Ocean Wind 1
An Ørsted & PSEG project

Ocean Wind 1 Offshore Wind Farm Project

Terrestrial Archaeological Resources Assessment (TARA)

Public Summary

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1. Introduction

Ocean Wind LLC, a subsidiary of Ørsted, proposes to construct New Jersey's first utility-scale offshore wind farm. The offshore wind farm will be connected to the grid using transmission cables that originate offshore at the turbines, collected at an offshore substation, and transported to shore via buried submarine cables. The cable will be directionally drilled underneath the beach. From there, the buried cable will be routed via one of several proposed alternatives until it reaches an inland substation where the power is connected into the existing land-based electrical grid.

The Outer Continental Shelf Lands Act, 1953 (as amended) (43 U.S.C 1337), grants the lead enforcement of laws and regulations governing offshore leasing on Federal offshore lands to BOEM (CFR Title 30, Chapter V, Subpart B-Offshore). A Programmatic Agreement (PA) executed in 2016 among BOEM, NJ HPO, the Shinnecock Indian Nation, and the Advisory Council on Historic Preservation (ACHP) defines the Preliminary Area of Potential Effects (PAPE) to include:

- the depth and breadth of the seabed that could potentially be impacted by seafloor/bottom-disturbing activities;
- the offshore and onshore viewshed from which renewable energy structures would be visible; and if applicable, the depth, breadth, and viewshed of onshore locations;
- where transmission cables or pipelines come ashore until they connect to existing power grid structures.

1.1 Regulatory Requirements

Consultation under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. § 470f) is triggered when projects require Federal permits, funding, licensing, certification, or when they occur on Federal lands. Such Federal undertakings require consultation by the lead Federal agency with the State Historic Preservation Office.

The Section 106 process "requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the [Advisory Council on Historic Preservation] a reasonable opportunity to comment on such undertakings" (36 CFR 800.1[a]). In December 2020, BOEM made the decision to substitute the National Environmental Policy Act (NEPA) review process to comply with Section 106 procedures, under 36 CFR 800.8(c). Procedures and documents required for the preparation of the Project's environmental impact statement (EIS) and record of decision (ROD) will replace the standard Section 106 review process.

This undertaking has the potential to affect historic properties within the PAPE, and as such, terrestrial and underwater archaeological surveys were conducted to identify archaeological resources within the Preliminary Area of Potential Effects (PAPE).

This summary presents the results of the terrestrial archaeological survey and the proposed actions that will be undertaken by Ocean Wind (in consultation with the NJ HPO, Tribal Nations, and other stakeholders) to protect and preserve archaeological resources and historic properties during the construction and maintenance of the new generating project in fulfillment of their obligations and requirements under Section 106 and the NEPA review process.

2. Terrestrial Archaeology Resource Assessment (TARA)

2.1 Goals and Objectives

The goal of the TARA study is to assist with the identification of terrestrial archaeological resources within the

PAPE that may be impacted by the Project. The study provided a historical and environmental context from which to create a model of the archaeological sensitivity of the PAPE and the potential to contain archaeological resources that may be eligible for listing on the National Register of Historic Places (NRHP). This context and sensitivity assessment was intended to serve as the rational basis for archaeological testing, and to assist Project planners and designers as they consider varying route alternates, design constraints and opportunities, and proposed construction methods.

From a broader perspective, the study also aimed to provide interpretive data and supplemental information for an identified archaeological resource to assist with its evaluation for the NRHP. To achieve this, varying scales of analyses from the more global or regional perspective of precontact and historic contexts, as well as the specifics of the site location within its local setting were explored and analyzed. The archaeologists also tried, where possible, to determine discrete associations or connections with those individuals who may have lived at or utilized these sites.

Both the underwater and terrestrial portions of the Ocean Wind project were studied with respect to archaeological and historical resources. SEARCH, Inc. on behalf of Ocean Wind investigated the ocean floor and sub-bottom to determine potential effects on these archaeological resources and is presented under a separate cover. The dry-land portions of the Project included an effort by SEARCH, Inc. to assist with background research, and Hartgen Archeological Associates, Inc., provided additional research and conducted a robust testing program of the terrestrial components of the Project.

3. Preliminary Areas of Effects (PAPE)

The Project PAPE for terrestrial archaeological resources includes the footprint of the proposed onshore facilities associated with construction, operations and maintenance, including the onshore export cable routes, onshore substations and grid connections (**Figure 1**), as well as temporary work areas including staging and laydown areas. Onshore routes are proposed for up to two interconnection points, at Oyster Creek and/or B.L. England. The cables will be buried within up to a 50-ft-wide construction corridor with a permanent easement up to 30-ft-wide. Both landfalls and the cable route will be within the public ROW, as currently established.

Over the course of time, the PAPE has been modified to include additional areas and to eliminate others. These changes resulted from ongoing environmental studies, land access opportunities and constraints, design and engineering considerations, and to a degree the results of the archaeological studies discussed here.

For the Oyster Creek cable route, after landfall the onshore cables will be buried within previously developed areas. Several corridor routes are proposed, four of which are within the existing roadways or areas of previous disturbance from commercial activity. Between the Oyster Creek landfall just east of the current generating facility and US Route 9, the cable will cross through currently undeveloped land. West of U.S. Route 9 the cable will be installed within public Right-of-Way (ROW) and the decommissioned generating facility.

The newly proposed substation and interconnections are within the larger footprint of the former Oyster Creek Generating Facility that operated between 1969 and 2018. Undeveloped land near the generating facility were extensively tested as part of the TARA. These areas were previously impacted by the construction of the nuclear generating facility between the 1970s and 1990s, or by a model cattle farm built in the 1950s and 1960s. The farm located on the salt marsh created numerous drainage ditches and landscape modification to support the livestock.

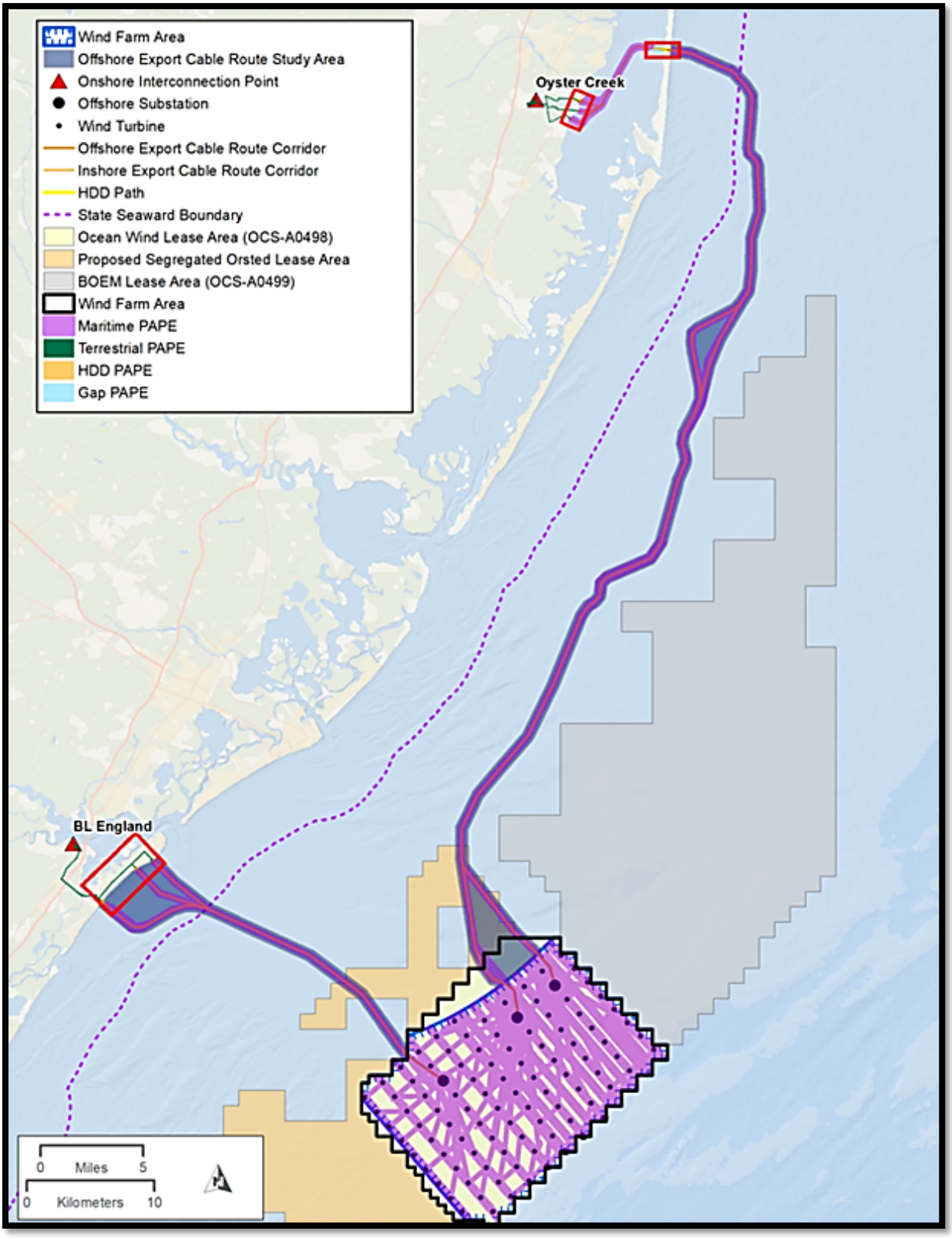

Figure 1. The overall Ocean Wind PAPE along the east coast of New Jersey.

For the B.L. England route, three landfall locations along the shoreline in Ocean City have been proposed. The three landfalls and associated cable routes all lead to Roosevelt Boulevard and eventually to North Shore Road (US Route 9), ultimately ending at a new substation to be located at the former B.L. England Generating Facility. The substation and interconnection areas are within that part of the former plant where demolition and environmental remediation activities have already occurred.

3.1 Geomorphology and Background Research

David DeSimone, PhD. was retained to provide analysis of the geomorphology of the substation locations and proposed cable routes. An initial desktop study aided in the development of the initial workplan. Dr. DeSimone was also given the opportunity to observe field excavations. Following the shovel testing and unit excavation, Dr. DeSimone was provided with excavation records, photography, and scaled drawings to aid in his evaluation. He undertook a pedestrian survey of the substation areas, and windshield survey. According to his study, the age of deposits in and around the PAPE range from 125,000 years ago to about 8,000 years ago and are primarily the result of sea level changes over time between the various ice ages.

Additional background research on the known sites within or near the PAPE was undertaken as well. The background research provides an environmental and historical context that helped the archaeologists to develop a model to anticipate where archaeological sites might be located. This model changed over the course of the study as a result of the archaeological testing and as additional data was gathered. The model helped to focus archaeological efforts and to place the findings into a broader context.

3.2 Archaeological Testing

The majority of the cable route from the landfall of the offshore portion of the Project is to be placed underground within existing streets, roadways, utility ROWs, and other previously disturbed areas. As most of these areas within the PAPE are inaccessible to archaeologists for testing, indicative areas along the routes were chosen for archaeological study to help evaluate the archaeological resources of these parts of the alternates. At the termini of the routes, the cable will tie into the existing grid at two newly proposed substations. These areas are outside of roadways and were evaluated directly with a more standard Phase IB shovel testing program, as will other portions of the cable route outside of roadways and other impediments. Shovel testing on a systematic grid was undertaken as the principal survey technique in areas outside the roadways. Test grids were expected to help identify potential archaeological sites at portions of the undeveloped lands at the existing Oyster Creek Generating Facility and the B.L. England Generating Facility.

Shovel testing was determined to be the most appropriate method for identifying buried archaeological resources based on vegetation coverage throughout the PAPE, the geological setting and soils present, and the types of archaeological deposits that were expected to be located. Throughout the PAPE the conditions vary, consisting of wooded areas with a surface layer of pine needle debris, residential and commercially development roadways, agricultural fields, and public land. As informed by previous archaeological surveys and geomorphological analysis of the PAPE, intact archaeological deposits were expected to be located near the present ground surface, except where recent fill was deposited. As such, cultural deposits were expected to be readily identifiable in hand-excavated shovel tests.

Typical areas selected for testing were in the vicinity of known archaeological sites or near historic structures identified on historical maps as based on a sensitivity model developed and updated with additional archaeological background information. Some areas were excluded from field survey consideration due to extensive disturbance or the presence of utilities.

Archaeological deposits that were discovered were also evaluated for their eligibility for the NRHP. For those resources potentially eligible for the NRHP, the study also aimed to provide sufficient information to assess the

potential effects the Project may have on these resources and to provide recommendations for suitable avoidance or alternatives, or potential efforts to mitigate these impacts.

3.3 Archaeological Results

A total of 1,312 shovel tests and seven 1-x-1-m units were excavated throughout the Terrestrial PAPE. Shovel tests were hand excavated by teams of archaeologists. Typically, the shovel tests were 30 to 40 cm round holes which were excavated by soil layers to depth of about one meter, unless stopped by an impasse. The excavated soils were screened through ¼ inch hardware mesh and examined for artifacts. The soil profiles were also closely examined for potential archaeological features or other natural or human activities. Artifacts were collected and returned to the laboratory. Information about the soil layers, conditions, and other relevant data were recorded by the archaeologists. Artifacts were cleaned, sorted and identified according to their provenience, or place and depth they were recovered. The resulting records and artifact catalog were then analyzed to help interpret the results of the study.

In addition, seven 1 x1 m units were also undertaken. These 1-x-1-m units were typically employed in selected areas to assist the archaeologists better understand the formation of sediments and soils in relationship to the artifacts that were recovered. The larger units provided the archaeologists an opportunity to dig deeper into the soils to better understand their development over time. Two units were placed in areas where deep fill was anticipated. Soil stratigraphy was documented, and artifacts were collected in the same manner as the shovel tests.

3.4 Archaeological Sites

The study identified six archaeological sites: two are expansions of previously reported sites, three are newly reported, and one is a previously reported site adjacent to the PAPE (**Table 1**).

Table 1. Archaeological sites in the PAPE.

Site	Date	Project Impacts
1	Possible precontact shell midden (appears to be mapped incorrectly on the site form).	Adjacent to PAPE and will be avoided, construction monitored.
2	Precontact: Late Archaic to Transitional and Middle to Late Woodland	Site to be avoided and construction monitored
3	Precontact and Historic: Woodland and Late 17th to Early 20th Century	Site to be avoided and construction monitored
4	Historic: 18th to 20th Century	Site to be avoided and construction monitored
5	Historic: 18th to 19th Century	Site to be avoided and construction monitored
6	Precontact: Very Early Native American	Site to be avoided and construction monitored.

Three sites have been previously identified within or immediately adjacent PAPE. Site 1 was not subject to systematic archaeological testing as part of the current investigation as the site is likely mapped incorrectly on the site form. The described location does not match the mapped location, and it is likely the site is mislocated on current database maps. Attempts to test this area were hampered by existing utilities and the recent constriction of a storm water discharge line. It is recommended that if Project construction occurs in the vicinity of the site as currently mapped that an Archaeological and Tribal Monitor be present to observe the work and ensure that no impacts occur to the site.

A large site was also identified near the PAPE in the 1990s by professional archaeologists (Site 2). Archaeologists conducted extensive fieldwork and uncovered a large Precontact, Native American site rich with

material culture. Artifacts from the site date from the Late Archaic (6,000-3,000 years ago) to the Transitional Period (3,000-2,000 years ago) and up to the Middle and Late Woodland periods (2,000 to the time just before European contact). Archaeological testing for the TARA indicated that a small portion of this site extended into the PAPE, as then defined. This portion of the PAPE has since been reconsidered and the extended boundaries of the site, as well as the main locus of the site, will be avoided and protected.

Another site (Site 3) that contains Precontact, Native American materials mixed with historic artifacts from the 17th to 20th century was also found by recent systematic archaeological investigation. The site appeared to be adjacent to the PAPE, but the current TARA investigations determined that a small portion of the site also extends into the PAPE. This part appears to be impacted by recent road and utility construction, but Ocean Wind is committed to avoiding and protecting the site during construction.

The TARA survey resulted in the identification of three new sites. Site 4 is part of a buried midden, or trash deposits, associated with a nearby 18th-century house. The tests recovered a small assemblage of household ceramics from the 18th to 20th centuries. The testing occurred within the road ROW and suggested the site extends from the road's edge to the house and potentially beyond. The site will be avoided and protected during construction.

Another historic site was also located along the road's edge in the B.L. England Segment, and it too was likely a midden or trash deposits that formed near an 18th-century or 19th century structure (Site 5). Today, the lot is occupied by an early 20th-century residence, it is unclear if the current structure replaced an earlier house on the property. The archaeological site likely extends beyond the road ROW towards the house. Ocean Wind is committed to avoiding and protecting the site.

A very early, Native American projectile point (spear tip) was also recovered as part of the survey (Site 6). Despite supplementary testing and a unit excavation, no additional archaeological materials were collected with the projectile point. The data from the test and unit further indicate the find came from soils that were relatively recently impacted by landscaping activities. The projectile point dates from a period just after the last ice age, when the ocean was between 13 and 60 miles to the east and the modern location an upland terrace. The environment, in terms of plants and animals, was also remarkably different than today's and was somewhat comparable to that found in modern, northern Canada.

Despite the fact the artifact appears isolated, or without a larger associated assemblage, and in a modern disturbance, the find is likely eligible for the NRHP. In part, the site's eligibility is due to the data that can be gleaned by a single specimen of this age and the rarity of this type of find in New Jersey. Ocean Wind is committed to avoiding the site.

As part of the Section 106 process, Ocean Wind is also committed to developing a Monitoring Plan to provide avoidance measures and controls once final construction plans are developed. The protection of all identified sites will be more fully considered once more detailed design and engineering specifications are developed. The Monitoring Plan will provide specific measures and activities that will be undertaken during construction to fully ensure the preservation of the sites.

Ocean Wind recognizes that archaeological survey cannot identify all resources within the PAPE, despite all our best efforts. To consider post-review discoveries more fully during the building process, Ocean Wind is in the process of developing a Post-Review Discoveries Plan in consultation with stakeholders, and funding and facilitating Archaeological Monitoring and Tribal Monitoring. The extent and scope of the monitoring will also be developed as part of the Monitoring Plan, as additional construction details emerge, and a final cable route selected.

4. Summary and Conclusion

The TARA survey led to the discovery of three new archaeological sites within the larger PAPE of the Ocean Wind project (Sites 4-6). Two other sites have been previously documented by professional archaeologists and are well defined (Sites 2 and 3). Additional testing during the current survey, indicated that these sites extend partially into the PAPE. All archaeological sites will be avoided and measures to ensure their protection and preservation will be developed with a Monitoring Plan. A sixth site is reported near the PAPE, but its exact location is unclear and testing in the immediate vicinity was not possible due to the presence of utilities and other non-Project related construction activities (Site 1). This location, as well as additional areas of high sensitivity that could not be tested, and others near other known archaeological sites will be observed by an Archaeological and Tribal Monitor during the building process.

The Section 106 regulations (36 CFR 800.4(d) through 800.5(d)(2)) allows for the following determinations of effects for the Project: No Historic Properties Affected, No Adverse Effect, and Adverse Effect. With respect to the terrestrial portion of the Project, Hartgen recommended to BOEM and the NJ HPO that a finding of No Adverse Effect is the most appropriate, as the identified archaeological resources will be avoided by construction impacts.