).

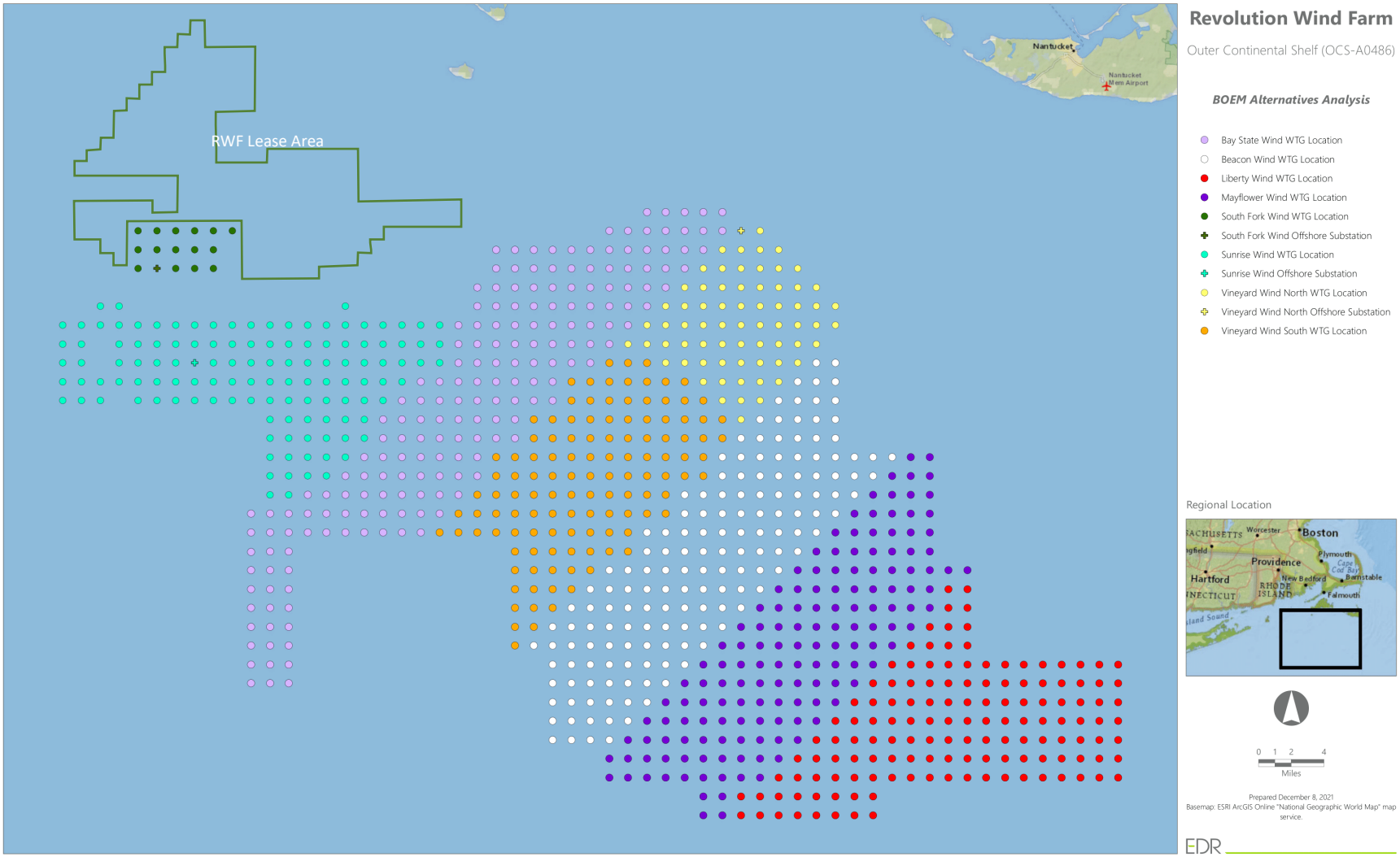


**Figure 5. Wind turbine generator locations gridded for cumulative visual simulations across adjacent Bureau of Ocean Energy Management lease areas for future offshore wind projects (EDR 2021b); Project wind turbine generator/offshore substation locations are not repeated in this figure.**

### *3.1.3 Distance Zones*

Table 4 summarizes the number of WTG (or OSS) locations from the proposed Project and other projects theoretically visible from the 101 historic properties that would be adversely affected by the Project, in intervals of less than 12 miles (0 to 18.5 kilometers [km]), 12 to 24 miles (18.5 to 37.0 km), 24 to 30 miles (37.0 to 55.6 km), and greater than 30 miles (over 55.6 km) (EDR 2021b). As the HRVEA notes, "Previous visual studies have shown that potential significant visual effects are generally concentrated within 18 miles (29 km) of an offshore windfarm [*sic*]" (EDR 2022a:8; also see Sullivan et al. 2013), with visual effects from WTGs becoming minor between 20 and 25 miles in distance, becoming negligible beyond 25 and 30 miles in distance, and fully receding from visibility after 35 miles in distance as first the WTG hub and then blade tips disappear behind the horizon due to the curvature of the Earth.

> This 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 (16.1 km); were noticeable to casual observers at distances of almost 18 miles (29 km); and were visible with extended or concentrated viewing at distances beyond 25 miles (40 km). . . . 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 (32.2 km) and negligible effect beyond 25 miles (40.2 km) (EDR 2017). (EDR 2022a:8)

> Previous analyses completed by EDR for the operational Block Island Wind Farm (BIWF) suggest that, in general, offshore wind turbines of up to 12 MW in size will be substantially screened by the curvature of the earth at a distance of 40 miles (64.4 km). Additionally, at a distance of 35-40 miles (56.3-64.4 km), only the narrowest portion of the blade tip will be theoretically visible over the horizon. Considering the combined effects of distance, curvature of the earth, atmospheric haze, and human visual acuity, the turbines would be very difficult to perceive at this distance. (EDR 2022a:8–9)

Data provided in Table 4 are based on the maximum-case visual impact scenario layout.

**Table 4. Number of Wind Turbine Generators and Offshore Substations Theoretically Visible by Distance Zone, Ordered by Cumulative Locations Visible**

| Survey ID | EDR Resource Name | | Proposed Project WTGs (< 12 miles) | | Other Project WTGs (< 12 miles) | | Proposed Project WTGs (12–24 miles) | | Other Project WTGs (12–24 miles) | | Proposed Project WTGs (24–30 miles) | | Other Project WTGs (24–30 miles) | | Proposed Project WTGs (> 30 miles) | | Other Project WTGs (> 30 miles) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total WTGs | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total |
| TCP-3 | [redacted] TCP | 1060 | 49 | 4.6% | 24 | 2.3% | 53 | 5.0% | 354 | 33.4% | 0 | 0.0% | 164 | 15.5% | 0 | 0.0% | 416 | 39.2% |
| 503 | Simon Mayhew House | 992 | 0 | 0.0% | 0 | 0.0% | 86 | 8.7% | 150 | 15.1% | 16 | 1.6% | 206 | 20.8% | 0 | 0.00% | 534 | 53.8% |
| TCP-1 | [redacted] TCP | 977 | 0 | 0.0% | 0 | 0.0% | 3 | 0.3% | 118 | 12.1% | 26 | 2.7% | 122 | 12.5% | 73 | 7.5% | 635 | 65.0% |
| 480 | Gay Head – Aquinnah Shops Area | 969 | 0 | 0.0% | 0 | 0.0% | 92 | 9.5% | 97 | 10.0% | 10 | 1.0% | 202 | 20.8% | 0 | 0.0% | 568 | 58.6% |
| 479 | Gay Head Light | 954 | 0 | 0.0% | 0 | 0.0% | 87 | 9.1% | 97 | 10.2% | 9 | 0.9% | 199 | 20.9% | 0 | 0.0% | 562 | 58.9% |
| 484 | Vanderhoop, Edwin DeVries Homestead | 950 | 0 | 0.0% | 0 | 0.0% | 92 | 9.7% | 106 | 11.2% | 10 | 1.1% | 198 | 20.8% | 0 | 0.0% | 544 | 57.3% |
| 508 | Scrubby Neck Schoolhouse | 895 | 0 | 0.0% | 0 | 0.0% | 27 | 3.0% | 122 | 13.6% | 56 | 6.3% | 155 | 17.3% | 19 | 2.1% | 516 | 57.7% |
| 482 | Russell Hancock House | 889 | 0 | 0.0% | 0 | 0.0% | 45 | 5.1% | 121 | 13.6% | 40 | 4.5% | 174 | 19.6% | 12 | 1.3% | 497 | 55.9% |
| 469 | Hancock, Capt. Samuel - Mitchell, Capt. West House | 878 | 0 | 0.0% | 0 | 0.0% | 34 | 3.9% | 111 | 12.6% | 43 | 4.9% | 159 | 18.1% | 12 | 1.4% | 519 | 59.1% |
| 497 | Leonard Vanderhoop House | 868 | 0 | 0.0% | 0 | 0.0% | 87 | 10.0% | 101 | 11.6% | 12 | 1.4% | 175 | 20.2% | 0 | 0.0% | 493 | 56.8% |
| 474 | Flanders, Ernest House, Shop, and Barn | 805* | 0 | 0.0% | 0 | 0.0% | 78* | 9.7% | 103* | 12.8% | 22* | 2.7% | 170* | 21.1% | 0 | 0.0% | 432 | 53.7% |
| 504 | Flagpole | 808 | 0 | 0.0% | 0 | 0.0% | 86 | 10.6% | 148 | 18.3% | 16 | 2.0% | 167 | 20.7% | 0 | 0.0% | 391 | 48.4% |
| 496 | 71 Moshup Trail | 779 | 0 | 0.0% | 0 | 0.0% | 92 | 11.8% | 104 | 13.4% | 10 | 1.3% | 175 | 22.5% | 0 | 0.0% | 398 | 51.1% |
| 485 | Tom Cooper House | 726 | 0 | 0.0% | 0 | 0.0% | 91 | 12.5% | 84 | 11.6% | 11 | 1.5% | 167 | 23.0% | 0 | 0.0% | 373 | 51.4% |
| 486 | Gay Head - Aquinnah Coast Guard Station Barracks | 634** | 0 | 0.0% | 0 | 0.0% | 91** | 14.4% | 77** | 12.1% | 11** | 1.7% | 156** | 24.6% | 0** | 0.0% | 299** | 47.2% |
| 545 | Pilot Hill Road and Seaweed Lane | 626 | 0 | 0.0% | 0 | 0.0% | 46 | 7.3% | 44 | 7.0% | 34 | 5.4% | 31 | 5.0% | 22 | 3.5% | 449 | 71.7% |
| 546 | WWII Lookout Tower at Sands Pond | 624 | 0 | 0.0% | 0 | 0.0% | 44 | 7.1% | 40 | 6.4% | 34 | 5.4% | 34 | 5.4% | 24 | 3.8% | 448 | 71.8% |
| 266 | Paradise Rocks Historic District | 605 | 0 | 0.0% | 0 | 0.0% | 40 | 6.6% | 0 | 0.0% | 42 | 6.9% | 16 | 2.6% | 20 | 3.3% | 487 | 80.5% |
| 548 | Block Island Southeast Lighthouse NHL | 599 | 0 | 0.0% | 0 | 0.0% | 47 | 7.8% | 47 | 7.8% | 33 | 5.5% | 29 | 4.8% | 22 | 3.7% | 421 | 70.3% |
| 278 | St. Georges School | 588 | 0 | 0.0% | 0 | 0.0% | 39 | 6.6% | 0 | 0.0% | 41 | 7.0% | 16 | 2.7% | 22 | 3.7% | 470 | 79.9% |
| 251 | Westport Harbor | 582 | 0 | 0.0% | 0 | 0.0% | 43 | 7.4% | 0 | 0.0% | 58 | 10.0% | 16 | 2.7% | 1 | 0.2% | 464 | 79.7% |
| 532 | Beacon Hill Road | 582 | 0 | 0.0% | 0 | 0.0% | 34 | 5.8% | 32 | 5.5% | 38 | 6.5% | 34 | 5.8% | 30 | 5.2% | 414 | 71.1% |
| 491 | Gay Head – Aquinnah Town Center Historic District | 575 | 0 | 0.0% | 0 | 0.0% | 90 | 15.7% | 71 | 12.3% | 12 | 2.1% | 136 | 23.7% | 0 | 0.0% | 266 | 46.3% |
| 276 | Tunipus Goosewing Farm | 574 | 0 | 0.0% | 0 | 0.0% | 43 | 7.5% | 0 | 0.0% | 57 | 9.9% | 15 | 2.6% | 2 | 0.3% | 457 | 79.6% |
| 543 | WWII Lookout Tower – Spring Street | 571 | 0 | 0.0% | 0 | 0.0% | 47 | 8.2% | 46 | 8.1% | 33 | 5.8% | 30 | 5.3% | 22 | 3.9% | 393 | 68.8% |
| 261 | Indian Avenue Historic District | 570 | 0 | 0.0% | 0 | 0.0% | 39 | 6.8% | 0 | 0.0% | 42 | 7.4% | 16 | 2.8% | 21 | 3.7% | 452 | 79.3% |
| 297 | Warren Point Historic District | 570 | 0 | 0.0% | 0 | 0.0% | 63 | 11.1% | 0 | 0.0% | 39 | 6.8% | 20 | 3.5% | 0 | 0.0% | 448 | 78.6% |
| 168 | Westport Point Revolutionary War Properties | 568 | 0 | 0.0% | 0 | 0.0% | 34 | 6.0% | 0 | 0.0% | 65 | 11.4% | 13 | 2.3% | 3 | 0.5% | 453 | 79.8% |
| 541 | Caleb W. Dodge Jr. House | 567 | 0 | 0.0% | 0 | 0.0% | 47 | 8.3% | 44 | 7.8% | 33 | 5.8% | 31 | 5.5% | 22 | 3.9% | 390 | 68.8% |
| 222 | Ocean Drive Historic District NHL | 562 | 0 | 0.0% | 0 | 0.0% | 47 | 8.4% | 0 | 0.0% | 38 | 6.8% | 22 | 3.9% | 17 | 3.0% | 438 | 77.9% |
| 547 | Lewis Farm and Dickens Farm Road | 562 | 0 | 0.0% | 0 | 0.0% | 35 | 6.2% | 35 | 6.2% | 38 | 6.8% | 35 | 6.2% | 29 | 5.2% | 390 | 69.4% |
| 516 | Corn Neck Road | 553 | 0 | 0.0% | 0 | 0.0% | 46 | 8.3% | 31 | 5.6% | 31 | 5.6% | 37 | 6.7% | 25 | 4.5% | 383 | 69.3% |
| 299 | Abbott Phillips House | 552 | 0 | 0.0% | 0 | 0.0% | 62 | 11.2% | 0 | 0.0% | 40 | 7.2% | 18 | 3.3% | 0 | 0.0% | 432 | 78.3% |
| 540 | Spring Street | 551 | 0 | 0.0% | 0 | 0.0% | 47 | 8.5% | 47 | 8.5% | 36 | 6.5% | 29 | 5.3% | 19 | 3.4% | 373 | 67.7% |

| Survey ID | EDR Resource Name | | Proposed Project WTGs (< 12 miles) | | Other Project WTGs (< 12 miles) | | Proposed Project WTGs (12–24 miles) | | Other Project WTGs (12–24 miles) | | Proposed Project WTGs (24–30 miles) | | Other Project WTGs (24–30 miles) | | Proposed Project WTGs (> 30 miles) | | Other Project WTGs (> 30 miles) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total WTGs | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total |
| 303 | Gooseneck Causeway | 550 | 0 | 0.0% | 0 | 0.0% | 53 | 9.6% | 0 | 0.0% | 49 | 8.9% | 16 | 2.9% | 0 | 0.0% | 432 | 78.5% |
| 304 | Gooseberry Neck Observation Towers | 550 | 0 | 0.0% | 0 | 0.0% | 53 | 9.6% | 0 | 0.0% | 49 | 8.9% | 16 | 2.9% | 0 | 0.0% | 432 | 78.5% |
| 290 | Bellevue Avenue Historic District NHL | 543 | 0 | 0.0% | 0 | 0.0% | 43 | 7.9% | 0 | 0.0% | 40 | 7.4% | 18 | 3.3% | 19 | 3.5% | 423 | 77.9% |
| 590 | Capt. Mark L. Potter House | 543 | 0 | 0.0% | 0 | 0.0% | 47 | 8.7% | 47 | 8.7% | 36 | 6.6% | 29 | 5.3% | 19 | 3.5% | 365 | 67.2% |
| 490 | Theodore Haskins House | 542 | 0 | 0.0% | 0 | 0.0% | 90 | 16.6% | 69 | 12.7% | 12 | 2.2% | 146 | 26.9% | 0 | 0.0% | 225 | 41.5% |
| 595 | New Shoreham Historic District | 540 | 0 | 0.0% | 0 | 0.0% | 47 | 8.7% | 42 | 7.8% | 33 | 6.1% | 32 | 5.9% | 22 | 4.1% | 364 | 67.4% |
| 531 | Old Harbor Historic District | 540 | 0 | 0.0% | 0 | 0.0% | 47 | 8.7% | 42 | 7.8% | 33 | 6.1% | 32 | 5.9% | 22 | 4.1% | 364 | 67.4% |
| 597 | Ochre Point – Cliffs Historic District | 536 | 0 | 0.0% | 0 | 0.0% | 43 | 8.0% | 0 | 0.0% | 40 | 7.5% | 18 | 3.4% | 19 | 3.5% | 416 | 77.6% |
| 284 | The Bluff/John Bancroft Estate | 530 | 0 | 0.0% | 0 | 0.0% | 40 | 7.5% | 0 | 0.0% | 42 | 7.9% | 16 | 3.0% | 20 | 3.8% | 412 | 77.7% |
| 535 | Spring House Hotel | 525 | 0 | 0.0% | 0 | 0.0% | 47 | 9.0% | 42 | 8.0% | 33 | 6.3% | 32 | 6.1% | 22 | 4.2% | 349 | 66.5% |
| 542 | Lakeside Drive and Mitchell Lane | 523 | 0 | 0.0% | 0 | 0.0% | 36 | 6.9% | 36 | 6.9% | 38 | 7.3% | 35 | 6.7% | 28 | 5.4% | 350 | 66.9% |
| 550 | Hon. Julius Deming Perkins/"Bayberry Lodge" | 510 | 0 | 0.0% | 0 | 0.0% | 18 | 3.5% | 38 | 7.5% | 24 | 4.7% | 33 | 6.5% | 28 | 5.5% | 369 | 72.4% |
| 538 | Capt. Welcome Dodge Sr. | 508 | 0 | 0.0% | 0 | 0.0% | 47 | 9.3% | 43 | 8.5% | 33 | 6.5% | 31 | 6.1% | 22 | 4.3% | 332 | 65.4% |
| 293 | The Breakers NHL | 504 | 0 | 0.0% | 0 | 0.0% | 43 | 8.5% | 0 | 0.0% | 40 | 7.9% | 18 | 3.6% | 19 | 3.8% | 384 | 76.2% |
| 551 | Mohegan Cottage | 502 | 0 | 0.0% | 0 | 0.0% | 18 | 3.6% | 36 | 7.2% | 20 | 4.0% | 35 | 7.0% | 25 | 5.0% | 368 | 73.3% |
| 288 | Clambake Club Of Newport | 499 | 0 | 0.0% | 0 | 0.0% | 40 | 8.0% | 0 | 0.0% | 43 | 8.6% | 15 | 3.0% | 19 | 3.8% | 382 | 76.6% |
| 295 | Rosecliff/Oelrichs (Hermann) House/Mondroe (J. Edgar) House | 495 | 0 | 0.0% | 0 | 0.0% | 44 | 8.9% | 0 | 0.0% | 39 | 7.9% | 17 | 3.4% | 19 | 3.8% | 376 | 76.0% |
| 298 | Marble House NHL | 492 | 0 | 0.0% | 0 | 0.0% | 46 | 9.3% | 0 | 0.0% | 38 | 7.7% | 18 | 3.7% | 18 | 3.7% | 372 | 75.6% |
| 553 | Whetstone | 492 | 0 | 0.0% | 0 | 0.0% | 40 | 8.1% | 0 | 0.0% | 42 | 8.5% | 15 | 3.0% | 20 | 4.1% | 375 | 76.2% |
| 519 | Mitchell Farm | 486 | 0 | 0.0% | 0 | 0.0% | 44 | 9.1% | 32 | 6.6% | 32 | 6.6% | 36 | 7.4% | 26 | 5.3% | 316 | 65.0% |
| 549 | Miss Abby E. Vaill/1 of 2 Vaill cottages | 480 | 0 | 0.0% | 0 | 0.0% | 10 | 2.1% | 39 | 8.1% | 14 | 2.9% | 32 | 6.7% | 22 | 4.6% | 363 | 75.6% |
| 552 | Sea View Villa | 477 | 0 | 0.0% | 0 | 0.0% | 40 | 8.4% | 0 | 0.0% | 43 | 9.0% | 15 | 3.1% | 19 | 4.0% | 360 | 75.5% |
| 279 | Kay St.-Catherine St.-Old Beach Rd. Historic District/The Hill | 473 | 0 | 0.0% | 0 | 0.0% | 38 | 8.0% | 0 | 0.0% | 39 | 8.2% | 15 | 3.2% | 25 | 5.3% | 356 | 75.3% |
| 523 | Indian Head Neck Road | 473 | 0 | 0.0% | 0 | 0.0% | 39 | 8.2% | 34 | 7.2% | 36 | 7.6% | 35 | 7.4% | 27 | 5.7% | 302 | 63.8% |
| 536 | Spring Cottage | 472 | 0 | 0.0% | 0 | 0.0% | 47 | 10.0% | 41 | 8.7% | 33 | 7.0% | 31 | 6.6% | 22 | 4.7% | 298 | 63.1% |
| 333 | Ocean Road Historic District | 460 | 0 | 0.0% | 0 | 0.0% | 42 | 9.1% | 0 | 0.0% | 27 | 5.9% | 25 | 5.4% | 33 | 7.2% | 333 | 72.4% |
| 163 | Westport Point Historic District (1 of 2) | 459 | 0 | 0.0% | 0 | 0.0% | 29 | 6.3% | 0 | 0.0% | 64 | 13.9% | 11 | 2.4% | 9 | 2.0% | 346 | 75.4% |
| 522 | Champlin Farm | 443 | 0 | 0.0% | 0 | 0.0% | 34 | 7.7% | 26 | 5.9% | 37 | 8.4% | 37 | 8.4% | 31 | 7.0% | 278 | 62.8% |
| 495 | 3 Windy Hill Drive | 438 | 0 | 0.0% | 0 | 0.0% | 91 | 20.8% | 60 | 13.7% | 11 | 2.5% | 119 | 27.2% | 0 | 0.0% | 157 | 35.8% |
| 164 | Westport Point Historic District (2 of 2) | 437 | 0 | 0.0% | 0 | 0.0% | 29 | 6.6% | 0 | 0.0% | 64 | 14.6% | 11 | 2.5% | 9 | 2.1% | 324 | 74.1% |
| 301 | Horseneck Point Lifesaving Station | 429 | 0 | 0.0% | 0 | 0.0% | 36 | 8.4% | 0 | 0.0% | 51 | 11.9% | 14 | 3.3% | 1 | 0.2% | 327 | 76.2% |
| 302 | Clam Shack Restaurant | 429 | 0 | 0.0% | 0 | 0.0% | 36 | 8.4% | 0 | 0.0% | 51 | 11.9% | 14 | 3.3% | 1 | 0.2% | 327 | 76.2% |
| 526 | Beach Avenue | 418 | 0 | 0.0% | 0 | 0.0% | 39 | 9.3% | 33 | 7.9% | 37 | 8.9% | 34 | 8.1% | 26 | 6.2% | 249 | 59.6% |
| 156 | Salter Point | 396 | 0 | 0.0% | 0 | 0.0% | 17 | 4.3% | 0 | 0.0% | 66 | 16.7% | 2 | 0.5% | 19 | 4.8% | 292 | 73.7% |
| 226 | Beavertail Light | 386 | 0 | 0.0% | 0 | 0.0% | 39 | 10.1% | 0 | 0.0% | 31 | 8.0% | 18 | 4.7% | 32 | 8.3% | 266 | 68.9% |
| 300 | Sakonnet Light Station | 373 | 0 | 0.0% | 0 | 0.0% | 66 | 17.7% | 4 | 1.1% | 35 | 9.4% | 22 | 5.9% | 1 | 0.3% | 245 | 65.7% |

| Survey ID | EDR Resource Name | | Proposed Project WTGs (< 12 miles) | | Other Project WTGs (< 12 miles) | | Proposed Project WTGs (12–24 miles) | | Other Project WTGs (12–24 miles) | | Proposed Project WTGs (24–30 miles) | | Other Project WTGs (24–30 miles) | | Proposed Project WTGs (> 30 miles) | | Other Project WTGs (> 30 miles) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total WTGs | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total | Number | % of Total |
| 533 | Nathan Mott Park | 371 | 0 | 0.0% | 0 | 0.0% | 34 | 9.2% | 32 | 8.6% | 38 | 10.2% | 33 | 8.9% | 30 | 8.1% | 204 | 55.0% |
| 345 | Point Judith Lighthouse | 367 | 0 | 0.0% | 0 | 0.0% | 48 | 13.1% | 3 | 0.8% | 27 | 7.4% | 37 | 10.1% | 27 | 7.4% | 225 | 61.3% |
| 525 | Island Cemetery/Old Burial Ground | 353 | 0 | 0.0% | 0 | 0.0% | 36 | 10.2% | 23 | 6.5% | 36 | 10.2% | 25 | 7.1% | 30 | 8.5% | 203 | 57.5% |
| 335 | Dunmere | 333 | 0 | 0.0% | 0 | 0.0% | 41 | 12.3% | 0 | 0.0% | 28 | 8.4% | 24 | 7.2% | 33 | 9.9% | 207 | 62.2% |
| 591 | Narragansett Pier MRA | 312 | 0 | 0.0% | 0 | 0.0% | 33 | 10.6% | 0 | 0.0% | 30 | 9.6% | 18 | 5.8% | 39 | 12.5% | 192 | 61.5% |
| 576 | Fort Varnum/Camp Varnum | 308 | 0 | 0.0% | 0 | 0.0% | 32 | 10.4% | 0 | 0.0% | 31 | 10.1% | 14 | 4.5% | 39 | 12.7% | 192 | 62.3% |
| 582 | Horsehead/Marbella | 303 | 0 | 0.0% | 0 | 0.0% | 33 | 10.9% | 0 | 0.0% | 34 | 11.2% | 14 | 4.6% | 35 | 11.6% | 187 | 61.7% |
| 330 | The Towers Historic District | 301 | 0 | 0.0% | 0 | 0.0% | 32 | 10.6% | 0 | 0.0% | 30 | 10.0% | 18 | 6.0% | 40 | 13.3% | 181 | 60.1% |
| 390 | Fort Rodman | 293 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 24 | 8.2% | 0 | 0.0% | 75 | 25.6% | 194 | 66.2% |
| 530 | Old Town and Center Roads | 287 | 0 | 0.0% | 0 | 0.0% | 39 | 13.6% | 27 | 9.4% | 37 | 12.9% | 19 | 6.6% | 26 | 9.1% | 139 | 48.4% |
| 578 | Dunes Club | 279 | 0 | 0.0% | 0 | 0.0% | 31 | 11.1% | 0 | 0.0% | 31 | 11.1% | 14 | 5.0% | 40 | 14.3% | 163 | 58.4% |
| 520 | US Lifesaving Station | 263 | 0 | 0.0% | 0 | 0.0% | 28 | 10.6% | 23 | 8.7% | 33 | 12.5% | 38 | 14.4% | 11 | 4.2% | 130 | 49.4% |
| 328 | The Towers / Tower Entrance of Narragansett Casino | 258 | 0 | 0.0% | 0 | 0.0% | 32 | 12.4% | 0 | 0.0% | 30 | 11.6% | 18 | 7.0% | 40 | 15.5% | 138 | 53.5% |
| 329 | Life Saving Station at Narragansett Pier | 258 | 0 | 0.0% | 0 | 0.0% | 32 | 12.4% | 0 | 0.0% | 30 | 11.6% | 18 | 7.0% | 40 | 15.5% | 138 | 53.5% |
| 392 | Fort Taber Historic District | 253 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 24 | 9.5% | 0 | 0.0% | 71 | 28.1% | 158 | 62.5% |
| 245 | Bailey Farm | 242 | 0 | 0.0% | 0 | 0.0% | 27 | 11.2% | 0 | 0.0% | 41 | 16.9% | 8 | 3.3% | 20 | 8.3% | 146 | 60.3% |
| 343 | Brownings Beach Historic District | 240 | 0 | 0.0% | 0 | 0.0% | 16 | 6.7% | 0 | 0.0% | 40 | 16.7% | 18 | 7.5% | 46 | 19.2% | 120 | 50.0% |
| 517 | Hippocampus/Boy's camp/Beane Family | 239 | 0 | 0.0% | 0 | 0.0% | 32 | 13.4% | 23 | 9.6% | 18 | 7.5% | 39 | 16.3% | 4 | 1.7% | 123 | 51.5% |
| 391 | Clark's Point Light | 232 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 22 | 9.5% | 0 | 0.0% | 64 | 27.6% | 146 | 62.9% |
| 518 | U.S. Coast Guard Brick House | 230 | 0 | 0.0% | 0 | 0.0% | 26 | 11.3% | 22 | 9.6% | 25 | 10.9% | 38 | 16.5% | 8 | 3.5% | 111 | 48.3% |
| 521 | Peleg Champlin House | 223 | 0 | 0.0% | 0 | 0.0% | 29 | 13.0% | 7 | 3.1% | 39 | 17.5% | 10 | 4.5% | 34 | 15.2% | 104 | 46.6% |
| 515 | Block Island North Lighthouse | 213 | 0 | 0.0% | 0 | 0.0% | 37 | 17.4% | 6 | 2.8% | 34 | 16.0% | 11 | 5.2% | 31 | 14.6% | 94 | 44.1% |
| 280 | Land Trust Cottages | 206 | 0 | 0.0% | 0 | 0.0% | 36 | 17.5% | 0 | 0.0% | 29 | 14.1% | 15 | 7.3% | 7 | 3.4% | 119 | 57.8% |
| 296 | The Stone House Inn | 203 | 0 | 0.0% | 0 | 0.0% | 53 | 26.1% | 0 | 0.0% | 21 | 10.3% | 16 | 7.9% | 0 | 0.0% | 113 | 55.7% |
| 389 | 744 Sconticut Neck Road | 187 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 16 | 8.6% | 0 | 0.0% | 86 | 46.0% | 85 | 45.5% |
| 528 | Hygeia House | 159 | 0 | 0.0% | 0 | 0.0% | 36 | 22.6% | 8 | 5.0% | 35 | 22.0% | 5 | 3.1% | 28 | 17.6% | 47 | 29.6% |
| 386 | Butler Flats Light Station | 143 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 16 | 11.2% | 0 | 0.0% | 56 | 39.2% | 71 | 49.7% |
| 449 | Nobska Point Lighthouse | 136 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 10 | 7.4% | 0 | 0.0% | 84 | 61.8% | 42 | 30.9% |
| 86 | Puncatest Neck Historic District | 119 | 0 | 0.0% | 0 | 0.0% | 15 | 12.6% | 0 | 0.0% | 35 | 29.4% | 0 | 0.0% | 5 | 4.2% | 64 | 53.8% |
| 444 | Tarpaulin Cove Light | 104 | 0 | 0.0% | 0 | 0.0% | 4 | 3.8% | 0 | 0.0% | 25 | 24.0% | 8 | 7.7% | 2 | 1.9% | 65 | 62.5% |
| 527 | US Weather Bureau Station | 47 | 0 | 0.0% | 0 | 0.0% | 23 | 48.9% | 4 | 8.5% | 16 | 34.0% | 2 | 4.3% | 2 | 4.3% | 0 | 0.0% |

* Estimated from the Average of other adversely affected historic buildings and structures, or the districts containing them, on Martha's Vineyard, except the Gay Head - Aquinnah Coast Guard Station Barracks.
** Averaged between adjacent properties, the Tom Cooper House and the Theodore Haskins House.

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## *3.1.4 Weather and Atmospheric Conditions*

In 2017, BOEM conducted a meteorological study to assess visibility conditions near the Rhode Island and Massachusetts Lease Areas at varying distances (BOEM 2017). Weather and other atmospheric conditions (i.e., sun position, fog, humidity, and general atmospheric conditions) influence the visibility of WTGs. Seasonal variation is also an especially important factor on the east coast of the United States, where the weather and visibility patterns of the four seasons are distinct (Warner 2018). In general, WTGs that are located closer to affected resources would be visible more frequently and would be visually dominant in panoramic views during clear conditions due to proximity and extent of the horizon occupied (ERM 2021).

Table 5 summarizes the results of BOEM's assessment of 24 coastal viewpoint locations in Massachusetts and Rhode Island. The assessment was based on hourly meteorological surface data collected at National Weather Service measurement sites between 2003 and 2012. Average visibility distance is roughly equivalent at Martha's Vineyard and Newport and slightly lower at Nantucket, where conditions allowing for visibility up to 35 miles are rare. WTGs in the 11.5- to 23.0-mile distance zone would be theoretically visible more frequently, and could be visually prominent in panoramic views during clear conditions due to proximity, than WTGs beyond 23.0 miles.

**Table 5. Visibility Conditions at Massachusetts and Rhode Island Airports in Proximity to the Project, 2017**

| Measure of Visibility | Martha's Vineyard, Massachusetts | Nantucket, Massachusetts | Newport, Rhode Island |
|---|---|---|---|
| Average visibility distance in clear conditions | 23 miles (37 km) | 20 miles (31 km) | 23 miles (37 km) |
| Number of days when visibility extends to 23 miles (27 km) for 50% or more of daylight hours | 113 days/year | 80 days/year | 112 days/year |
| Days when visibility extends to 35 miles (56 km) for 50% or more of daylight hours | 32 days/year | 14 days/year | 29 days/year |

Source: BOEM (2017)

## *3.1.5 Nighttime Lighting*

### 3.1.5.1 OPERATIONS LIGHTING

EDR (2022a) conducted a viewshed analysis to assess the visibility of aviation obstruction lights (nighttime lighting) at a height of 534.8 feet (163 m), at the center tower elevation of 246.4 feet (75.1 m) to assess the potential visibility of the mid-tower aviation obstruction lights, and at the WTG deck at an elevation of 69.6 feet (21.2 m) to determine potential visibility of U.S. Coast Guard (USCG) lights. Nighttime scenarios, and the effects of nighttime lighting, are also included as part of the cumulative simulations presented in Appendix C (EDR 2022b).

- Red aviation obstruction lights would be higher on the horizon than, and likely noticeably brighter than lights on vessels at similar distances. The proposed Project's potential nighttime visual effects on historic properties would be limited by visibility conditions and mitigated by the rare use of aircraft detection lighting system (ADLS), rare because ADLS would activate only when aircraft are detected approaching the Project area.
- At Aquinnah Overlook at night, the HRVEA notes that flashing red aviation warning lights would be visible higher upon WTGs but that flashing amber USCG warning lights around WTG

foundations would have a greater visual prominence due to their lighter coloring against the black sky and ocean. The addition of warning lights on the WTGs would increase visual clutter at the horizon. Also, the number and mass of lights would diminish the sense of openness (EDR 2022a).

- USCG navigation warning lights (yellow or amber) would be obscured by the curvature of the earth beyond approximately 16 miles (30 km) from vantage points along the shoreline at approximately sea level. (Epsilon Associates, Inc. 2020)

#### 3.1.5.2 CONSTRUCTION LIGHTING

Construction lighting could be visible from adversely affected historic properties during Project construction, and Project construction lighting use would overlap with construction and operations lighting of other future offshore wind development activities. Given this, cumulative visual effects would occur during Project construction because it would coincide with construction and operation of other proposed future offshore wind development. Based on the proposed construction sequencing, Project construction phases would overlap and/or may have multi-year spans of construction, with two to three offshore wind projects being under construction at the same time. Although, the cumulative visual impacts would be less for construction phases associated with Lease Areas OSC-A 0520, 0521, and 0522 and planned for 2022 through 2030, because these are farther from the coast and would be less visible or invisible from vantage points along the shoreline due to this increased distance. The construction sequences and associated lease areas (see Figure 1) are proposed as follows:

- Vineyard Wind 1 (part of OCS-A 0501) 2022–2023
- South Fork Wind (part of OCS-A 0517) 2022–2023
- RWF (part of OCS-A 0486) 2023–2024
- Sunrise Wind (part of OCS-A 0487) 2024
- Mayflower (North) Wind (part of OCS-A 0521) 2024
- New England Wind 2024–2026
  - Phase 1 (i.e., Park City Wind) (OCS-A 0534 and a portion of OCS-A 0501)
  - Phase 2 (i.e., Commonwealth Wind) (OCS-A 0534 and portion of OCS-A 0501)
- Beacon Wind (part of OCS-A 0520) 2025–2026
- Bay State Wind (part of OCS-A 0500) by 2030, spread over 2025–2030
- Liberty Wind (OCS-A 0522) by 2030, spread over 2025–2030

With overlapping periods of construction and operation, cumulative effects from nighttime RWF lighting—should nighttime construction be employed—would begin during the installation of the RWF WTGs in 2023, increase with RWF WTG operation, and be maximum with all affecting offshore wind activity WTGs in place by 2030. These cumulative effects would persist through Project decommissioning when the effects of the RWF would be removed.

## 3.2 Visual Effects

The CHRVEA analyzes how the visual adverse effect from the Project, that BOEM has determined for the 101 historic properties, have the potential to result in additive cumulative visual effects in combination with the other reasonably foreseeable offshore wind energy development activities. This CHRVEA uses the modeling of the Project viewshed and cumulative WTG/OSS visibility within that

viewshed to inform this analysis. This analysis considers the importance of maritime setting to the integrity of the 101 historic properties from the vantage of significant seaward views that could include Project WTGs/OSSs and the WTGs/OSSs of other planned offshore wind energy projects. The modeling quantifies the total number of WTGs that are theoretically visible from the historic properties and the distance at which they may be visible. Based on these factors, the CHRVEA analyzes the level of effect on the historic properties in relation to the described aspects of NRHP integrity.

The Project has the potential to add cumulative visual effects on all 101 historic properties identified as adversely affected within the APE for visual effects analysis, when combined with the potential effects of other past, present, or reasonably foreseeable future actions. This may occur where there is intervisibility between the Project viewshed and the viewshed of other actions—the area of intervisibility being the geographic extent of the intersection of Project visibility with the visibility of another action. The proposed Project WTG and OSS locations within the Lease Area have the potential for intervisibility with other WTG/OSS locations to be installed within adjacent BOEM lease areas (see Figure 5).

The offshore HRVEA identifies 12 NHLs in the viewshed APE for the Project: Montauk Point Lighthouse, Block Island Southeast Lighthouse, Original U.S. Naval War College Historic District, Fort Adams Historic District, Battle of Rhode Island Historic District, Nantucket Historic District, New Bedford Historic District, Ocean Drive Historic District, Bellevue Avenue Historic District, The Breakers, Marble House, and William Watts Sherman House (EDR 2022a, 2022b). The HRVEA found that five NHLs— Block Island Southeast Lighthouse, Ocean Drive Historic District, Bellevue Avenue Historic District, The Breakers, and Marble House—would be adversely affected by the Project.

Based upon the information presented in Table 4, the Project and other future offshore energy developments would create concentrated, cumulative views of WTGs/OSSs starting within 24 miles of 53 historic properties and where cumulative visual effects could be adverse. At 42 aboveground historic properties, the Project alone would have views of WTGs/OSSs starting within 12 to 24 miles, with cumulative impacts from other future offshore wind developments beginning after 24 miles. This includes at all adversely affected NHLs except Block Island Southeast Lighthouse; only the Project would have WTGs/OSS visible within 24 miles of the other four adversely affected NHLs.

At the remaining six historic properties, the Project would have views of WTGs/OSSs starting within 24 to 30 miles, with cumulative impacts from other future offshore wind developments beginning after 30 miles. With distance, views of the WTGs/OSSs of the Project and other future offshore energy developments begin to minimize, however the cumulative effects would remain adverse at each of the 101 aboveground historic properties.

Historic properties (n = 6) adversely affected over 25 miles from the nearest WTG of the Project and over 30 miles of the nearest other future offshore wind development (in approximate order of number of cumulative WTGs potentially visible):

- Fort Rodman Historic District
- Fort Taber Historic District
- Clark’s Point Light
- 744 Sonticut Road
- Butler Flats Light Station
- Nobska Point Lighthouse

Historic properties (n = 42) adversely affected within 12 to 24 miles of the nearest Project WTG and over 24 miles from the nearest other future offshore wind development (in approximate order of number of cumulative WTGs potentially visible):

- Paradise Rocks Historic District
- St. Georges School
- Westport Harbor
- Tunipus Goosewing Farm
- Indian Avenue Historic District (Stonybrook Historic District)
- Warren Point Historic District
- Westport Pt. Revolutionary War Properties
- Ocean Drive Historic District NHL
- Abbott Phillips House
- Gooseneck Causeway
- Gooseberry Neck Observation Towers
- Bellevue Avenue Historic District NHL
- Ochre Point – Cliffs Historic District
- The Bluff/John Bancroft Estate
- The Breakers NHL
- Clambake Club of Newport
- Rosecliff/Oelrichs (Hermann) House/ Mondroe (J. Edgar) House
- Marble House NHL
- Whetstone
- Sea View Villa
- Kay St.-Catherine St.-Old Beach Rd. Historic District/The Hill
- Ocean Road Historic District
- Westport Point Historic District (163)
- Horseneck Point Lifesaving Station
- Westport Point Historic District (164)
- Clam Shack Restaurant
- Salters Point
- Beavertail Light
- Dunmere
- Narragansett Pier
- Fort Varnum/Camp Varnum
- Horsehead/Marbella
- The Towers Historic District
- Brownings Beach Historic District
- Dunes Club
- The Towers/Tower Entrance of Narragansett Casino
- Life Saving Station at Narragansett Pier
- Bailey Farm
- Land Trust Cottages
- Stone House Inn
- Puncatest Neck Historic District
- Tarpaulin Cove Light

Historic properties (n = 53) adversely affected within approximately 24 miles of the nearest WTG of the Project and the nearest other future offshore wind development (in approximate order of number of cumulative WTGs potentially visible):

- [redacted] TCP
- Simon Mayhew House
- [redacted] TCP
- Gay Head – Aquinnah Shops Area
- Gay Head Light
- Vanderhoop, Edwin DeVries Homestead
- Scrubby Neck Schoolhouse
- Russell Hancock House
- Hancock, Capt. Samuel - Mitchell, Capt. West House
- Leonard Vanderhoop House
- Flanders, Ernest House, Shop, and Barn
- Flagpole
- 71 Moshup Trail
- Tom Cooper House
- Gay Head - Aquinnah Coast Guard Station Barracks
- Pilot Hill Road and Seaweed Lane
- WWII Lookout Tower at Sands Pond
- Block Island Southeast Lighthouse NHL
- Beacon Hill Road
- Gay Head - Aquinnah Town Center Historic District
- WWII Lookout Tower – Spring Street
- Caleb W. Dodge Jr. House
- Lewis Farm and Dickens Farm Road
- Corn Neck Road
- Spring Street
- Capt. Mark L. Potter House
- Theodore Haskins House
- New Shoreham Historic District
- Old Harbor Historic District
- Spring House Hotel
- Lakeside Drive and Mitchell Lane
- Hon. Julius Deming Perkins / Bayberry Lodge
- Capt. Welcome Dodge Sr. House
- Mohegan Cottage
- Mitchell Farm
- Miss Abby E. Vaill/1 of 2 Vaill cottages
- Indian Head Neck Road
- Spring Cottage
- Champlin Farm
- 3 Windy Hill Drive
- Beach Avenue
- Sakonnet Light Station
- Nathan Mott Park
- Point Judith Lighthouse
- Island Cemetery/Old Burial Ground
- Old Town and Center Roads
- U.S. Lifesaving Station
- Hippocampus/Boy’s camp/Beane Family
- U.S. Coast Guard Brick House
- Peleg Champlin House
- Block Island North Lighthouse
- Hygeia House
- U.S. Weather Bureau Station

As presented in Table 2, the 102 modeled Project WTG/OSS locations represent proportionally from nearly 10 to nearly 90 percent of the total simulated WTG locations modeled by EDR (2021b) to be cumulatively visible from the 101 historic properties in the full build-out scenario of all wind energy development proposed in the area. In this model, the effects of the Project and other future wind developments being variable by distance. This modeling is based on full buildout of the Project (to up to 100 WTGs and two offshore substations [OSS]) and all other reasonably foreseeable offshore wind projects in the adjacent lease areas (modeled at 955 WTG and three OSS [EDR 2021b]). At the beginning of the range, the proportion of visible WTG elements added by the project is 9.6 percent at [redacted] TCP, where all modeled WTGs and OSS would potentially be visible. At the other end of the range, the proportion of visible WTG elements added by the project is 87.2 percent, at the historic U.S. Weather Bureau Station at Block Island. At that U.S. Weather Bureau Station site, the Project WTGs would potentially be visible in greater numbers than the combination of all other future wind farms planned in adjacent OCS lease areas (41 Project WTGs would potentially be visible there versus six WTGs from other planned projects); see Table 2. As such, Project WTGs/OSSs would foreseeably be visible cumulatively, in background composite, with six to 958 WTG/OSS locations of other future offshore wind energy development, from the 101 historic properties upon WTG/OSS build-out from all development activities. The cumulative visual simulations for [redacted] TCP are available [redacted] for full build out of WTGs. The cumulative visual simulations most proximate to the historic U.S. Weather Bureau Station on Block Island are those at KOP BI-04 (day and night) from Southeast Lighthouse NHL; see KOP scenario 3 for full build out of WTGs.

The Project and other future wind energy development could locate WTGs as close as 6 miles to the [redacted] TCP and just under 13 miles from the Sakonnet Light Station at Little Compton, Rhode Island, and range to 28 miles at the adversely affected Nobska Point Lighthouse on mainland Massachusetts. Visual effects would be most intense at historic properties on the populated offshore islands, beginning at Block Island, Martha's Vineyard, and extending back across Massachusetts's Elizabeth Islands and Rhode Island's Aquidneck Island, and reduce in intensity at the most proximate mainland areas from Narragansett, Rhode Island, through the New Bedford, Massachusetts, vicinity. The distances between the adversely affected historic properties and the nearest WTG/OSS structures and their lighting sources would limit the cumulative intensity but not eliminate adverse WTG/OSS visibility impacts to the 101 historic properties. Further moderating but not eliminating the visual impacts of the Project, the RWF WTGs would have consistent structural appearances (monopoles, three-rotor blades, and matching color schema), which contribute to a homogeneous view of wind farms on the horizon. The color of the RWF WTGs (less than 5% gray tone) would blend well with the sky at the horizon. The Project would use ADLS lighting at nighttime.

For historic properties with ocean views important to their setting, the WTGs would be a new feature in the visual setting. Views in which strongly front-lit WTGs are viewed against a darker sky or strongly backlit WTGs were viewed against a light sky tend to heighten the visual impact, meaning the intensity of the effect may vary by time of day and year. For the Project as proposed, the presence of offshore WTGs and OSSs would have unavoidable adverse effects, including cumulative visual effects, on 101 historic properties.

# 4 CUMULATIVE EFFECTS CONSIDERATIONS SPECIFIC TO NATIONAL HISTORIC LANDMARKS

As the NPS (2021) conveys, "Section 110(f) of the NHPA requires that Federal agencies exercise a higher standard of care when considering undertakings that may directly and adversely affect NHLs. The law requires that agencies, 'to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark.' In those cases when an agency's undertaking directly and adversely affects an NHL… the agency should consider all prudent and feasible alternatives to avoid an adverse effect on the NHL." The implementing regulations for Section 106 of the NHPA at 36 CFR 800.10 provide special requirements for protecting NHLs and complying with the NHPA Section 110(f).

BOEM has planned and is taking action to avoid adverse effects on NHLs in accordance with NHPA 110(f) and pursuant to the Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act (NPS 2021). Under all Project alternatives, BOEM would avoid adverse effects to seven of the 12 NHLs in the viewshed APE: the Montauk Point Lighthouse, Original U.S. Naval War College Historic District, Fort Adams Historic District, Battle of Rhode Island Historic District, Nantucket Historic District, New Bedford Historic District, and William Watts Sherman House. This avoidance of adverse effects would be accomplished by obscuration, consisting of intervening factors such as curvature of the Earth, and atmospheric and environmental factors like fog, haze, sea spray, and intervening buildings, vegetation, and topography, which are enhanced with increasing distances between WTGs and historic properties. In addition, BOEM reviewed other NHLs in the vicinity, including the steamship *Sabino* in Connecticut and the Newport Historic District in Rhode Island, and determined these to not be in the APE. The *Sabino* only travels within 35 miles of the Project on tours and the Newport Historic District NHL, once distinguished from other adjoining historic district boundaries in the City of Newport, was found to be across Newport Neck from the Project without open ocean views of the RWF (EDR 2022a, 2022b).

BOEM has determined that five NHLs in Rhode Island would be adversely affected by the Project: Southeast Lighthouse on Block Island and Ocean Drive Historic District, Bellevue Avenue Historic District, The Breakers, and Marble House at Newport. BOEM has notified the NPS (as delegate of the Secretary of the Interior) and the ACHP of this determination with distribution of this Finding. The NPS and ACHP have been active consulting parties on the Project since BOEM invited them to consult at the initiation of the NHPA Section 106 process on the Project. BOEM is fulfilling its responsibilities to give a higher level of consideration to minimizing harm to NHLs, as required by NHPA Section 110(f), through implementation of the special requirements outlined at 36 CFR 800.10 (BOEM 2021a).

Given the location of the Project lease area and number of WTGs proposed, constraints on the necessary generation capacity for the Project to be feasible, and the distance of the lease area to the shorelines of Block Island and Newport, BOEM determined that all feasible alternatives, including all feasible WTG layouts, would result in adverse visual effects on the five NHLs. Because of all these factors, the only alternative that BOEM was able to identify that avoids any Project effects on these NHLs was the no-action alternative. In the draft EIS, BOEM (2022a) has identified alternatives that reduce the number of WTGs from the maximum-case scenario of the Proposed Action. While the alternatives have differences, each alternative that would reduce WTG numbers would also reduce visual effects on the NHLs and the other adversely affected historic properties. This is due to the fact that fewer WTGs would be constructed and, therefore, fewer WTGs would be visible from above ground historic properties.

When prudent and feasible alternatives "appear to require undue cost or to compromise the undertaking's goals and objectives, the agency must balance those goals and objectives with the intent of section 110(f)" (NPS 2021). In this balancing, the NPS suggests that agencies should consider "(1) the magnitude of the

undertaking's harm to the historical, archaeological and cultural qualities of the NHL; (2) the public interest in the NHL and in the undertaking as proposed, and (3) the effect a mitigation action would have on meeting the goals and objectives of the undertaking" (NPS 2021). For the Project, the magnitude of the visual effects on the five NHLs is minimized by the distance between proposed offshore WTGs and the onshore NHLs and other factors (such as obscuring factors) limiting views between Project WTGs and the five NHLs. Moreover, while the undertaking would affect the historic setting of the NHLs, it would not affect other character-defining features or aspects of the NHL's historic integrity. The five NHLs, should the undertaking proceed, would still illustrate their regional and national significance, and continue to exemplify their national importance.

Through consultation, BOEM would refine minimization measures to the maximum extent feasible and further develop mitigation measures of adverse effects that remain at the five NHLs, after the application of minimization efforts. BOEM would identify and finalize mitigation measures specific to each NHL with the consulting parties through development of the MOA. Mitigation measures for adverse effects to NHLs must be reasonable in cost and not be determined using inflexible criteria, as described by the NPS (2021). Mitigation of adverse effects to the five NHLs would meet the following requirements:

- reflect the heightened, national importance of the property and be appropriate in magnitude, extent, nature, and location of the adverse effect;
- focus on replacing lost historic resource values with outcomes that are in the public interest, such as through development of products that convey the important history of the property;
- comply with The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings (NPS 2017).

## 4.1 Cumulative Adverse Effects Assessment at National Historic Landmarks

Prudent and feasible alternatives to avoid adverse effects from the Project on the NHLs, and planning to the maximum extent possible necessary to minimize harm to NHLs, are presented and addressed in BOEM's draft MOA. BOEM has determined that, where Project-specific adverse effects are unavoidable at NHLs, cumulative adverse effects from the Project in combination with other reasonably foreseeable wind project in adjacent leases will also be unavoidable. Further details on each of the five NHL follows and concludes with an individualized cumulative effects information.

### *4.1.1 Block Island Southeast Lighthouse National Historic Landmark*

Among the identified lighthouses and navigational aids, the Block Island Southeast Lighthouse has been recognized for its importance to U.S. history as an NHL. As noted previously, the HRVEA describes this historic property as follows:

> This property is located approximately 12 miles (19.3 km) south of the coast of mainland Rhode Island, on Mohegan Bluff, on the southeast shore of Block Island, approximately 14 miles (22.5 km) from the nearest [Project] turbine. . . . Built in 1874 and fully operational by 1875, Block Island South East Lighthouse [*sic*] consists of a five-story brick tower and a two-and-a-half-story, brick duplex keeper's residence. The duplex

> residence is connected to a one-and-a half-story kitchen by a hyphen of the same height. It is a rare surviving example of a lighthouse built during a brief period of Victorian Gothic design influence at the U.S. Lighthouse Board and the sole surviving lighthouse of its high-style design. In 1993, the lighthouse structure and dwelling were moved approximately 250 feet (76.2 m) back from the edge of the bluffs to prevent the loss of the above-ground historic property to erosion. The light tower and dwelling were moved as a single mass, including the above-ground elements of the foundations, to retain the historic fabric. The new location preserves the historic relationship of the lighthouse with seacoast … Southeast Lighthouse was designated an NHL in 1995. (EDR 2022a:46)

Block Island Southeast Lighthouse NHL is listed on the NRHP under Criterion A, for its national importance in the history of maritime transportation, and under Criterion C for the national significance of its architecture and technology (SWCA 2021). The maritime setting of the NHL is a key aspect of historic integrity cited in the NHL nomination. The HRVEA found Block Island Southeast Lighthouse NHL in particular to have high visual sensitivity within the viewshed APE, due to its historic location, setting, and feeling being primarily associated with clear views of the sea and for which public use enhances appreciation of the property's historic use and association with the sea (EDR 2022a).

The Project would diminish the characteristic setting of the Block Island Southeast Lighthouse NHL that helps qualify this historic property for inclusion in the NRHP, but would not diminish other aspects of integrity. The historic use and association of the Block Island Southeast Lighthouse NHL and similar lighthouses, lights, or light stations, are connected to the sea and their integrity of location, setting, and feeling are primarily associated with open views of the sea, resulting in a high sensitivity to visual effects. The visibility of WTG structures and lighting has the greatest potential to affect the integrity of setting of this historic property at sea views along bluffs on Block Island facing the Project. At a distance of approximately 15.2 miles between the nearest Project WTG and the Block Island Southeast Lighthouse NHL, the views would be unobstructed and visual effects to the Block Island Southeast Lighthouse NHL would be adverse.

Cumulatively, 94 WTGs would be visible in the background from the Block Island Southeast Lighthouse NHL at distances between 15.2 miles and 24 miles (47 Project WTGs and 47 WTGs from other future offshore wind projects) (see Table 4). Another 505 WTGs would be fading into the background from the Southeast Lighthouse NHL at distances of 24 miles to over 30 miles (55 Project WTGs and 450 WTGs from other future offshore wind projects) (see Table 4). Most, 421 WTGs, would be at distances of over 30 miles and from other future offshore wind projects. WTGs (portions of up to 595 in the modeled scenario) would appear clustered across the sea and horizon from the Block Island Southeast Lighthouse NHL in the daytime and with nighttime lighting. The cumulative visual simulations for Block Island Southeast Lighthouse NHL are those at KOP BI-04 (day and night) in Appendix C.

Like the Project-specific visual impacts, the cumulative visual impacts would result in adverse effects from the Project to Block Island Southeast Lighthouse NHL.

### *4.1.2 Ocean Drive Historic District National Historic Landmark*

The Ocean Drive Historic District is one of four of the identified estates and estate complexes recognized for its importance to U.S. history as an NHL. The HRVEA describes this historic property as follows:

> The summer homes in the Ocean Drive Historic District feature great variety in style and opulence, ranging from Neoclassical-style mansions to early nineteenth-century farms. In contrast to the adjacent Bellevue Avenue Historic District, however, Ocean Drive (aka Ocean Avenue) is decidedly more bucolic and rural, with greater expanses between

> structures accentuated by natural and designed landscapes. The national significance of the Ocean Drive Historic District is derived from its architecture, which includes works from McKim, Mead and White, John Russell Pope, and landscape architecture by Frederick Law Olmstead [*sic*]. In 2012 an updated statement of significance was appended to the NHL nomination which elaborated and expanded upon the initial areas of Criterion C significance such as architecture and landscape design. The update also addressed additional Criterion A areas of significance such as planning, and engineering related to maritime views and design features purposefully built to interact with the shoreline and the ocean. The updated nomination materials also included a detailed account of the evolution of Ocean Drive as a "pleasure drive" to accompany the development of the inland areas as an upper-income resort suburb. In addition, the landscape architecture firm of Frederick Law Olmstead [*sic*] was involved in at least two subdivisions and 15 private contract designs within the district. These designs include properties situated on dramatic overlooks, and along Ocean Drive. Clearly this roadway was specifically constructed to take advantage of ocean views. (EDR 2022a:A-25)

The Ocean Drive Historic District NHL was made up of 45 contributing properties located in a 1,509-acre district in a suburban/rural setting encompassing most of the peninsula southwest of the City of Newport (SWCA 2021). The NRHP nomination finds the district eligible under Criteria A and C in the areas of architecture, landscape architecture, community planning, conservation, and environmental preservation (SWCA 2021). The NHL program focuses on the district architecture and landscape, providing the following statement of national significance, "This large historic district… has a rugged, informal character, as compared with the formal aspect of the Bellevue Historic District. It includes early farms and elaborate summer homes, as well as landscapes designed by the Olmsteds to accord with the natural contours of rocky cliffs, green hills and pastures. The area was favored by 19th-century industrial magnates and the social elite" (NPS 2012). The Ocean Drive Historic District NHL and its contributing buildings tend to retain integrity of location, design, materials, workmanship, association, feeling, and setting (SWCA 2021).

The Project would alter characteristics of the setting for the Ocean Drive Historic District NHL that qualify this historic property for inclusion in the NRHP, in a manner that would diminish the integrity of the property. Aspects of the historic setting of the historic property are attributable to its relationship to, and views of, the sea; although other factors such as architectural/architectural landscape character further contribute to the significance of the property (SWCA 2021). The visibility of WTG structures and lighting has the greatest potential to affect the integrity of setting of this historic district and its contributing buildings at sea views along Project-facing portions of coastlines in the viewshed APE; otherwise, this large historic district has limited to no areas of open ocean visibility throughout most of its area. However, at a distance of approximately 15.7 miles between the nearest Project WTG and the Ocean Drive Historic District NHL, those open ocean views would be unobstructed and visual effects to this NHL would be adverse.

Cumulatively, 47 Project WTGs would be visible in the background from the Ocean Drive Historic District NHL at distances between 15.7 miles and 24 miles, with another 515 WTGs fading over the horizon from the Ocean Drive Historic District NHL at distances of 24 miles to over 30 miles (another 55 Project WTGs and 450 WTGs from other future offshore wind projects) (see Table 4). Most, 438 WTGs would be at distances of over 30 miles and from other future offshore wind projects. WTGs (portions of up to 562 in the modeled scenario) would appear clustered across the sea and horizon from the Ocean Drive Historic District NHL in the daytime and with nighttime lighting. The cumulative visual simulations for Ocean Drive Historic District NHL are those from Newport Cliff Walk at KOP AI-03 in Appendix C.

Like the Project-specific visual impacts, the cumulative visual impacts would result in adverse effects from the Project to Ocean Drive Historic District NHL.

### *4.1.3 Bellevue Avenue Historic District National Historic Landmark*

The Bellevue Avenue Historic District is one of four of the identified estates and estate complexes recognized for its importance to U.S. history as an NHL. The HRVEA describes this historic property as follows:

> Newport is one of the most spectacular assemblages of American architecture from its beginning to our own time. There are structures in this district that could never be built again in such close proximity, nor possessing such variety, nor by a group of such distinguished architectural firms. This district begins with several commercial blocks including the Casino, continues with the Gothic Revival villas, and includes the "Stick Style" and Shingle Style and culminates in the great 19th century summer palaces of Bellevue Avenue and Ochre Point. The list of architects embraces almost every major designer of that time and what emerges at Newport is also a study of the development of the taste and skill of men like Richard Upjohn, Richard Morris Hunt and McKim, Mead and White over their professional careers.
>
> The Bellevue Avenue Historic District National Historic Landmark is approximately two miles long and consists of 87 contributing properties in a 606-acre district occupying several blocks along Bellevue Avenue, from Memorial Boulevard in the north, to Block Island Sound in the south, in the City of Newport. Spring Street and Cogshell Avenue form the western boundary of the district, while Narragansett Bay forms the eastern boundary. From north to south, this district features two miles of commercial blocks and villas, notably ending in the south with the grand and palatial nineteenth-century estates of wealthy summer residents. (EDR 2022a:A-25)

The district possesses many distinctive examples of high-style architecture. While the significance attributed in the NRHP-nomination of the district does not explicitly reference the ocean, the views of the ocean were essential to the planning and construction of the contributing buildings (SWCA 2021). The district contains contributing buildings that are also individually recognized has NHLs, specifically The Breakers NHL and Marble House NHL. The NRHP nomination finds the district significant in the areas of architecture, landscape architecture, and commerce (SWCA 2021). The significance focuses on aspects of the district that make it NRHP-eligible under Criterion C, for the embodiment of distinctive characteristics of a type, period, or method of construction, that represent the work of a master, and possess high artistic values. Significance in the area of commerce further provides for the NRHP-eligibility of the district under Criterion A for its relation to important events in the historic development of Newport (SWCA 2021). The NHL program more fully focuses on the district architecture, providing the following statement of national significance, “An assemblage of American architecture distinguished by the variety of styles and famous architectural firms represented, the district includes Gothic Revival villas, Stick- and Shingle-style buildings, and great summer palaces of the late 19$^{th}$ century” (NPS 2015a). The Bellevue Avenue Historic District NHL and its contributing buildings tend to retain integrity of location, design, materials, workmanship, association, feeling, and setting (SWCA 2021).

The Project would alter characteristics of the setting for the Bellevue Avenue Historic District NHL that qualify this historic property for inclusion in the NRHP, in a manner that would diminish the integrity of the property. Aspects of the historic setting of the historic property are at least partially attributable to its relationship to, and views of, the sea (but other factors such as architectural character further contribute to the significance of the property), resulting in some sensitivity to visual effects (SWCA 2021). The

visibility of WTG structures and lighting has the greatest potential to affect the integrity of setting for this historic district and its contributing buildings at sea views along southeast-facing portions of coastlines in the Project viewshed; otherwise, this large historic district has limited to no areas of open ocean visibility throughout most of its area. However, at a distance of approximately 15.2 miles between the nearest Project WTG and the Bellevue Avenue Historic District NHL, those open ocean views would be unobstructed and visual effects to this NHL would be adverse.

Cumulatively, 43 Project WTGs would be visible in the background from the Bellevue Avenue Historic District NHL at distances between 15.2 miles and 24 miles, with another 500 WTGs fading over the horizon from the Bellevue Avenue Historic District NHL at distances of 24 miles to over 30 miles (another 59 Project WTGs and 441 WTGs from other future offshore wind projects) (see Table 4). Most, 423 WTGs would be at distances of over 30 miles and from other future offshore wind projects. WTGs (portions of up to 543 in the modeled scenario) would appear clustered across the sea and horizon from the Bellevue Avenue Historic District NHL in the daytime and with nighttime lighting. The cumulative visual simulations for Bellevue Avenue Historic District NHL, like other Newport historic properties, are those from the Cliff Walk at KOP AI-03 in Appendix C.

Like the Project-specific visual impacts, the cumulative visual impacts would result in adverse effects from the Project to Bellevue Avenue Historic District NHL.

### *4.1.4 The Breakers National Historic Landmark*

The Breakers is an estate/estate complex recognized for its importance to U.S. history as an NHL and located in the Bellevue Avenue Historic District NHL. As noted previously, the HRVEA describes this historic property as follows:

> The Breakers . . . is located on at Ochre Point Avenue in Newport, Rhode Island, approximately 16 miles (25.7 km) from the nearest [Project] turbine. . . . The estate was designed by Richard Morris Hunt and built between 1893 and 1895 for Cornelius Vanderbilt II. It emulates a sixteenth-century, northern Italian palazzo. Elaborate façade work and imposing mass are featured in the architecture and speak to the substantial power and wealth of the original residents. The estate is significant for its historic associations with America's first architect trained at the Ecole Des Beaux-Arts, Richard Morris Hunt, and for being the largest and perhaps most famous Newport estate built by wealthy patrons at the turn of the twentieth century. . . . The Breakers was individually listed in the NRHP in 1971. . . . and designated an NHL in 1994. (EDR 2022a:52)

The NRHP nomination finds The Breakers significant in the areas of architecture, social history, and transportation (SWCA 2021). The significance focuses on aspects of the historic property that make it NRHP-eligible under Criterion C, for the embodiment of distinctive characteristics of a type, period, or method of construction, that represent the work of a master, and possess high artistic values. Significance in the area of social history and transportation further provides for the NRHP-eligibility of the historic property under Criterion A for its relation to important events associated with high society in the historic development of Newport and the social position and wealth of the Vanderbilts arriving from the railroad industry. The NHL nomination further indicates eligibility of The Breakers under NRHP Criterion B for significant association with Cornelius Vanderbilt II and Richard Morris Hunt (SWCA 2021). The NHL program focuses on architecture, providing the following statement of national significance, "The Breakers is the architectural and social archetype of the Gilded Age, a period when members of the Vanderbilt family were the merchant princes of American life through their prominence in the world of finance, as patrons of the arts, and as vanguards of international society. In 1895, the year of its completion, The Breakers was the largest, most opulent house in a summer resort considered the social

capital of America. It was built for Cornelius Vanderbilt II (1843-1899), a key figure in American railroads, philanthropy, and fashionable society, and designed by Richard Morris Hunt (1827-1895), one of the founding fathers of architecture in America" (NPS 2006). The Breakers NHL retains integrity of location, design, materials, workmanship, association, feeling, and setting (SWCA 2021).

The Project would alter characteristics of the setting for The Breakers NHL that qualify this historic property for inclusion in the NRHP, in a manner that would diminish the integrity of the property. Aspects of the historic setting of the historic property are at least partially attributable to its relationship to, and views of, the sea (but other factors such as architectural character further contribute to the significance of the property), resulting in some sensitivity to visual effects (SWCA 2021). The visibility of WTG structures and lighting has the greatest potential to affect the integrity of setting for this historic district and its contributing buildings at sea views along southeast-facing portions of coastlines in the Project viewshed. However, The Breakers' open water views are more oriented toward Easton Bay, to the east, with ground-level areas within the historic property that feature southward views with potential in the easternmost portions of the estate, along the Newport Cliff Walk; however, visibility of the Project could also be available from southward facing windows, balconies, or other elevated vantage points within the upper stories of buildings located within the estate (EDR 2022a; SWCA 2021). At a distance of approximately 15.9 miles between the nearest Project WTG and The Breakers NHL, open ocean views would be unobstructed and visual effects to this NHL would be adverse.

Cumulatively, 43 Project WTGs would be visible in the background from The Breakers NHL at distances between 15.9 miles and 24 miles, with another 561 WTGs fading over the horizon from The Breakers NHL at distances of 24 miles to over 30 miles (another 59 Project WTGs and 502 WTGs from other future offshore wind projects) (see Table 4). Most, 384 WTGs would be at distances of over 30 miles and from other future offshore wind projects. WTGs (portions of up to 504 in the modeled scenario) would appear clustered across the sea and horizon from The Breakers NHL in the daytime and with nighttime lighting. The cumulative visual simulations for The Breakers NHL, like other Newport historic properties, are those from the Cliff Walk at KOP AI-03 in Appendix C.

Like the Project-specific visual impacts, the cumulative visual impacts would result in adverse effects from the Project to The Breakers NHL.

### *4.1.5 Marble House National Historic Landmark*

Marble House is an estate/estate complex recognized for its importance to U.S. history as an NHL and also located in the Bellevue Avenue Historic District NHL. Marble House is describable as follows:

> Marble House (71000025) is a three-story Neoclassical mansion located on Bellevue Avenue in Newport. It was commissioned by William Vanderbilt, designed by famed architect Richard Morris Hunt and constructed 1892. Built with an imposing architectural scale and clad in Tuckahoe white marble, it is one of the stateliest mansions contributing to the NHL-listed Bellevue Avenue Historic District. The property was individually listed on the NRHP before the district was nominated before the district was nominated (SWCA 2021:30).

The NRHP nomination finds the Marble House significant in the areas of architecture and social history (SWCA 2021). The significance focuses on aspects of the historic property that make it NRHP-eligible under Criterion C, for the embodiment of distinctive characteristics of a type, period, or method of construction, that represent the work of a master, and possess high artistic values. Significance in the area of social history further provides for the NRHP-eligibility of the historic property under Criterion A for its relation to important events in the historic development of Newport. The NHL nomination additionally

finds Marble House eligible under NRHP Criterion B for its significant associations with Alva Belmont and William K. Vanderbilt (SWCA 2021). The NHL program focuses on architecture, providing the following statement of national significance, "Inspired by the Petit Trianon (1760-1764) a garden retreat on the grounds of Versailles, the house's French inspired interiors were designed by Jules Allard and Sons, of Paris. A virtual showcase of various French styles and built with seemingly endless financial resources, the house was unparalleled in design and opulence in its day. The economic influence of the Vanderbilts and their financial and cultural power in America were expressed in the family houses and their patronage of American architecture. As one of the earliest of the Beaux Arts houses to appear in America, it would influence the design of architecture thereafter. Today, Marble House is a testament to the architectural genius of Richard Morris Hunt and the spirit of America's 'Gilded Age.'" (NPS 2015b). The Marble House NHL retains integrity of location, design, materials, workmanship, association, feeling, and setting (SWCA 2021).

The Project would alter characteristics of the setting for the Marble House NHL that qualify this historic property for inclusion in the NRHP, in a manner that would diminish the integrity of the property. Aspects of the historic setting of the historic property are at least partially attributable to its relationship to, and views of, the sea (but other factors such as architectural character further contribute to the significance of the property), resulting in some sensitivity to visual effects (SWCA 2021). The visibility of WTG structures and lighting has the greatest potential to affect the integrity of setting for this historic district and its contributing buildings at sea views along southeast-facing portions of coastlines in the Project viewshed. However, the Marble House's open water views are more oriented toward Easton Bay, to the east, with ground-level areas within the historic property that feature southward views with potential in the easternmost portions of the estate, along the Newport Cliff Walk; however, visibility of the Project could also be available from southward facing windows, balconies, or other elevated vantage points within the upper stories of buildings located within the estate (EDR 2022a; SWCA 2021). At a distance of approximately 15.7 miles between the nearest Project WTG and the Marble House NHL, open ocean views would be unobstructed and visual effects to this NHL would be adverse.

Cumulatively, 46 Project WTGs would be visible in the background from the Marble House NHL at distances between 15.7 miles and 24 miles, with another 446 WTGs fading over the horizon from the Marble House NHL at distances of 24 miles to over 30 miles (another 56 Project WTGs and 390 WTGs from other future offshore wind projects) (see Table 4). Most, 372 WTGs would be at distances of over 30 miles and from other future offshore wind projects. WTGs (portions of up to 492 in the modeled scenario) would appear clustered across the sea and horizon from the Marble House NHL in the daytime and with nighttime lighting. The cumulative visual simulations for the Marble House NHL, like other Newport historic properties, are those from the Cliff Walk at KOP AI-03 in Appendix C.

Like the Project-specific visual impacts, the cumulative visual impacts would result in adverse effects from the Project to the Marble House NHL.

# 5 CONCLUSION

The preliminary assessment of this CHRVEA is that the Project will have a cumulative effect on all 101 historic properties that would be adversely affected by visual impacts from the Project. These 101 historic properties include the five NHLs that would be adversely affected by the Project: Block Island Southeast Lighthouse, Ocean Drive Historic District, Bellevue Avenue Historic District, The Breakers, and Marble House. The 101 adversely affected historic properties further include the [redacted] TCP and [redacted] TCP.

Each of these historic properties retains its maritime setting and that maritime setting contributes to the property's NRHP eligibility and continues to offer significant seaward views that support the integrity of the maritime setting and that those seaward views include vantage points with the potential for an open view from each property toward RWF WTGs (EDR 2022a).

The Project would contribute proportionally between nearly 10 to nearly 90 percent of the cumulative adverse effect, owing to the location and intensity of the foreseeable build-out attributed to other offshore wind energy development activities. This is based on full buildout of the Project (to up to 100 WTGs and two OSS) and all other reasonably foreseeable offshore wind projects in the adjacent lease areas (modeled at 955 WTG and three OSS). The proportion of visible WTG elements added by the project ranges from 9.6 percent at [redacted] TCP, where all modeled WTGs and OSS would potentially be visible, to 87.2 percent at the historic U.S. Weather Bureau Station at Block Island, where the Project WTGs would potentially be visible in greater numbers than the combination of all other future wind farms planned in adjacent OCS lease areas (41 Project WTGs would potentially be visible there versus six WTGs from other planned projects). The cumulative visual simulations for [redacted] TCP are available [redacted] for full build out of WTGs. The cumulative visual simulations most proximate to the historic U.S. Weather Bureau Station on Block Island are those at KOP BI-04 (day and night) from Southeast Lighthouse NHL; see KOP scenario 3 for full build out of WTGs.

Intensity of visual impacts from WTG/OSS development would reduce with distance from historic properties, and lighting and design actions that would be taken by Revolution Wind to minimize impacts; however, cumulative effects would not be fully eliminated at all adversely affected historic properties. BOEM will continue to consult with consulting parties regarding mitigation measures. Mitigation measures for historic properties, including NHLs, would be stipulated in the MOA and detailed in the historic property treatment plans attached to the MOA. These same mitigation measures, committed to by Revolution Wind in the MOA and identified in COP Appendix BB – Cultural Resources Avoidance, Minimization, and Mitigation Measures, would also be incorporated by BOEM into COP approval.

The CHRVEA provides an assessment of the Project's offshore elements' cumulative visual effects (daytime and nighttime) on historic properties when combined with past, present, and reasonably foreseeable offshore wind energy development activities in the APE for the Project. The CHRVEA analyses inform BOEM's determination of overall Project effects on historic properties and consultation on those effects. BOEM plans to provide the Finding of Effect document to the consulting parties for their review and comment before the draft Project EIS is issued publicly. BOEM remains in consultation with all consulting parties under Section 106 of the NHPA, including Tribal Nations that may have concerns for properties of traditional cultural and religious significance in the APE; State Historic Preservation Offices/Division for Historic Preservation; ACHP; NPS; and other cooperating federal agencies, local governments, historical interest groups, and involved property owners. BOEM will continue to consult with these parties on this assessment of cumulative effects and the resolution of all adverse effects. Consistent with the provisions for NEPA substitution, pursuant to 36 CFR 800.8(c)(4)(i)(A), BOEM will codify the resolution of adverse effects through the MOA for the Project.

# 6 REFERENCES CITED

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