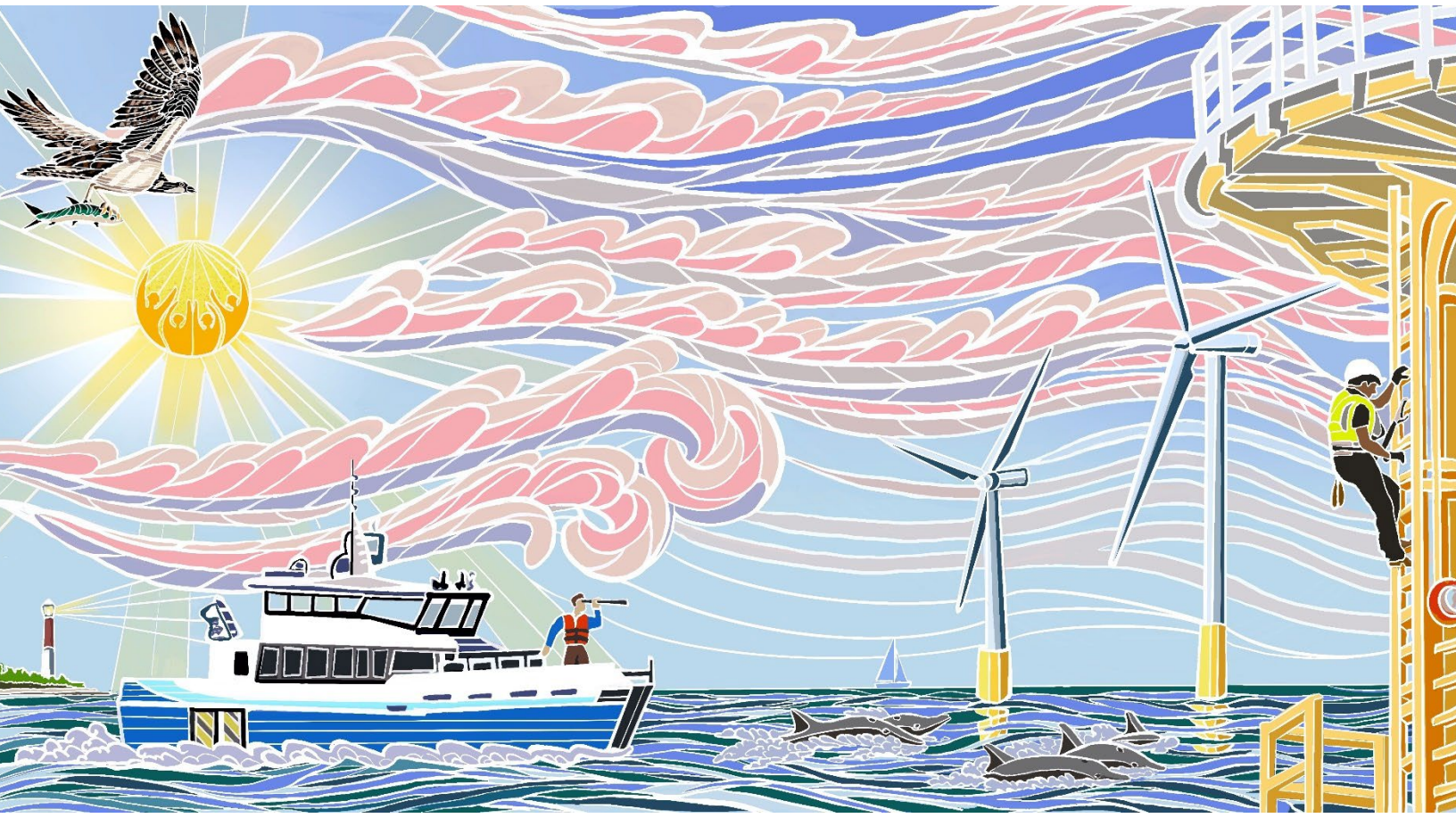

Appendix II-P1

Terrestrial Archaeological Resources Assessment (TARA) - New Jersey

Public Summary

March 2024

Terrestrial Archaeological Resources Assessment – Public Summary

Atlantic Shores North Offshore Wind Project – Onshore Interconnection Facilities

Monmouth and Ocean County, New Jersey

Prepared for:

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March 2024

1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Atlantic Shores Offshore Wind, LLC (Atlantic Shores), a 50/50 joint venture between EDF-RE Offshore Development, LLC, a wholly owned subsidiary of EDF Renewables, Inc. (EDF Renewables) and Shell New Energies US LLC (Shell), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) has prepared this Terrestrial Archaeological Resources Assessment (TARA) for the proposed onshore interconnection facilities located in the City of Asbury Park, Boroughs of Manasquan, Sea Girt, Tinton Falls, and Brielle, Townships of Howell, Neptune, Colts Neck, and Wall, Monmouth County, and the Townships of Brick and Lakewood, Ocean County, New Jersey (Figure 1). The information and results included in the TARA are intended to assist the New Jersey Department of Environmental Protection (NJDEP), New Jersey State Historic Preservation Office (NJHPO), the Bureau of Ocean and Energy Management (BOEM), and other relevant New Jersey State and/or Federal agencies and consulting partners in their review of the proposed onshore interconnection facilities under Section 7:4 of the New Jersey Administrative Code (NJAC), the State of New Jersey Executive Order #215, and/or Section 106 of the National Historic Preservation Act (NHPA), as applicable. This TARA was completed in support of the Atlantic Shores North Construction and Operations Plan (COP; EDR, 2022a) for Atlantic Shores' proposal to develop an offshore wind energy generation project (the Project) within BOEM Lease Area OCS-A 0549 (the Lease Area).

The purpose of this TARA is to inventory and characterize previously identified archaeological resources within the Preliminary Area of Potential Effects (PAPE) for Physical Effects to Above Ground Historic Properties and Terrestrial Archaeological Resources and to evaluate the potential for unidentified terrestrial archaeological resources to be present within the PAPE. Additional phased Phase IB archaeological field survey has been recommended within targeted portions of the PAPE.

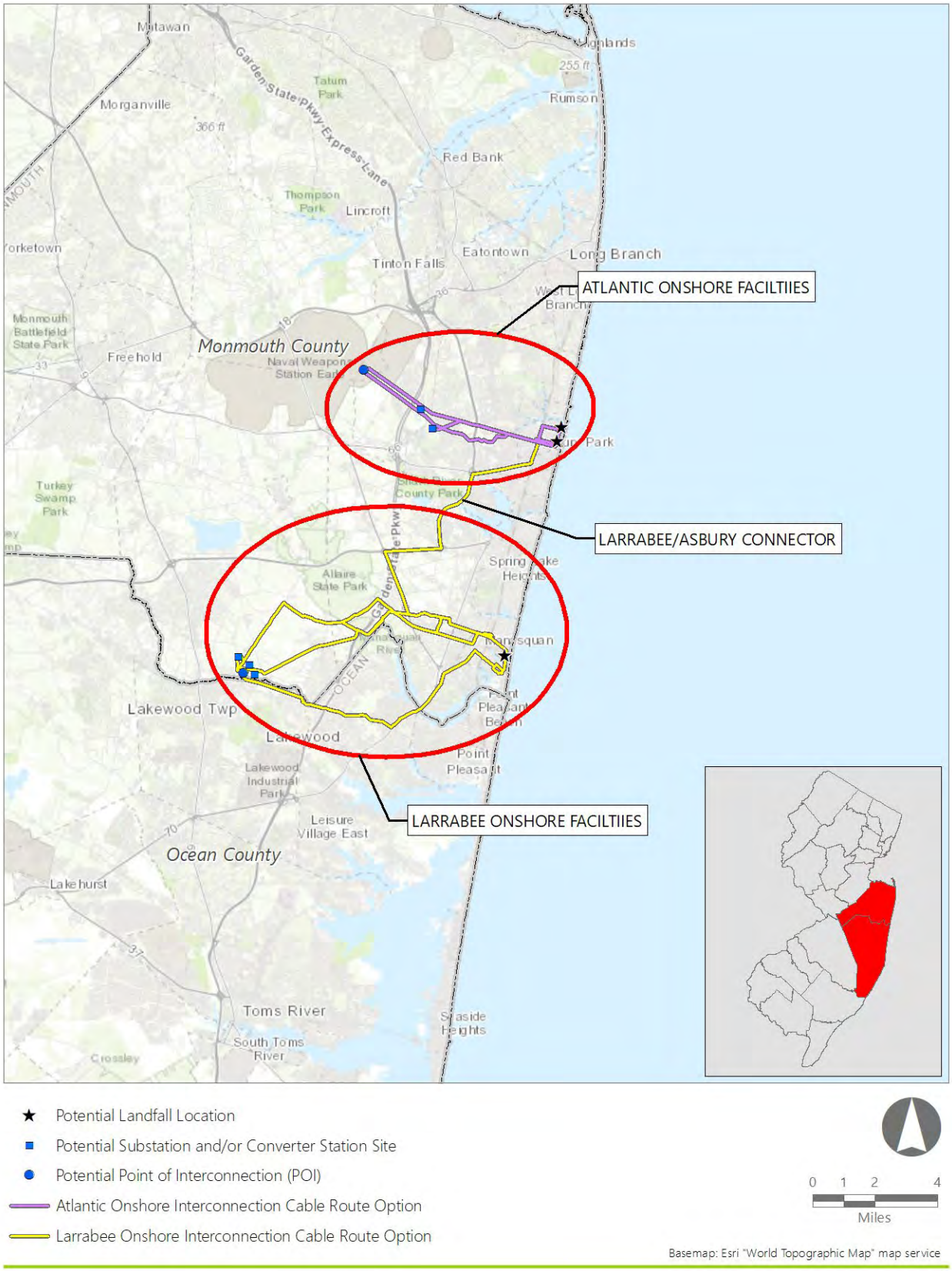
In August 2023, targeted Phase IB survey was completed for approximately 4.77 acres of the Larrabee North Onshore Route PAPE. The Phase IB archaeological field survey efforts for the remaining targeted portions of the PAPE are ongoing. BOEM has determined, in accordance with Section 106 regulations (36 CFR § 800.4 (b)(2), that a Phased Identification approach is appropriate for the survey, reporting, and consultation related to this archaeological investigation while property access permissions are acquired to conduct the remaining Phase IB archaeological investigations. The anticipated Phased

Identification schedule is included in the Projects' *Phased Identification Plan: Terrestrial Archaeological Resources* (EDR, 2023) which will be included as attachment to the future Memorandum of Agreement (MOA) between Section 106 consulting parties in the Environmental Impact Statement's (EIS) Finding of Effects.

The TARA was prepared by professional archaeologists who satisfy the qualifications criteria provided in the Secretary of the Interior's Standards for archaeology and historic preservation (Title 36 Code of Federal Regulations Part 61, Appendix A), as appropriate. The TARA was prepared in accordance with applicable requirements and guidance provided in NJAC 7:4-8.4 and 7:4-8.5, *Requirements for Phase I Archaeological Survey* and *Requirements for Archaeological Survey Reports* (NJAC, 2015), and further expanded and clarified by the New Jersey Historic Preservation Office (NJHPO, 2000, 2019). The results of the completed Phase IB field survey efforts are detailed in the full TARA. The results of any Phase IB testing conducted hereafter will be included in a subsequent revision and/or addendum to this TARA, which will be submitted to BOEM and the Consulting Parties prior to the Project's Record of Decision (ROD).

The full TARA is included as Appendix II-P1 of the Projects' COP. A TARA addressing archaeological resources and proposed onshore interconnection facilities within New York has been provided under separate cover and included as Appendix II-P2 of the COP. A Historic Resources Effects Assessment (HREA) to identify and document aboveground historic properties with potential visibility of the proposed onshore interconnection facilities has been provided under separate cover and is included as Appendix II-N1 of the Projects' COP. The Project will rely on existing Operations and Maintenance (O&M) facilities which are not included in the PAPE.

Figure 1. Regional Project Location



1.2 Description of Preliminary Area of Potential Effects (PAPE)

Atlantic Shores is developing an offshore wind energy generation project within the Lease Area, located on the Outer Continental Shelf (OCS) within the New Jersey Wind Energy Area. Atlantic Shores proposes to construct, operate, and decommission the offshore wind energy generation facilities, offshore export cables, onshore interconnection cables, and onshore substations and/or converter stations. The Project will include up to 157 wind turbine generators, up to 8 offshore substations, and eight total cables installed within two offshore export cable corridors (ECCs). Those cables will deliver energy from the offshore generation facilities to proposed landfall sites located in Monmouth County (the Monmouth Landfall Site and the Atlantic and/or Kingsley Landfall Sites), New Jersey. From the landfall sites, onshore cables will follow onshore interconnection cable routes (onshore routes) proposed within existing roadway, utility rights-of-way (ROWs), and/or along bike paths to existing Points of Interconnection (POIs) for connection to the electrical grid. Along the onshore routes, onshore substations and/or converter stations are also proposed.

To facilitate BOEM's Section 106 review, Atlantic Shores has defined the PAPE for the Project. The PAPE included all locations under consideration where construction or operation of the proposed Project has the potential to affect historic properties within the Project Design Envelope (PDE). According to BOEM, "A PDE approach is a permitting approach that allows a project proponent the option to submit a reasonable range of design parameters within its permit application, allows a permitting agency to then analyze the maximum impacts that could occur from the range of design parameters, and may result in the approval of a project that is constructed within that range" (BOEM, 2020). The PDE approach allows Atlantic Shores design flexibility and an ability to respond to advancements in industry technologies and techniques.

To support the assessment of potential physical effects to historic properties and terrestrial archaeological resources within the PDE, Atlantic Shores established the NJ Physical Effects PAPE which incorporates the maximum breadth and depth of all areas of onshore ground disturbing activity, or other construction activities that could result in demolition or alteration of existing buildings or other built features. The NJ Physical Effects PAPE consists of two distinct sub-PAPEs each associated with

either the Larrabee or Atlantic POIs[1]. The Larrabee and Atlantic Physical Effects PAPEs include associated export cable landfall sites, onshore transmission cable route options, and proposed onshore substation and/or converter station sites.

The PAPEs are based on the current PDE and are anticipated to be refined as the design of the Project progresses. The breadth and depth of physical effects for the Onshore Interconnection Facilities are tabulated in Table 1.

Table 1. Summary of PAPEs for Physical Effects

Project Component	Maximum Horizontal Effect	Maximum Vertical Effect
Larrabee Onshore Facilities	**409.6 ac. (198.14 ha)**	
Landfall Site(s)		
Monmouth Landfall Site	8.32 ac. (3.37 ha)	16.8 ft. (5.12 m)
Onshore Stations and Or Converter Station(s)		
Lanes Pond Road Site	16.27 ac. (6.84 ha)	60 ft. (18.3 m)
Brook Road Site[a]	99.37 ac. (40.21 ha)	60 ft. (18.3 m)
Randolph Road Site	24.64 ac. (9.97 ha)	60 ft. (18.3 m)
Larrabee Onshore Interconnection Cable Route Options[b]		
Larrabee North Option Larrabee South Option Larrabee to Asbury Connector	187.94 ac. (76.06 ha) 105.89 ac. (42.73 ha) 66.54 ac. (59.17 ha) 20 ft. (6 m) width of Open Trenching	Open Trenching 11.5 ft. (3.5 m) Specialty Installation 30 ft. (9 m)
Atlantic Onshore Facilities	**180.41 ac. (73.01 ha)**	
Landfall Site(s)		
Asbury Landfall Site	2.08 ac. (0.84 ha)	16.8 ft. (5.12 m)
Kingsley Landfall Site	1.75 ac. (0.71 ha)	16.8 ft. (5.1 2m)
Onshore Substation and/or Converter Station(s)		
Route 66 Site	35.47 ac. (14.36 ha)	60 ft. (18.3 m)
Asbury Avenue Site	15.66 ac. (6.34 ha)	60 ft. (18.3 m)
Atlantic Onshore Interconnection Cable Route Options[b]		
Atlantic Onshore Route	124.5 ac. (50.38 ha) 20 ft. (6 m) width of Open Trenching	Open Trenching 11.5 ft. (3.5 m) Specialty Installation 30 ft. (9 m)

a. Note that since the Brook Road Site is proposed to be developed separately under the New Jersey Board of Public Utilities (NJBPU) State Agreement Approach (SAA), it has been removed from the Larrabee Physical Effects PAPE and its listed acreage is not included in the maximum horizontal effects total. Although no specific actions or effects are proposed by Atlantic Shores at this location, discussion of the Brook Road Site has been retained as part pf the study area in the TARA since the project may utilize future facilities on the site.

[1] The existing substation POIs are not included within the PAPE. Since the design and construction of any required upgrades at these locations will be the responsibility of the facility owners, this TARA does not include an assessment of either POI as no specific actions or effects are proposed by Atlantic Shores at these existing facilities.

b. Trenchless portions of the PAPE, including planned HDD and/or jack and bore locations, are included as part of the Onshore Routes. The maximum vertical effect of these installations is described as "Specialty Installation" in this table.

The final Area of Potential Effects (APE) will be formally determined by BOEM in consultation with NJHPO as part of the Section 106 consultation process. The process for identifying and evaluating effects on historic properties resulting from the construction and operation of the Project will involve consultation with BOEM and the NJHPO, Native American Tribes/Nations, and other consulting parties with a demonstrated interest in the historic properties (e.g., historic preservation organizations).

1.3 Description of Onshore Facility Sites

Atlantic Shores is considering multiple options for onshore transmission, including multiple sites and locations for the Project's Onshore Facilities. A description of each potential Facility Site is included below.

- The **Monmouth Landfall Site** is located on an approximately 8.32-acre (3.37-hectare [ha]) portion of the New Jersey Army National Guard Training Center grounds. The Landfall site is located on a previously disturbed area of the grounds immediately west of the Atlantic Ocean shoreline (Figure 2).
- The **Larrabee Onshore Interconnection Cable Route (Larrabee Onshore Route)** is an underground transmission route that largely uses existing linear corridors while generally following one of two options to connect the Monmouth Landfall Site to a planned onshore substation and/or converter station and the existing Larrabee Substation POI.
    - The **Larrabee North and South Options** are two approximately 12-mile (mi.) (19.5-kilometer [km]) underground transmission routes that largely uses existing linear corridors to connect the Monmouth Landfall Site to a planned onshore substation and/or converter station and the existing Larrabee Substation POI (Figure 2). In order to pursue a conservative estimate of potential effects while Project plans are in development, all routing options for the proposed Larrabee Onshore Route are included in the PDE.
    - The **Larrabee to Asbury Connector** is a route option between the Larrabee Onshore Route and the Atlantic Onshore Route leading from the Landfall Sites in Asbury, New

Jersey towards the Larrabee Onshore Route. The purpose of this potential route is to provide a means of interconnection between the Larrabee and Atlantic Onshore Routes. (Figure 2).

- Atlantic Shores has identified three potential locations for the proposed **Larrabee Onshore Substation and/or Converter Station** in the vicinity of the Larrabee Onshore Route:
    - The **Lanes Pond Road Site** is an approximately 16.3-acre (6.6-ha) parcel consisting of agricultural fields and wooded areas south of the intersection of Miller Road and Lanes Pond Road in Howell Township.
    - The **Brook Road Site**[2] is an approximately 99.4-acre (40.2-ha) combination of two parcels consisting primarily of forested uplands and some wetlands between Randolph Road and the Metedeconk River in Howell Township.
    - The **Randolph Road Site** is an approximately 24.6-acre (9.97-ha) combination of three parcels consisting of a steel fabrication facility with associated laydown yard, offices, and parking, as well as forested wetlands surrounding Dicks Brook. The location is north of Randolph Road to the northeast of the existing Larrabee POI in Howell Township.

- The **Asbury Landfall Site** is located on an approximately 2.08-acre (0.84-ha) paved public parking lot and grass lawn northwest of the intersection of Kingsley Street and 7th Avenue in Asbury Park. Approximately 0.47 mi. (0.76 km) to the south, the **Kingsley Landfall Site** is located on an approximately 1.75-acre (0.71-ha) paved public parking lot bounded by Kingsley Street, and Ocean, 2nd, and 3rd Avenues. (Figure 3).
- The **Atlantic Onshore Interconnection Cable Route (Atlantic Onshore Route)** is an approximately 7-mi. (12-km) underground transmission route that largely uses existing linear

[2] At the time of the initial development of the TARA, development of a substation and/or converter station at the Brook Road Site in Howell Township, New Jersey was considered. The Brook Road Site is now expected to be prepared and developed separately under the NJBPU SAA to support multiple offshore wind generation projects that the State will procure as part of NJBPU's Third Offshore Wind Solicitation. All siting, permitting, and other site preparation activities associated with the substation and/or converter station will be the responsibility of the NJBPU's SAA-awardee at the Brook Road Site and therefore, is no longer considered as part of the PDE. Discussion of the site has been retained as part of the study area in the TARA to demonstrate the completeness of Atlantic Shores' multi-year development efforts.

infrastructure corridors to connect the Asbury and/or Kingsley Landfall Site to the proposed onshore substation and/or converter station at the Route 66 and/or Asbury Avenue Sites and existing Atlantic Substation POI (Figure 3). All of the proposed routing options are included in the PDE.

- Atlantic Shores has identified two potential locations for the proposed **Atlantic Onshore Substation and/or Converter Station** in the vicinity of the Atlantic Onshore Route:
    - The **Route 66 Site** at 3501 Route 66, is situated on approximately 35.47 acres (14.36 ha) of woodland, abandoned commercial buildings, and paved parking lots in Neptune, New Jersey (Figure 3).
    - The **Asbury Avenue Site** at 4090 Asbury Avenue is situated on approximately 15.66 acres (6.34 ha) of undeveloped wooded lots in Tinton Falls, New Jersey (Figure 3).

Figure 2. Proposed Larrabee Onshore Interconnection Cable Route and Associated Facility Sites

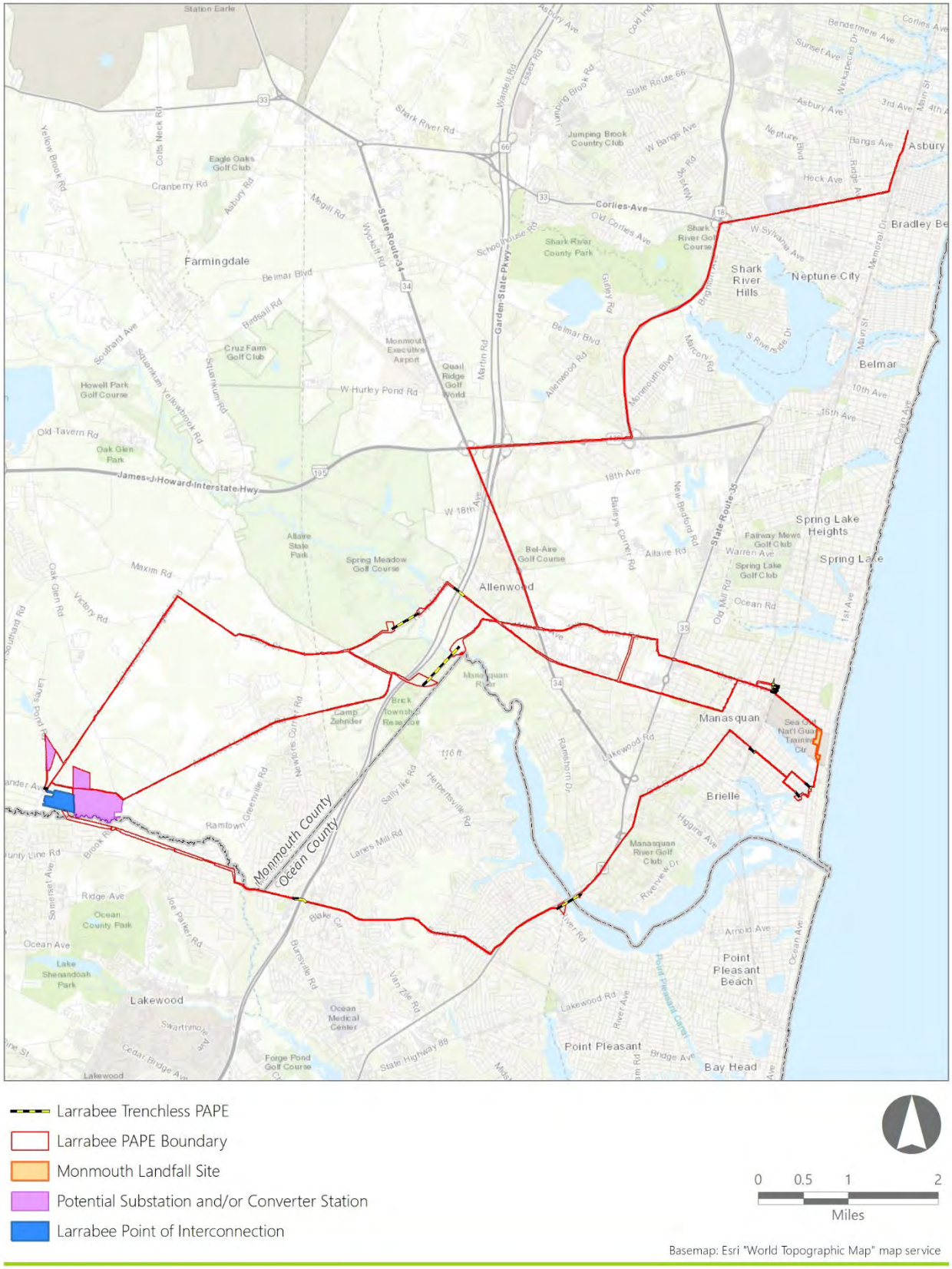
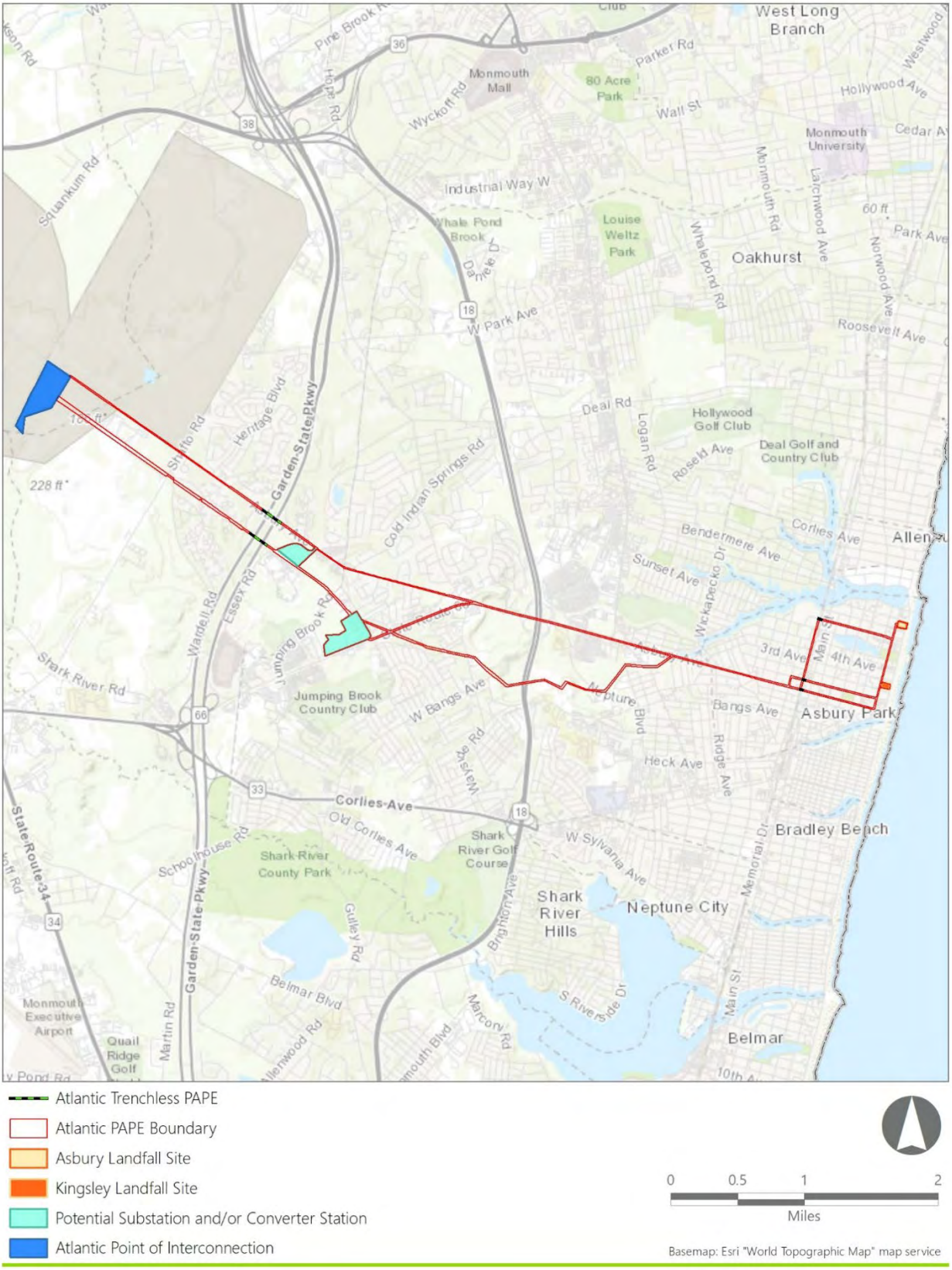


Figure 3. Proposed Atlantic Onshore Route and Associated Facility Sites



1.4 Methods of Investigation

To inventory and characterize previously identified archaeological resources and evaluate the potential for unidentified terrestrial archaeological resources to be present within the PAPE, EDR conducted the following research:

- Archaeological reconnaissance of the Facility Sites to assess and document existing conditions;
- Local and regional histories review;
- Review of the NJHPO's Look Up Cultural Resources Yourself (LUCY) website;
- Review of archaeological site forms within a 0.5-mi. (0.8-km) buffer of the PAPE;
- Review of digitally available previous cultural resources surveys encompassing or intersecting portions of the PAPE[3];
- Historical map review;
- Topographic survey;
- Lidar and hillshade analysis;
- Mapping of buried utilities;
- Review of as-built road drawings;
- Present and past aerial photography review, and;
- Soils assessment, including soil boring data.

Informed by a synthesis of the research listed above, the PAPE was categorized into "Disturbed" and "Potentially Undisturbed" areas. Following discussions with NJHPO and BOEM staff, the "Disturbed", "Potentially Undisturbed", and "Paved" areas within the PAPE were further subdivided to correspond to the archaeological sensitivity categories described in NJHPO's *Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources* (hereafter, NJHPO's *Guidelines*; NJHPO, 2019). The criteria applied by EDR to determine these categories are outlined below:

[3] Due to the Covid-19 pandemic, NJHPO suspended in-person research visits, and review of previous cultural resource survey reports was limited to those that were available digitally or through correspondence with report authors.

- Excluded from field survey consideration – Disturbed areas. Slopes greater than 15%. Areas of previous subsurface archaeological testing/survey.
- Low sensitivity – Mapped wetlands and poorly drained soils. Potentially undisturbed areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 feet (ft.). These areas will be pedestrian surveyed (and may be subject to limited judgmental subsurface archaeological testing [i.e., shovel testing] if deemed appropriate based on observed field conditions).
- Medium sensitivity, included in "Potential Phase IB Survey Areas" for shovel testing – Potentially undisturbed areas outside of road and railroad/bike path ROWs, mapped wetlands, and poorly drained soils. Potentially undisturbed areas adjacent to paved roadways and bike paths (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is greater than approximately 2.0 ft. These areas will be subject to systematic shovel testing.
- Medium-High sensitivity, included in "Potential Phase IB Survey Areas" for shovel testing – Potentially undisturbed areas within approximately 500 ft. of surface freshwater and/or 1,000 ft. of previously identified archaeological sites. These areas will be subject to systematic shovel testing.

In those portions of the proposed onshore routes with Medium to Medium-High sensitivity that overlap with paved roadways or bike paths not suitable for shovel testing, then shovel test pits (STPs) would be excavated within the public ROW on the road shoulder or bike path margins adjacent to the paved areas, as a proxy for what may be beneath the paved areas. This testing strategy is based on methodologies utilized when evaluating the onshore facilities for similar offshore wind projects reviewed by BOEM (EDR, 2020, 2022b).

1.4.1 Phase IB Survey Methodology

Atlantic Shores followed the general survey methodology described herein for all Phase IB archaeological survey results presented in the TARA. This methodology will also be utilized for the remaining Phase IB survey efforts.

Prior to initiating the archaeological fieldwork, New Jersey One Call (811) is contacted to request a utility mark-out. The utility mark-out enables the archaeologists to avoid excavation in the area of

existing utilities and helped identify additional previously disturbed areas where no archaeological work is necessary.

The archaeological survey consists of hand excavation of STPs in a 50-by-50-ft. (15-by-15-meter [m]) grid or transects in areas identified as "Potentially Undisturbed." In Medium to Medium-High sensitivity areas of proposed ground disturbance that overlap with paved roadways or bike paths not suitable for subsurface archaeological testing (i.e., shovel testing), STPs would be excavated within the public ROW on the road shoulder or bike path margins adjacent to the paved areas, as a proxy for what may be beneath the paved areas. This testing strategy is based on methodologies utilized when evaluating the onshore facilities for similar offshore wind projects evaluated by BOEM (EDR, 2020, 2022b). Note that excavation does not occur in areas consisting of wetlands, inundated terrain, or slopes in excess of 15 to 20%, as these areas are not required to be tested under NJHPO's *Guidelines* (NJHPO, 2019).

STPs measure approximately 18 to 20 inches (in.) (45 to 50 centimeters [cm]) in diameter and are excavated to a depth of at least 4.0 in. (10 cm) into a sterile subsoil stratum or to the practical limits of hand excavation (typically 3.0 to 4.0 ft. [0.9 to 1.2 m] below the ground surface). No machinery or heavy equipment was used during excavation. The locations of all STPs are recorded with sub-meter accurate global navigation satellite system (GNSS) equipment and noted on field maps. Stratigraphic profiles, including depth, soil color, and texture, for all shovel tests will be recorded digitally on standardized field record forms.

All soils excavated from STPs are screened through 0.25-in. (0.6 cm) mesh hardware cloth over tarps (to avoid leaving soil piles) to allow for the identification of artifacts. The presence of clearly modern materials, such as plastic fragments, modern bottle glass fragments, or twentieth-century architectural materials in shovel tests are noted on field forms, but these materials are not collected for subsequent analysis. All STPs are backfilled immediately upon completion and restored to match pre-existing conditions.

If artifacts or other archaeological materials (e.g., lithic artifacts/stone tools, projectile points, pottery sherds, indications of a former building) are recovered from STPs, then additional STPs at closer intervals may be excavated to determine if an archaeological site is present. If artifacts are recovered from an isolated shovel test, then up to eight additional radial STPs will be excavated at 16- and 33-ft.

(5- and 10-m) intervals around the original STP to determine whether the artifacts represent an isolated find or may indicate the presence of a more substantial archaeological site. If any archaeological finds are observed, these will be collected and returned to the archaeologists' laboratory facility where they will be washed, rebagged in labeled, clean, 4-millimeter archival quality plastic bags and inventoried in accordance with the NJHPO's *Guidelines* (NJHPO, 2019).

Results of any subsequent Phase IB archaeological survey, as well as tabulated field record forms and a complete inventory of all potential archaeological finds, will be included in a subsequent revision or addendum to this TARA report. The revision or addendum will be provided to appropriate federal, state, and/or local agencies and interested parties and marked "Confidential – Not for Public Disclosure – Contains Archaeological Site Information" if it contains locational information for archaeological resources that may be placed at risk by disclosure. The report will be prepared in accordance with applicable portions of the NJHPO's *Guidelines for Preparing Cultural Resources Management Archaeological Reports* (NJHPO, 2000).

2.0 LARRABEE PHYSICAL EFFECTS PAPE

2.1 Environmental Setting

Sea levels along the east coast of North America reached their late Pleistocene nadir during the Last Glacial Maximum, between approximately 26,500 and 20,000 years ago. Deglaciation began in the Northern hemisphere at approximately 20,000 years ago and in Antarctica at approximately 14,500 years ago. Although physically distant, the timing of deglaciation in Antarctica is relevant to the Larrabee Physical Effects PAPE (Larrabee PAPE) along coastal New Jersey because it introduced a large volume of water into the oceans which drastically increased the rate of global sea level rise between approximately 14,500 years ago and 10,000 years ago (Clark et al., 2009). The significantly lower sea levels during glaciation meant that large expanses of the eastern North American continental shelf were exposed, providing habitat for plants and animals, as well humans. In the words of Stanford and Bradley (2012: 91): "during the last ice age the western Atlantic shelf was a vast and environmentally rich plain stretching from the Grand Banks off Newfoundland to Florida and around the Gulf of Mexico." Lower sea levels during the late Pleistocene epoch and extending into the early Holocene, the outer coastal plain of New Jersey extended the coastal plain to the east by 60 to 80 mi. (97 to 129 km) (Stanzeski, 2005: 58).

In eastern North America, rising sea levels gradually inundated the coastal plain between approximately 20,000 and 10,000 years ago (with the rate of sea level rise increasing between approximately 14,500 and 10,000 years ago), temporarily creating a biotically rich estuarine environment which was also eventually inundated (Stanford and Bradley, 2012: 111). Sea levels along the east coast of North America have continued to rise throughout the last 10,000 years, although at much reduced rates compared to the period between approximately 20,000 and 10,000 years ago.

The Larrabee PAPE is located on the Atlantic Ocean shoreline and near inland areas of New Jersey within the broad, low relief Outer Coastal Plain physiographic province. The Outer Coastal Plain formed from rising and falling sea levels over the Cenozoic Era (66 million years to the present) and has remained relatively stable in recent geological history. The bedrock and older sediments of the Outer Coastal Plain are derived from marine and littoral sediments as well as riverine and alluvial deposits originating from the eroding Appalachian Mountains to the west. More recent deposits consist of

outwash plains formed during the Pleistocene Epoch and accelerating with the retreat of the Laurentide Ice sheet approximately 12,000 years ago (National Park Service, 2018; Newell et al., 1998).

The deeper underlying unit below the Outer Coastal Plain is made up of unconsolidated sediments that mainly consist of gravels, sands, and clays that gradually decrease in depth with increasing distance from the coastline, before merging into the Inner Coastal Plain province that precedes the Piedmont further inland. The farthest southern advance of glacial ice during the Pleistocene Epoch terminated north of the Outer Coastal Plain in northern New Jersey and did not significantly alter the composition or relief of the Outer Coastal Plain. However, Pleistocene glaciation created significantly lower sea levels than at present due to the massive amount of seawater absorbed into ice sheets in the northern hemisphere. Sea levels were as much as 394 ft. (120 m) lower than the present day in various settings in North America during the Pleistocene (Gornitz, 2007). As ice sheets melted during the terminal Pleistocene and early to middle Holocene (between approximately 20,000 and 4,000 years ago), global sea levels rose and submerged large areas of once habitable land, including land east of the present New Jersey shoreline. Global sea levels stabilized at current levels approximately 4,000 years ago, but seaward coastal conditions and estuaries continued to evolve as they do at the present time.

The Larrabee Onshore Route ranges from 6.6 ft. (2.0 m) in elevation above mean sea level (amsl) at the Monmouth Landfall Site in the Borough of Sea Girt to a high of approximately 140 ft. (42.7 m) amsl in Wall Township. Bodies of water that intersect through the Onshore Route include tributaries of the Atlantic Ocean, namely the Manasquan River and the North Branch Metedeconk River, which comprise the principal drainages of the route. Tributaries to the Manasquan River that intersect through the Onshore Route include Roberts Swamp Brook and Watson Creek, while tributaries to the Metedeconk River include Muddy Ford Brook, Haystack Brook, and Dicks Brook.

2.2 Historic Context

The following cultural context summarizes the Native American and Euro-American settlement of coastal New Jersey as they relate to cultural resources which may be present in the vicinity of the PAPE.

The earliest people to occupy the coastal plain of New Jersey likely focused their subsistence along the plains and estuaries now submerged under the Atlantic Ocean (Stanzeski, 2005). Therefore, due to

rising sea levels, many of the earliest archaeological sites in the region are now underwater. Similar to other coastal regions of eastern North America, few archaeological sites representing the Pre-Clovis, Paleoindian, and Early Archaic Periods (i.e., spanning between approximately 13,000 and 8,500 years ago) have been identified along coastal New Jersey (Shrabisch, 1915, 1917; Skinner and Shrabisch, 1913; Stanzeski, 1996, 1998). However, undisturbed Pre-Clovis (i.e., pre-13,000-year-old) archaeological sites in the region would likely be located on the now-submerged continental shelf east of the present New Jersey shoreline (Stanford and Bradley, 2012). It is also possible early sites dating to the Paleoindian and Early Archaic periods, if they exist on modern-day terrestrial coast of New Jersey, have been overlooked in previous investigations because they often consist of relatively small, low density lithic scatters lacking diagnostic bifaces and dateable carbon-bearing features. This is reflective of the fact that the earliest human groups who occupied the landscape were highly mobile, existed in relatively low population densities, and did not use ceramic technologies (Ritchie and Funk, 1973).

The Middle and Late Archaic Periods (8,500 to 3,000 years ago) on the coastal plain of New Jersey is characterized by higher mobility, which was likely patterned by seasonal subsistence strategies. Population density increased at a greater rate during these periods than during previous periods and settlement was characterized by small seasonally occupied settlements located in riverine, lacustrine, and coastal environments. This settlement pattern took advantage of the wide variety of natural resources, including marine resources that were available across coastal settings after sea levels stabilized to near present levels (Chesler, 1982).

Diagnostic artifacts and features that indicate a Middle Archaic period occupation include Stanly Stemmed and Neville projectile point types with shallow basal notching, while Late Archaic bifaces and tool kits are marked by non-local sources of lithic materials, such as rhyolite and porphyry (Chesler, 1982; Custer, 2001). Late Archaic projectile points have been further characterized by Small Stemmed and the later Susquehanna point traditions in southern New Jersey. The stabilizing oak-chestnut-hickory forests of the eastern Atlantic seaboard began to support larger populations of mediums sized game like deer and turkey that in turn led to higher human populations. Sites dating from the Late Archaic further suggest that higher population density led to greater exploitation of niche ecosystems, smaller game, and more attention paid to nuts and wild cereal grains for food (Chesler, 1982).

Decreasing mobility coupled with the funerary practice of cremation points to increasing attention to semi-permanent settlements and territoriality (Spier, 1915; Veit and Bello, 2001).

The later portion of the Late Archaic period is referred to as the Transitional Archaic/Terminal Archaic period (Stewart et al., 2015). Trends observed during this Transitional Period include further development of extensive trade networks (Grossman-Bailey, 2001; Stewart et al., 2015). The Transitional Period is defined by somewhat high residential mobility, likely on a seasonal basis to pursue small scale exploitation of marine resources, especially shellfish, during optimum harvest seasons and while shifting to terrestrial, upland resources during other seasons. Coastal camp sites dating to the Transitional Period often contain shell middens, such as the Tuckerton Shell Mound in Burlington County, New Jersey. The period is characterized by material culture that includes small shell middens, formal cemeteries, and distinctive Orient fishtail stemmed projectile points which were often made of locally procured quartzite and occasionally quartz. An important technological change from the Late Archaic Period was the appearance of soapstone vessels that preceded ceramic cultures (Braun, 1974; Ritchie and Funk, 1973; Stewart et al., 2015).

The Early Woodland Period (3,000 to 2,000 years ago) is characterized by a foraging tradition combined with an intensive exploitation of marine resources and the introduction of ceramic technology. Increased sedentism during this period caused large communities to converge on more permanent settlements. These large, semi-permanent settlements left a more distinct material culture trace, and as a result are more archaeologically expressed than the smaller campsites dating to earlier periods. Material culture dating to this period in the Outer Coastal plain is most often included in the Cadwalader Complex which includes the first appearance early ceramic technology with flat-bottomed vessels, large shell middens/shell rings, and broad side-notched projectile points. Early woodland ceramics tend to be coarser and more unrefined in construction, tempered with steatite and quartz, and are rarely extensively decorated (Tuck, 1978).

The Middle Woodland Period (2,000 to 1,000 years ago) is distinguished from earlier periods by increased evidence of foraging and intensive exploitation of marine resources, but also the first appearance of horticulture throughout the Middle Atlantic region and the Atlantic coast. Horticultural economies allowed larger communities to remain sedentary for much of the year, utilizing more resources available around these settlements but with groups rarely exceeding 50 persons. Material

culture traditions that are well expressed during the Middle Woodland Period in New Jersey include the Meadowood Culture, which consists of lithic toolkits including various styles of quartz lobate, stemmed, and side-notched projectile points, as well as shell tempered undecorated ceramics, followed by the Fox Creek Culture that placed heavier preference on fishing than upland game (ASNJ, 2013).

During the Late Woodland Period (1,000 to 400 years ago), groups along the coast of New Jersey occupied large villages and engaged in intensive marine and riverine resource exploitation, and terrestrial hunting. Archaeological evidence, including exotic trade goods, indicates complex relationships with both surrounding and more distant cultures which facilitated trade as well as the spread of technologies and cultural practices including ceremonial use of tobacco (Chesler, 1982; Veit and Bello, 2004). Usage of decorated ceramics increased dramatically, which has been useful to archaeologists in defining distinct cultural traditions, or phases, tied to different areas of the Middle Atlantic region. These phases include a wide variety of projectile point types and a high frequency of triangular projectile points made of local quartz and quartzite, plus exotic traded materials such as rhyolite and chalcedony. Large shell rings, middens, and decorated ceramics (e.g., Overpeck Incised, Bowmans Brook Incised, and Riggins Fabric-Impressed) are also all prevalent during this period (Chesler, 1982). Late Woodland Period settlement and subsistence patterns are discussed in additional detail below in the context of observations by European traders and settlers following the period of contact beginning in the sixteenth century and accelerated in seventeenth century. Resource use changed from Paleo-Indian to Late Woodland times, and though the inhabitants of the Outer Coastal Plain remained hunter-gatherers, their use of local food and lithic resources increased (Grossman-Bailey, 2001).

In the period of contact between Native Americans and Europeans in the sixteenth and seventeenth centuries, the Lenni Lenape inhabited present day coastal areas and the interior of New Jersey. The Unalachtigo Lenape, or the "people who live near the ocean," lived across central and southern New Jersey (Ellis, 1885). However, sixteenth and seventeenth century-dated Native American archaeological sites for the coastal and near upland regions are difficult to clearly discern in the archaeological record and are further poorly characterized due to loss of sites from later periods of development and regular erosion of shorelines and stream and riverbanks.

Dutch, Finnish, and Swedish colonists were the first Europeans to establish trading and settlements in what is now New Jersey, along the coast from present-day Cape May to Trenton and into the Delaware River valley. The Finnish and Swedish colonies, however, did not receive enough support from their respective home countries, and suffered from a lack of population and financial resources. In 1655, Peter Stuyvesant sent a fleet of Dutch ships to raid the Finnish and Swedish settlements, resulting in the Dutch absorbing the region into the New Netherlands colony (Salter, 1890). However, the New Netherlands colonies soon came under English control in 1664 following the Dutch defeat in the Second Anglo-Dutch War (Snyder, 1969). For the following century, settlers from the Netherlands, French Huguenot refugees, and increasingly, settlers from England and Scotland, colonized coastal areas between the Hudson and Delaware Rivers under English crown charter and protection. Colonial settlements at this time also included a significant number of enslaved Africans involved in agricultural labor. Until 1702, colonial New Jersey was organized into two separate provinces, East Jersey and West Jersey, when the provinces were combined into a single province that largely assumed the present-day boundaries of the state of New Jersey. During the American War for Independence, several engagements between British and Continental forces took place in New Jersey and the city of Princeton served as the seat of the United States government for a brief period in 1783 (Salter, 1890).

English colonial officials formed Monmouth County in 1683 in the East Jersey province. English Quakers formed a significant share of early Euro-American settlers in the county, while bands of Lenni Lenape continued to dwell in the region and maintained trading relationships with Europeans (Ellis, 1885; Salter, 1890). Colonizing Euro-Americans largely concentrated economic development of the region on clearing pitch pine timber for lumber and producing tar and turpentine for the maritime industry and subsequently developed cleared areas for agricultural and livestock grazing land in favorable soil conditions (Parsons, 1928). The Euro-American population of Monmouth County remained relatively low compared to more intensively developed areas in the Hudson and Delaware River valleys but steadily grew into the nineteenth century with a focus on agriculture and light industry, such as grist and saw milling on suitable streams and rivers.

In what is now Howell and Wall Townships, iron production was an important aspect of the early nineteenth century economy. In 1822, James P. Allaire organized the Howell Works to produce pig iron for his prosperous Allaire Iron Works in New York City (Boyer, 1931; Wilson, 1974). Purchasing the existing Monmouth Furnace from Benjamin B. Howell, Allaire developed a largely self-supported

industrial community around the furnace that remained prosperous through the 1830s. The furnace consumed bog ore raised from surrounding swamps and charcoal rendered from stands of nearby pitch pine. However, the long-term economic downturn following the Panic of 1837 and competition from larger and cheaper ironmakers in northern New Jersey led to abandonment of the furnace and surrounding community by the late 1840s (Boyer, 1931; Wilson, 1974). Remaining as a largely vacant village until the mid-twentieth century, New Jersey purchased and developed the property into Allaire State Park beginning in 1957. The area encompassing 27 previously recorded archaeological sites associated with the Howell Works is located to the north of the Larrabee Onshore Route beyond the 0.5-mi. buffer.

Apart from the growth of public roadways that connected farms and communities, two early railroads were important to the continued prosperity of southern Monmouth County into the twentieth century. The Raritan and Delaware Bay Railroad Company (later the New Jersey Southern Railroad) completed its north-south line from Port Monmouth on Raritan Bay to Lakewood by 1860, passing through Howell Township (Cunningham, 1997). Today the single-track line remains in use but for infrequent freight service and has been determined as eligible for listing in the National Register of Historic Places (NRHP) as the "New Jersey Southern Railroad Historic District". Other major railroads in the region of the Larrabee PAPE include the Farmingdale and Squan Village Railroad and the active NJ Transit Railroad.

While Wall and Howell Townships remained largely agricultural into the twentieth century, rail connections with larger urban areas and later improved roadways for automobiles in the twentieth century led to the growth of seaside communities in Monmouth County that were increasingly not connected with local farming or industry (Parsons, 1928). The New Jersey state legislature formed Manasquan as a separate borough from Wall Township in 1887 and later formed Sea Girt as its own borough in 1917 as an influx of part-time and full-time residents came to live in the area due its seaside and beach amenities (Snyder, 1969). The current 165 acres (67 ha) New Jersey National Guard training facility in Sea Girt began as an annual encampment ground when the New Jersey state legislature leased the initial property (locally known as the "Stockton Farm") in 1885, later purchasing it for state militia training at the time of the Spanish-American War in 1898 (Parsons, 1928).

2.3 Summary of Larrabee PAPE Results

The results of the TARA can be summarized as follows with respect to the archaeological potential of the Larrabee PAPE:

- **Larrabee North Option**
    - Prior ground disturbance was identified within the proposed Monmouth Landfall Site and Larrabee Onshore Route. Depth to subsoil is approximately 1.0 to 2.0 ft. (0.3 to 0.6 m) for most of the Larrabee North Option. Atlantic Shores has elected to site the buried onshore cables within existing, previously disturbed road, bike path, and railroad ROWs, where disturbance during construction and installation of the existing infrastructure likely exceeded the depth of potential archaeological deposits. This siting strategy avoids or significantly reduces potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits throughout most of the Larrabee Onshore Route.
    - One previously recorded archaeological resource is purportedly mapped within the PAPE for the Larrabee North Option. Information on the archaeological site is scarce and the exact location has been inconsistently recorded. A Phase IB archaeological survey conducted in 2004 and 2005 attempted to reconfirm the boundaries(Siegel and Baldwin, 2005). The site was not relocated in this survey, and most of the terrain in and around the purported location of the site was determined by the archaeologists to be previously disturbed. The surveying archaeologists recommended no additional survey on the portion of the Larrabee North Option on which the site is purportedly located, a sentiment that was concurred by NJHPO. As such, no additional archaeological investigation is anticipated to be necessary for portion of the PAPE containing the site.
    - There are ten previously identified archaeological sites within 0.5 mi. (0.8 km) of the Larrabee North Option. These sites consist of six Native American sites, three historic-period sites, and one multicomponent site.
    - Historical map and photography review demonstrates that Map Documented Structures (MDS) are mapped in the immediate vicinity of the proposed Larrabee North

Option, with most MDS mapped along existing roadways and at intersections that were largely established by the mid-nineteenth century.

- A portion of the proposed Larrabee Noth Option is collocated with the Edgar Felix Memorial Bikeway, within the former railroad corridor of the Farmingdale and Squan Railroad. A previous intensive-level architectural survey identified a segment of the Edgar Felix Memorial Bikeway as part of the former Farmingdale and Squan Railroad (RBA, 2012). The research and fieldwork for that survey concluded that the Farmingdale and Squan Railroad was ineligible for listing on the NRHP. A NJHPO opinion letter dated August 16, 2021 concurred with the results of the survey, stating "No Historic Properties Affected" within the APE for the bridge replacement (NJHPO, 2012).
- Pedestrian survey (with judgmental shovel testing if deemed appropriate based on observed field conditions) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 ft. as well as in any wetlands or areas of steep slope.
- Targeted archaeological shovel testing is recommended within those portions of the Larrabee North Option, and potential Larrabee Onshore Substation and/or Converter Station options categorized as Medium and Medium-High sensitivity "Potential Phase IB Survey Areas."
- Phase IB STP survey has been completed for several areas along the proposed Larrabee North Option. A total of 202 STPs were excavated across 16 designated survey areas along the Larrabee North Option. No archaeological sites were identified, and no archaeological artifacts were encountered during the Phase IB survey. As such, no mitigation or avoidance measures are proposed, and no further archaeological work is recommended for the areas that were surveyed. Areas planned for future survey include: the Lanes Pond Road Site, the Randolph Road Site, and approximately 21.58 acres of the Larrabee North Option Route (Table 2). The Phase IB survey results for these remaining areas will be presented in a future revision of the TARA.
- In addition, the Project's Monitoring Plan and Post Review Discovery Plan (MPRDP) (Section 4.1.1) for Terrestrial Archaeological Resources will be in effect for all

construction and installation activities, providing guidance and instructions to all contractors on how to proceed in the event (however unlikely) of encountering unanticipated cultural resources during work in the Larrabee North Option.

- **Larrabee South Option**
    - Prior ground disturbance was identified within the proposed Larrabee North Option. Depth to culturally sterile subsoil is approximately 1.0 to 2.0 ft. (0.3 to 0.6 m) for most of the Larrabee South Option. As noted previously, Atlantic Shores has elected to site the buried onshore cables within existing, previously disturbed road ROW and powerline corridors, where disturbance during construction and installation of the existing infrastructure likely exceeded the depth of potential archaeological deposits. This siting strategy avoids or significantly reduces potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits throughout most of the Larrabee South Option.
    - Two previously recorded Native American archaeological resources are located within the PAPE for the Larrabee South Option. The current state of both sites is unknown. The areas of the PAPE on which these sites are located are considered to have Medium-High sensitivity for the presence of Native American archaeological resources and are recommended for targeted Phase IB archaeological shovel testing.
    - Historical map review demonstrates that MDS are mapped in the vicinity of the proposed Larrabee South Option, with most mapped along existing roadways and at intersections that were largely established by the mid-nineteenth century. Of note, historical maps illustrated the existence of a bridge and other structures in the vicinity of the present-day NJ Route 70 crossing of the Manasquan River, indicating a well-established presence of this crossing.
    - It is not anticipated that there is any potential for burials associated with the Greenwood Cemetery to be located beneath the paved surface of Old Bridge Road, and no remote sensing survey is recommended. Though no additional Phase IB survey is recommended, archaeological monitoring during installation of the onshore cables may be appropriate in this area. In addition, the Project's MPRDP (Section 4.1.1) will

include appropriate "Stop Work" procedures if potential grave shafts or burials are observed.

- Pedestrian survey (with the possibility of judgmental shovel testing) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 ft. as well as in any wetlands or areas of steep slope.
- Targeted archaeological shovel testing is recommended within those portions of the Larrabee South Option indicated as Medium and Medium-High sensitivity "Potential Phase IB Survey Areas."
- In addition, the Project's MPRDP (Section 4.1.1) will be in effect for all construction and installation activities, providing guidance and instructions to all contractors on how to proceed in the event (however unlikely) of encountering unanticipated cultural material and/or cultural features during work in the Larrabee South Option

- **Larrabee to Asbury Connector**
  - Depth to culturally sterile subsoil is approximately 1.0 to 2.0 ft. (0.3 to 0.6 m) for most of the Larrabee to Asbury Connector. As noted previously, Atlantic Shores has elected to site the buried onshore cables within existing, previously disturbed road, bike path, and railroad ROWs, where disturbance during construction and installation of the existing infrastructure likely exceeded the depth of potential archaeological deposits. This siting strategy avoids or significantly reduces potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits throughout most of the Larrabee to Asbury Connector.
  - No previously recorded archaeological resources are located within the Larrabee to Asbury Connector.
  - There are eight previously identified archaeological sites within 0.5 mi. (0.8 km) of the PAPE for the Larrabee to Asbury Connector. Five of the previously identified archaeological sites are located in the vicinity of the Shark River. The presence of these

sites indicates increased sensitivity for Native American archaeological sites in that area, as well as in proximity to other perennial fresh water sources.

- The historical map and photography review demonstrates rapid urbanization of the area surrounding the Larrabee to Asbury Connector beginning in the mid-twentieth century.
- Pedestrian survey (with the possibility of judgmental shovel testing) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 ft. as well as in any wetlands or areas of steep slope.
- Targeted archaeological shovel testing is recommended within those portions of the Larrabee to Asbury Connector indicated as Medium and Medium-High sensitivity "Potential Phase IB Survey Areas"
- Due to the presence of previously identified archaeological sites in the vicinity of Shark River, archaeological monitoring of the construction and installation of the onshore cables in this area is recommended. It is anticipated that the exact locations and scope of this monitoring will be determined in consultation with BOEM, NJHPO, and consulting Native American Tribes during Section 106 consultation regarding the Project.
- In addition, the Project's MPRDP (Section 4.1.1) will be in effect for all construction and installation activities, providing guidance and instructions to all contractors on how to proceed in the event (however unlikely) of encountering unanticipated cultural material and/or cultural features during work in the Larrabee to Asbury Connector

3.0 ATLANTIC PHYSICAL EFFECTS PAPE

3.1 Environmental Setting

The Atlantic Physical Effects PAPE (Atlantic PAPE) is located approximately 7.0 mi. north of the Larrabee PAPE. Therefore, much of the same environmental history discussed in Section 2.1 applies, namely the history of glaciation, the transformation of the eastern coastline, and the discussion of the Coastal Plain physiographic province.

The Atlantic PAPE extends from the Atlantic Ocean shoreline and continues west for approximately 7.0 mi. (11.3 km) to areas of broad, low relief within inland New Jersey. The Atlantic Onshore Route ranges from 9.0 ft. (2.7 m) amsl at the Asbury Landfall Site in the City of Asbury Park to a high of approximately 170 ft. (51.8 m) amsl in the Borough of Tinton Falls. Bodies of water that intersect through the Onshore Route include tributaries of the Atlantic Ocean and Shark River, namely Reevy Branch and Jumping Brook.

3.2 Historic Context

A general summary of the Native American and Euro-American settlement of coastal New Jersey in Monmouth County as they relate to cultural resources which may be present in the vicinity of the PAPE was presented in Section 2.2. The following is additional context information specific to the Atlantic PAPE.

The Township of Atlantic (later renamed Colt's Neck in 1962) was formed in 1847 from portions of Freehold, Middletown, and Shrewsbury Townships. The Town of Ocean was also formed from Shrewsbury, in 1849. Industry in these townships focused on agriculture with some smaller scale manufacturing, including grist and saw milling on suitable streams and rivers, logging, and marl mining. Marl is a mineral used as a fertilizer, akin to lime, which was mined from a large deposit in Colt's Neck Township (CNHC, 1965).

The acreage of Ocean Grove, in the Township of Neptune, was bought and developed by the Ocean Grove Camp-Meeting Association starting in 1870. This association designed Ocean Grove to be a beach retreat that also accommodated religious values and practices, including maintaining an alcohol-free lifestyle, at an affordable price for families. The treasurer of the Ocean Grove Association

asked, during a chance meeting with New York City brush manufacturer, James A. Bradley, to purchase one. Bradley became the first person to buy a lot from the association, which would become Asbury Park. By the late 1800s, Asbury Park grew into a major seaside resort, with luxury hotels, fine restaurants, businesses, and amusements along the boardwalk, creating the exact tourist destination the Ocean Grove Association was attempting to avoid. Asbury Park became an epicenter for modern progress and culture, demonstrated by the erection of the Education Hall (the city's first major public auditorium), the installation of the nation's second electric trolley, the first installation of the region's electric lights city-wide, and the renowned development of popular American music. It is worth noting, however, that Asbury Park in the late-nineteenth and twentieth centuries has been rebuilt and revitalized numerous times due to fires, natural disasters, and general urban decay (Ellis, 1885; Chesek and APM, 2021; APM, 2021).

Segregation has deep roots in Asbury Park starting in the late nineteenth and early twentieth centuries. The developed side of Asbury Park (known as the East Side) that became the playground for affluent white tourists was built and staffed by African Americans, immigrants of Southern European countries, Jews, and Indigenous people who were all segregated to the West Park (also known as West Side). West Park was an unincorporated section of neighborhoods from Asbury Park, and as such, its residents did not also enjoy the modern hygienic water and sewer systems that were built in East Side. West Park was officially annexed by the City of Asbury Park in 1906 and segregated swimming areas along the beachfront continued into the 1950s. (APM, 2021; Chesek and APM, 2021; Horner et al., 2021).

Colt's Neck Township remained largely agricultural from the nineteenth to the twentieth century. Aside from marl mining, Colt's Neck Township also contained many horse farms, and it is the home of the nation's oldest distillery, Laird & Company. The farmland in these rural townships was also ideal for the development of important national facilities. The U.S. Army and Navy chose the Township as the location for an urgently needed ammunition depot near the Port of New York in 1943. Finished in 1944, the Naval Ammunition Depot (NAD) Earle, would become key in transporting troops, ammunitions, and anything else needed for the Second World War. The facility name was changed in 1974 from NAD Earle to Naval Weapons Station (NWS) Earle and continues to operate today (CNHC, 1965; U.S. Navy, 2022).

3.3 Summary of Atlantic PAPE Results

The results of the TARA can be summarized as follows with respect to the archaeological potential of the Atlantic PAPE:

- Prior ground disturbance was identified within the proposed Asbury and Kingsley Landfall Sites, Atlantic Onshore Route, and portions of the Route 66 Site. Depth to subsoil of approximately 1.0 to 2.0 ft. (0.3 to 0.6 m) for most of the Atlantic Onshore Route.
- As noted previously, Atlantic Shores has elected to site the buried cables within existing, previously disturbed road ROWs, where disturbance during construction and installation of the existing infrastructure likely exceeded the depth of potential archaeological deposits. This siting strategy avoids or significantly reduces potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits throughout most of the Atlantic Onshore Route.
- The portions of the Atlantic Onshore Route options sited within the existing utility corridor that parallels Asbury Avenue to the south contains multiple areas of limited to no discernable soil disturbance (other than tree clearing) with increased potential for encountering potentially undisturbed archaeological deposits.
- No previously recorded archaeological sites are located within the Atlantic PAPE. There is one previously identified archaeological site within 0.5 mi. (0.8 km) of the Atlantic PAPE.
- Two archaeological surveys were conducted by the Louis Berger Group in 2014 and 2015 along the Atlantic Onshore Route, within the existing high voltage utility corridor between the existing Oceanview and Atlantic Substations. EDR incorporated the results of this previous subsurface testing into its desktop assessment and archaeological sensitivity analysis, classifying the shovel tested areas as "Previously Surveyed" and "Excluded from field survey consideration."
- Historical map review demonstrates that the Asbury Park and Asbury Avenue portions of the Atlantic Onshore Route are sited on routes that were established in the late-nineteenth century. MDS are mapped in the vicinity of the proposed Atlantic Onshore Route along Asbury Avenue, from Ocean Grove to Asbury Park, and at intersections that were established by the mid-twentieth century.

- The Atlantic Onshore Route runs adjacent to the Mount Calvary Cemetery south of Asbury Avenue/ NJ Route 66 and east of NJ Route 18. The proposed Asbury Onshore Route will not impact the Mount Calvary Cemetery, as it is located outside of the PAPE. In addition, it is not anticipated that there is any potential for burials associated with the Mount Calvary Cemetery to be located within the PAPE because the earliest aerial photography of the cemetery depicts the closest burial markers approximately 300 ft. (91.44 m) south of Asbury Avenue, with burials encroaching closer to the road after Asbury Avenue was already established. As such, no remote sensing survey is recommended.
- Pedestrian survey (with judgmental shovel testing if deemed appropriate based on observed field conditions) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 ft. as well as in any wetlands or areas of steep slope.
- No additional archaeological investigation is anticipated to be necessary for the proposed Asbury and Kingsley Landfall Sites within the Atlantic PAPE.
- Targeted archaeological shovel testing is recommended within portions of the Atlantic Onshore Route, Route 66 Site, and Asbury Avenue Site indicated as Medium and Medium-High sensitivity "Potential Phase IB Survey Areas."

4.0 SUMMARY AND CONCLUSIONS

4.1 Summary of TARA Results and Status of Phase IB Survey

Pedestrian survey (with judgmental shovel testing if deemed appropriate based on observed field conditions) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 ft. as well as in any wetlands or areas of steep slope. Targeted archaeological shovel testing is recommended within those portions of the proposed Onshore Facilities that are sited within areas of the PAPE categorized as Medium and Medium-High sensitivity and "Potentially Undisturbed."

Phase IB survey has only been completed for a portion of the Larrabee North Option. Outstanding survey areas within the Larrabee Onshore Facilities include the remaining targeted portions of the Larrabee North Option, all targeted portions of the Larrabee South Option and Larrabee to Asbury Connector, and all portions of the Lanes Pond Road Site and Randolph Road Site. No Phase IB survey has been completed for the Atlantic Onshore Facilities. A summary of the identified "Potential Phase IB Survey Areas" and the status of Phase IB survey completion for the Larrabee and Atlantic PAPEs is included in Table 2.

Any alternate routing options or substation and/or converter locations removed from Project consideration prior to conducting any potential Phase IB archaeological field survey for the Project will result in the omission of any corresponding "Potential Phase IB Survey Areas" from the field effort. Additional "Potential Phase IB Survey Areas" may be added within portions of the PAPE categorized as "Potentially Undisturbed" if Project updates or alterations call for the use of roadside ROW or additional areas outside of the current siting within paved lanes and bikes paths.

Table 2. Summary of and Status of Identified "Potential Phase IB Survey Areas" for Proposed Onshore Facility Sites

Onshore Facility Site	Archaeological Sensitivity	Recommended Additional Measures to Identify Archaeological Resources	Status of Completion for Recommended Additional Measures
Larrabee Physical Effects PAPE 409.6 ac.		**Combined Phase IB STP Survey 75.7 ac. (18.48%)**	**Completed Phase IB STP Survey 4.77 of 75.7 ac. (6.3%)**
Landfall Site(s)			
Monmouth Landfall Site 8.32 ac.	Disturbed, Previously Surveyed	No Further Investigation	-
Onshore Substation and/or Converter Station Site(s)			
Lanes Pond Road Site 16.27 ac.	Low to Medium	Targeted Phase IB STP Survey 10.87 ac. (66.81%)	Survey Pending
Randolph Road Site 24.64 ac.	Disturbed, Medium-High	Targeted Phase IB STP Survey 11.90 ac. (48.30%)	Survey Pending
Larrabee Onshore Interconnection Cable Route Options			
Larrabee North Option 187.94 ac.	Disturbed, Low to Medium-High	Targeted Phase IB STP Survey 26.35 ac. (14%)	4.77 ac. of Targeted Phase IB STP Survey Completed in August 2023.
Larrabee South Option 105.9 ac.	Disturbed, Low to Medium-High	Targeted Phase IB STP Survey 25.53 ac. (24.1%)	Survey Pending
Larrabee to Asbury Connector 66.5 ac.	Disturbed, Low to Medium-High	Targeted Phase IB STP Survey 1.05 ac (1.53%)	Survey Pending
Atlantic Physical Effects PAPE 180.41 ac.		**Combined Phase IB STP Survey 47.23 ac. (26.18%)**	**Phase IB STP Survey Pending**
Landfall Site(s)			
Asbury Landfall Site 2.02 ac.	Disturbed. Medium	No further Investigation	-
Kingsley Landfall Site 1.75 ac.	Disturbed, Medium	No Further Investigation	-
Onshore Substation and/or Converter Station Site(s)			
Route 66 Site 35.12 ac.	Low to Medium	Partial Phase IB STP Survey 10.65 ac. (30.32%)	Survey Pending
Asbury Avenue Site 15.67 ac.	Low to Medium	Partial Phase IB STP Survey 8.77 ac. (55.97%)	Survey Pending
Atlantic Onshore Interconnection Cable Route Options			
Atlantic Onshore Route 124.96 ac.	Disturbed, Low to Medium-High, Previously Surveyed	Targeted Phase IB STP Survey 27.81 ac. (22.26%)	Survey Pending

4.1.1 Archeological Monitoring

To further mitigate the potential (however unlikely) for encountering archaeological resources during installation of the Onshore Facilities, Atlantic Shores has prepared a MPRDP for Terrestrial Archaeological Resources, which includes stop-work and notification procedures to be followed if a cultural resource is encountered during installation. The MPRDP will be included as an attachment to the future MOA executed among BOEM and Section 106 consulting parties in the EIS Finding of Effects and will memorialize specific measures that Atlantic Shores will take to resolve adverse effects to identified historic resources and to minimize potential effects to other historic properties in the event of a post-review discovery. The MPRDP outlines the steps for dealing with potential unanticipated discoveries of cultural artifacts and/or features, including human remains, during the construction of the proposed Onshore Facilities. In summary the MPRDP:

- Presents to regulatory and review agencies the plan Atlantic Shores and its contractors and consultants will follow to prepare for and potentially respond to unanticipated cultural resources (i.e., terrestrial archaeological) discoveries;
- Includes provisions and procedures allowing for a Cultural Monitor (Archaeologist) and Tribal Monitors to be present during construction and installation activities conducted in targeted areas of concern as identified in the TARA and through consultation with Native American Tribes; and
- Provides guidance and instruction to Atlantic Shores personnel and its contractors and consultants as to the proper procedures to be followed in the event of an unanticipated cultural resource (i.e., terrestrial archaeological) discovery.

Based on the results of the archaeological reconnaissance and desktop assessment, EDR recommends monitoring in portions of the Larrabee and Atlantic PAPEs adjacent to cemeteries, and in paved portions with Medium-High Sensitivity located within 1,000 ft. of previously recorded archaeological sites. Note that the scope of monitoring is subject to change and additional areas may be recommended as a result of future Phase IB testing and/or Section 106 consultation with NJHPO, consulting Native American Tribes, and other consulting parties.

In addition, the Project's MPRDP will be in effect for all construction and installation activities, providing guidance and instructions to all contractors on how to proceed in the event (however unlikely) of

encountering unanticipated cultural resources during work in this area. The MPRDP will include appropriate "Stop Work" procedures if potential cultural material and/or features are observed.

4.2 Conclusions

Atlantic Shores has proposed Onshore Facilities be primarily located within previously disturbed lots, paved roadways, railroads ROWs, and bike paths where disturbance during construction and installation of the existing infrastructure likely exceeded the depth of potential archaeological deposits. The results of background research, archaeological reconnaissance, and desktop assessment described herein indicate that the proposed Onshore Facility Sites have been significantly disturbed due to transportation infrastructure development (principally roadways, railroads, and bike paths) and adjoining business and residential neighborhoods. Note that the Brook Road Site is now proposed to be developed separately under the NJBPU SAA and has been removed from the Larrabee Physical Effects PAPE. Although no specific actions or effects are proposed by Atlantic Shores at this location, discussion of the Brook Road Site was retained as part of the study area in the TARA since the project may utilize future facilities at this location.

There is a very low likelihood of intact or potentially significant archaeological resources to be located within those portions of the PAPE categorized as "Disturbed" in the Archaeological Reconnaissance and Desktop Assessment Results, and they have been excluded from field survey consideration.

Pedestrian survey (with judgmental shovel testing if deemed appropriate based on observed field conditions) is recommended in any Low sensitivity, "Potentially Undisturbed" areas adjacent to paved roadways (within which the onshore cables are actually sited) where depth to culturally sterile subsoil is less than approximately 2.0 feet as well as in any wetlands or areas of steep slope.

Targeted archaeological shovel testing is recommended within those portions of the proposed Onshore Facilities that are sited within areas of the PAPE categorized as Medium and Medium-High sensitivity and "Potentially Undisturbed" (Table 2). This includes targeted areas of the Larrabee and Atlantic Onshore Routes, and portions of the proposed Onshore Substation and/or Converter station locations.

A total of three previously recorded archaeological sites are located within the boundaries of the Larrabee PAPE. One site was never relocated and most of the terrain in and around its purported

location was determined by the archaeologists to be previously disturbed. Since previous cultural resource surveys found no trace in the Larrabee North Option, it is unlikely that development will have any negative impact on the archaeological site. As such, no mitigation or avoidance measures are proposed, and no further archaeological work is recommended in this area. The remaining two previously recorded archaeological sites are located within the PAPE for the Larrabee South Option, but the current state of both sites is unknown. The areas of the PAPE on which these sites are located are considered to have Medium-High sensitivity for the presence of Native American archaeological resources and are recommended for targeted Phase IB archaeological shovel testing. Note that additional mitigation or avoidance measures may be recommended depending on the results of Phase IB testing in these areas.

Seven previously recorded archaeological are located adjacent to the Larrabee PAPE. The areas of the PAPE located within 1,000 ft. of these sites are considered to have Medium-High sensitivity for the presence of archaeological resources and are recommended for targeted Phase IB archaeological shovel testing. Note that additional mitigation or avoidance measures may be recommended depending on the results of Phase IB testing in these areas. Archaeological monitoring is also recommended in Medium-High Sensitivity where the ground surface is unsuitable for traditional Phase IB testing (Section 4.1.1).

No previously recorded archaeological sites are located within or adjacent to the Atlantic PAPE. Targeted Phase IB survey is recommended areas of with Medium sensitivity, where depth to culturally sterile subsoil is greater than approximately 2.0 ft. and the potential for intact archaeological resources (below surface disturbances) increases. Mitigation or avoidance measures may be recommended if archaeological sites or artifacts are identified during Phase IB testing in these areas.

A total of 202 STPs were excavated across 16 designated survey areas (totaling 4.77 acres) along the Larrabee Onshore Route. No archaeological sites were identified, and no archaeological artifacts were encountered during Phase IB survey. As such, no mitigation or avoidance measures are proposed, and no further archaeological work is recommended for the surveyed portions of the PAPE. Phase IB archaeological field survey efforts are still pending for the Lanes Pond Road site, the Randolph Road Site, and approximately 21.58 acres of the Larrabee Onshore Route (Table 2). The survey results for

these areas will be presented in a future addendum to the TARA that will be submitted to BOEM and all relevant consulting parties prior to the ROD.

Additionally, BOEM has determined, that a Phased Identification approach is appropriate for the survey, reporting, and consultation related to this archaeological investigation while property access permissions are acquired to conduct survey in these remaining survey areas. The Project's *Phased Identification Plan: Terrestrial Archaeological Resources*, (EDR, 2023) will be included as an attachment to the future MOA between Section 106 consulting parties in the EIS Finding of Effects.

Atlantic Shores has prepared an MPRDP for Terrestrial Archaeological Resources, which includes stop-work and notification procedures to be followed if a cultural resource is encountered during installation. The MPRDP will be included as an attachment to the future MOA to be executed among BOEM and Section 106 consulting parties in EIS Finding of Effects. Note that scope of monitoring is subject to change and additional areas maybe recommended following future Phase IB results and/or Section 106 consultation with NJHPO, consulting Native American Tribes, and other consulting parties.

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