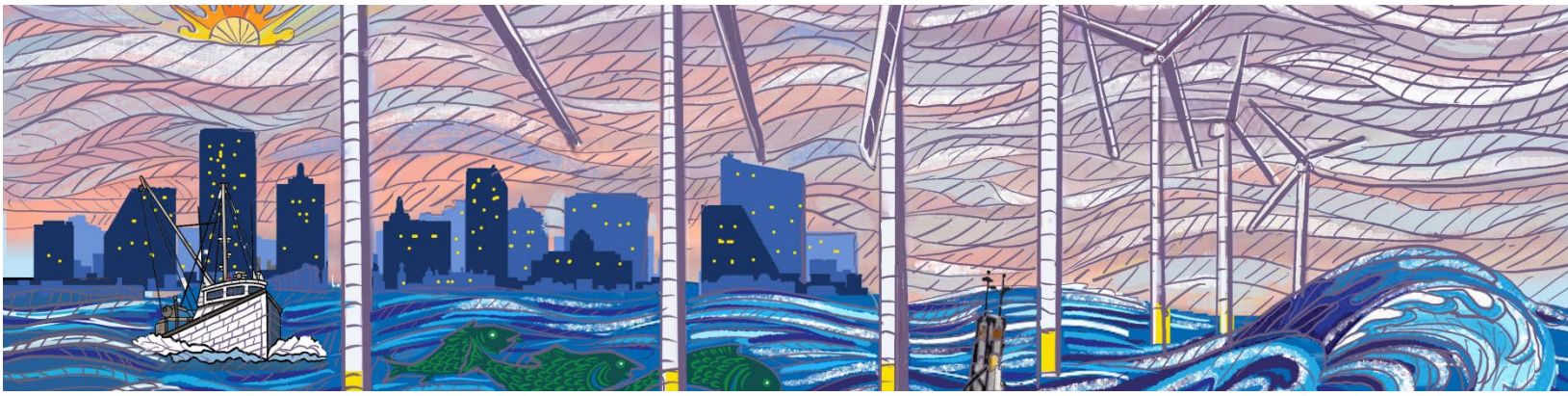

Appendix II-P2

Phase IA Terrestrial Archaeology Survey - Larrabee

Portions of this report have been redacted to exclude sensitive information including locations of archaeological resources.

Note:

On March 26, 2021, Atlantic Shores Offshore Wind, LLC (Atlantic Shores) submitted a Construction and Operations Plan (COP) to BOEM for the southern portion of Lease OCS-A 0499. On June 30, 2021, the New Jersey Board of Public Utilities (NJ BPU) awarded Atlantic Shores an Offshore Renewable Energy Credit (OREC) allowance to deliver 1,509.6 megawatts (MW) of offshore renewable wind energy into the State of New Jersey. In response to this award, Atlantic Shores updated Volume 1 of the COP to divide the southern portion of Lease OCS-A 0499 into two separate and electrically distinct Projects. Project 1 will deliver renewable energy under this OREC allowance and Project 2 will be developed to support future New Jersey solicitations and power purchase agreements.

As a result of the June 30, 2021 NJ BPU OREC award, Atlantic Shores updated Volume I (Project Information) of the COP in August 2021 to reflect the two Projects. COP Volume II (Affected Environment) and applicable Appendices do not currently include this update and will be updated to reflect Projects 1 and 2 as part Atlantic Shores' December 2021 COP revision.

Phase IA Archaeological Survey

Atlantic Shores Offshore Wind Project - Larrabee Onshore Interconnection Cable Route and Facilities

Monmouth County, New Jersey

Prepared for:

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February 2021

MANAGEMENT SUMMARY

Involved State/Federal Agencies:	Bureau of Ocean Energy Management New Jersey State Historic Preservation Office New Jersey Department of Environmental Protection
Phase of Survey:	Phase IA Archaeological Survey
Location Information:	Boroughs of Manasquan and Borough of Sea Girt, Township of Howell and Township of Wall, Monmouth County, New Jersey
Area of Potential Effect:	The Onshore Cable Route is an approximately 13-mile (21-kilometer) buried onshore transmission cable with an approximately 20-foot (6-meter) wide right of way. For the Onshore Substation, there is an approximately 10.2-acre (4.1-hectare) preferred onshore substation location and one approximately 12.2-acre (4.9-hectare) alternate substation location.
USGS 7.5-Minute Quadrangles:	*Asbury Park, NJ, Farmingdale, NJ, Lakewood, NJ, Point Pleasant, NJ*

Phase IA Archaeological Survey

Overview:	The Phase IA Archaeological Survey shows that no previously identified archaeological resources are located within the Area of Potential Effect.
Report Authors:	T. Arron Kotlensky, RPA, Douglas Pippin, PhD, RPA, Patrick Heaton, RPA
Date of Report:	February 2021

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GLOSSARY OF TERMS AND ACRONYMS

ac	acre
APE	Area of Potential Effect
Applicant	Atlantic Shores, LLC (the Applicant)
BOEM	Bureau of Energy Management
BP	Before Present
cm	centimeter
CFR	Code of Federal Regulations
D.P.C.	Design Professional Corporation
EDR	Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C.
ESRI	Environmental Systems Research Institute
ft	feet
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
ha	hectare
HDD	horizontal directional drilling
in	inch
km	kilometer
kV	kilovolt
LOC	Library of Congress
LUCY	Look Up Cultural-resources Yourself–New Jersey Historic Preservation Office database
MDS	map documented structure
m	meter
mi	mile
Mo	Monmouth County (for archaeological trinomial site numbers)
NPS	National Park Service
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NJ	New Jersey
NJAC	New Jersey Administrative Code
NJHPO	New Jersey Historic Preservation Office (State Historic Preservation Office)
NJSM	New Jersey State Museum
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
POI	Point of Interconnection
ROW/ROWs	Right-of-way/Rights-of-way
RPA	Register of Professional Archaeologists
§	Section
SCS	Soil Conservation Service
SRHP	State Register of Historic Places
USGS	United States Geological Survey

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 conducted a Phase IA archaeological survey for the proposed Atlantic Shores Offshore Wind Project, Larrabee Onshore Interconnection Cable Route and associated facilities, located in the Boroughs of Manasquan and Sea Girt, and Howell and Wall Townships, Monmouth County, New Jersey (Figures 1 and 2).

The Phase IA archaeological survey was prepared to assist the New Jersey Historic Preservation Office (NJHPO; acting as the State Historic Preservation Office), Bureau of Ocean Energy Management (BOEM), and other New Jersey state and/or federal agencies in their review of the Facility 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, as applicable.

The purpose of this Phase IA archaeological survey is to record and characterize previously identified archaeological resources within the Onshore Cable Route's preliminary Area of Potential Effect (APE; as further described in Section 1.2) and evaluate the potential presence of unidentified terrestrial archaeological resources within the APE. Please note that the Phase IA survey applies only to the potential impacts to archaeological resources; potential effects to above-ground, historic resources are addressed under separate cover. The Phase IA archaeological survey was conducted by professional archaeologists who surpass the qualifications criteria provided in the Secretary of the Interior's (SOI) standards for archaeology (Title 36 Code of Federal Regulations Part 61, Appendix A). The Phase IA archaeological survey and report were 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), further expanded and clarified by the New Jersey Historic Preservation Office (NJHPO 2000; 2008).

1.2 Project Description

Atlantic Shores is developing an offshore wind energy generation project within the southern portion of Lease Area OCS-A 0499, located on the Outer Continental Shelf within the New Jersey Wind Energy Area. Atlantic Shores proposes to construct, operate, and decommission offshore wind energy generation facilities, offshore export cables, onshore interconnection cables, and an onshore substation. The Project will include up to 200 wind turbine generators, up to 10 offshore substations, and up to four cables installed within a single offshore, Export Cable Corridor. Those

cables will deliver energy from the generation facilities to landfall sites located in either Monmouth County (the Monmouth Landfall Site) or Atlantic County (the Atlantic Landfall Site), New Jersey. From the Monmouth Landfall Site, onshore cables will travel through existing roadway, bike trail, and/or railroad rights-of-way to the Larrabee Point of Interconnection (POI) for connection to the electrical grid.

The proposed Larrabee Onshore Cable Route is made up of an approximately 13-mile (mi) (21-kilometer [km]) underground electrical transmission cable and supporting facilities in Monmouth County, New Jersey. It is largely set within existing linear infrastructure and roadway corridors to connect the landfall location on the Atlantic Ocean shoreline with the existing Larrabee POI in Howell Township. From the Monmouth Landfall Site, the Onshore Cable Route runs north 1,475 feet (ft) (450 meters [m]) to meet Sea Girt Avenue. Thereafter, the Onshore Cable Route progresses to the northwest along Sea Girt Avenue for approximately 1.7 mi (2.8 km) passing through the Boroughs of Sea Girt and Manasquan, before a short change of direction approximately 0.6 mi (1.0 km) to the southwest, beneath New Jersey (NJ) State Route 35 and adjacent to active and vacant shopping centers. Thereafter, the Onshore Cable Route is collocated with the Edgar Felix Memorial Bikeway, progressing northwest along the asphalt-paved bikeway for approximately 2.6 mi (4.1 km). The bikeway itself is set within the former railroad corridor of the Freehold and Jamesburg Agricultural Railroad, defunct since 1932.

At the intersection of the bikeway and Hospital Road in Wall Township, the Onshore Cable Route proceeds north along Hospital Road for approximately 0.5-mi (0.8-km), before turning to the northwest to follow southern margin of County Route 524 for approximately 2.0-mi (3.2-km). Along this segment, the Onshore Cable Route passes along the border of Allaire State Park and turns to the west, following the park's northern border along the margin of Interstate 195 and the interchange with County Route 547 (Lakewood Farmington Road) for 0.85-mi (1.35-km). The Onshore Cable Route thereafter follows along the eastern margin of County Route 547 for approximately 3.9-mi (6.2-km), turning east for approximately 0.25 mi (0.40 km) to the existing Larrabee POI substation owned by Jersey Central Power and Light.

The estimated design width of the Onshore Cable Route corridor is approximately 20-ft (6-m), with the designed depth of emplacement no greater than 6.0-ft (1.8-m) below ground surface. The Applicant proposes to emplace the onshore interconnection cable by horizontal directional drilling (HDD) methods (i.e., trenchless) but may opt to use open trench methods, if it becomes necessary. HDD entry and exit boring locations, and staging areas are pending final design and layout.

The new Larrabee Onshore Substation will be built adjacent to the existing Larrabee POI, in Howell Township, accessed by Randolph Road. As proposed, there is a preferred Onshore Substation location and an alternate. The preferred Onshore Substation location is situated within a 10.2-acre (ac) (4.1-hectare [ha]) parcel encompassing an

active bulk materials processer and seller (doing business as Material Transport Group), located immediately east of Lakewood Farmingdale Road and south of Randolph Road. The alternate Onshore Substation location is situated within a 12.2-ac (4.9-ha) parcel encompassing an idle wooded area, a scrap vehicle lot, and an overhead electrical transmission corridor, located between Lakewood Farmington Road and the existing Larrabee POI.

For the purposes of clarity and brevity, the following terms are used throughout this report:

Atlantic Shores Offshore Wind Project	Atlantic Shores' proposal to develop the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0499 for the generation of renewable energy from offshore wind comprised of up to 200 total wind turbine generators (WTG) and up to ten offshore substation (OSS) positions.
Atlantic Shores Onshore Project Area	The onshore locations where Atlantic Shores Offshore Wind components will be physically located.
Larrabee Onshore Interconnection Cable Route (Onshore Cable Route)	The Onshore Cable Route and associated infrastructure described in this survey, spanning approximately 13-mi (21-km) between the onshore transition vault in the Borough of Sea Girt and the existing Larrabee Point of Interconnection in Howell Township, Monmouth County, New Jersey.
Larrabee Onshore Substation, Preferred	The preferred Onshore Substation location is situated within a 10.2-ac (4.1-ha) parcel located immediately east of Lakewood Farmingdale Road and south of Randolph Road
Larrabee Onshore Substation, Alternate	The alternate Onshore Substation location is situated within a 12.2-ac (4.9-ha) parcel located between Lakewood Farmington Road and the existing Larrabee POI
Larrabee Point of Interconnection	The existing Larrabee Point of Interconnection (POI) substation at the western terminus of the Onshore Cable Route, in Howell Township, Monmouth County, New Jersey.
APE for Direct Effects:	The APE for Direct Effects (APE) for the Onshore Cable Route are those areas containing all proposed soil disturbance associated with the construction of the Larrabee Onshore Interconnection Cable Route. As currently designed, the Onshore Cable Route will utilize existing roadways for access and no new roadways are proposed.
Historic Properties:	Historic properties include: sites and properties (whether archaeological resources, existing above-ground resources, or both) that are listed in, or have been determined by NJHPO to be eligible for listing in, the State and/or National Registers of Historic Places (S/NRHP); National Historic Landmarks (NHL); and properties without formal S/NRHP eligibility determinations provided by NJHPO, characterized as "not determined" or "undetermined" in site files.

1.3 Organization of the Report

The Phase IA survey and report were 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), further expanded and clarified by the New Jersey Historic Preservation Office (NJHPO 2000; 2008). The report includes this *Introduction* (Section 1.0) followed by *Background Research* for the Onshore Cable Route (Section 2.0), *Archaeological Sensitivity Assessment* (Section 3.0), *Phase IB Archaeological Survey Research Design* (Section 4.0), *Summary and Conclusions* (Section 5.0), *References* (Section 6.0), as well as *Figures* and *Appendix A: Photographs*.

2.0 BACKGROUND RESEARCH

2.1 Environmental Setting and Soils

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 Onshore Project Area 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 miles (97 to 129 km) (Stanzeski, 2005:58).

In eastern North American, 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 Onshore Project Area is located on the Atlantic Ocean shoreline and near inland areas of New Jersey within the broad, low relief Outer Coastal Plain physiographic province (see Figure 3). 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 before present [BP]), 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 BP, but seaward coastal conditions and estuaries continued to evolve as they do at the present time.

The Onshore Cable Route ranges from 6.6-ft (2-m) in elevation above mean sea level at the Monmouth Landfall Site in the Borough of Sea Girt to a high of 161-ft (49-m) in Wall Township, with an average elevation of 69-ft (21-m) for the APE. The Manasquan River is the principal drainage intersected by the Onshore Cable Route, draining the central portions of the Onshore Cable Route, with Judas Creek draining the eastern portion of the Onshore Cable Route and the Metedeconk River draining the western terminus and proposed alternate and preferred Onshore Substation locations. Several named streams also intersected by the Onshore Cable Route drain into the two rivers and include from east to west: Mingomahone Brook, Squankum Brook, (North Branch) Squankum Brook, Dicks Brook, and the North Branch of the Metedeconk River.

There are three distinct soil units present within the APE for the Onshore Cable Route, illustrating the primarily sandy loam composition of soils in the vicinity. These units include the Klej loamy sands, the Downer sandy loams and the Downer Urban Land Complex, ranging from well drained to somewhat poorly drained (Environmental Systems Research Institute [ESRI] and Natural Resources Conservation Service [NRCS] 2020; NRCS 2020). As noted previously, Atlantic Shores has elected to site the Onshore Interconnection Cable buried within existing paved roadways and railroad ROWs. This avoids potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits.

2.2 Research Sources

EDR reviewed primary and secondary sources to assess the potential for previously unidentified cultural resources within the APE. This included research on recorded archaeological resources, as well as information on previous cultural resources surveys that have been conducted in the vicinity of the APE. Information on previously recorded archaeological sites can be found in Section 2.3.

EDR reviewed the following primary and secondary sources to assess the potential for previously unidentified cultural resources within the APE. Digital collections, online databases, archives, and repositories consulted included the following:

- NJHPO online[1] cultural resources database (LUCY);
- New Jersey State Museum archaeological site files;
- Library of Congress digital collections;
- Historic American Building Survey /Historic American Engineering Record digital collections;
- New Jersey Historical Society digital collections;
- Monmouth County Historical Association online resources;
- David Rumsey Map Collection database;
- NRHP nominations as provided by the NPS;
- New Jersey State Library Genealogy and Local History collection;
- New Jersey State Archives online catalog; and
- JSTOR online journal database.

In addition, local and regional histories and resources were consulted, including:

- *History of Monmouth County, New Jersey* by Franklin Ellis (1885);
- *History of Monmouth and Ocean Counties* by Edwin Salter (1890); and
- Staff at the Howell Heritage and Historical Society (2020).

Historical mapping, aerial imagery, and community management documents consulted included:

- 1828 A Map of the State of New Jersey: With Part of the Adjoining States by T. Gordon;
- 1860 Topographical Map of the State of New Jersey by G.M. Hopkins (Figure 5);
- 1873 "Atlas of Monmouth Co., New Jersey" by F.W. Beers;
- 1878 "The State of New Jersey," in Historical and Biographical Atlas of the New Jersey Coast by G.W. Howell (Figure 6);
- 1889 *Atlas of Monmouth County*, "Howell Township," by Chester Wolverton;
- 1901 USGS 1:62,500-scale Topographical Map, *Asbury Park, N.J.* Quadrangle (Figure 7);
- 1954 USGS 1:24,000-scale Topographical Map, *Asbury Park, N.J.* Quadrangle (Figure 8);
- 1953 USGS 1:24,000-scale Topographical Map, *Point Pleasant, N.J.* Quadrangle (Figure 8);

[1] Due to the Covid-19 pandemic, NJHPO suspended in-person research visits.

- 1954 USGS 1:24,000-scale Topographical Map, *Lakewood, N.J.* Quadrangle (Figure 8);
- 1954 USGS 1:24,000-scale Topographical Map, *Farmingdale, N.J.* Quadrangle (Figure 8);
- 1890 and 1905 Sanborn Fire Insurance Maps for Sea Girt, NJ;
- 1889, 1890, 1905, and 1921 Sanborn Fire Insurance Maps for Manasquan, NJ;
- 1930 Sanborn Fire Insurance Maps for Wall Township, NJ;
- Historical cartography available online by Rutgers University;
- 2016 Monmouth County Master Plan by Monmouth County Division of Planning;
- 2018 Borough of Sea Girt Master Plan Reexamination Report;
- 1999 Wall Township Master Plan; and
- 1994 Howell Township Master Plan.

2.3 Previously Identified Cultural Resources

No previously recorded archaeological resources are located with the APE for the Onshore Cable Route. The archaeological sites located within 0.5-mi. (0.8-km) of the APE are summarized in Table 1, below (and depicted on Figure 4).

EDR conducted a literature review and background research for the Onshore Cable Route using information available through the NJHPO's cultural resources online database, LUCY. Information found therein includes properties and sites listed on and eligible for the State and National Registers of Historic Places (S/NRHP), as well as historic districts, historic resources and sites not listed on or evaluated for listing on the S/NRHP. The NJHPO also maintains a mapped grid of archaeologically sensitive areas. For its background and site file research, EDR noted all previously recorded cultural resources within a 0.5-mi (0.8-km) buffer of the APE for the Onshore Cable Route. EDR conducted archaeological site file research through correspondence with staff at the New Jersey State Museum (NJSM) in Trenton, NJ. In addition to a review of the information available through LUCY, EDR also examined cultural resources reports from an in-house reference library and those available through online repositories.

Table 1. Previously Recorded Archaeological Resources Within 0.5 Mile (0.8 Kilometers) of the Onshore Cable Route

Site Number	Site Name	Distance and Direction from APE	NRHP-Eligibility	Time Period/s	Cultural Affiliation
28-Mo-064	Lower Squankum Site	[redacted]	Undetermined	Nineteenth Century	Euro-American
28-Mo-065	Squankum Mill Archaeological Site - Grist Mill	[redacted]	Eligible	Nineteenth Century	Euro-American
28-Mo-066	Gilman Tavern	[redacted]	Undetermined	Nineteenth Century	Euro-American

Site Number	Site Name	Distance and Direction from APE	NRHP-Eligibility	Time Period/s	Cultural Affiliation
28-Mo-067	Squankum Mill Archaeological Site - Tannery		Eligible	Nineteenth Century	Euro-American
28-Mo-057	Kessler Farm		Undetermined	Early Archaic; Post-1500	Native American, Euro-American
28-Mo-180	Upper mill pond (contributing resource to Allaire Village NR site)		Listed	Nineteenth Century	Euro-American
28-Mo-141	Cottage Historic Site		Eligible	Eighteenth through Twentieth Centuries	Euro-American
28-Mo-181	RR culvert over mill run (contributing resource to Allaire Village NR site)		Listed	Nineteenth Century	Euro-American
28-Mo-143	Cottage Historic Site (15F)		Eligible	Native American, unspecified	Native American
28-Mo-236	Route 18 Corridor		Undetermined	Native American, unspecified	Native American
28-Mo-142	Cottage Historic Site ("Cottage")		Eligible	Native American, unspecified	Native American
28-Mo-144	16F Prehistoric Site		Eligible	Archaic	Native American
28-Mo-059	Peabody Nursery		Undetermined	Late Archaic; Post-1500	Native American, Euro-American
28-Mo-024	[NO NAME RECORDED]		Undetermined	Native American, unspecified	Native American
28-Mo-139	Row of 11 Houses (contributing resource to Allaire Village NR site)		Listed	Nineteenth Century	Euro-American
28-Mo-069	Jackson' Forge Archaeological Site		Eligible	Nineteenth Century	Euro-American
28-Mo-283	Sea Girt		Undetermined	Native American, unspecified	Native American
28-Mo-061	Bear Swamp		Undetermined	Early Woodland	Native American
28-Mo-202	Allaire Village Bakery		Undetermined	Native American, unspecified; Nineteenth Century	Native American
28-Mo-087	Allaire Mansion (contributing resource to Allaire Village NR site)		Listed	Nineteenth Century	Euro-American
28-Mo-163	Row of 11 Houses (contributing resource to Allaire Village NR site)		Listed	Nineteenth Century	Euro-American

Site Number	Site Name	Distance and Direction from APE	NRHP-Eligibility	Time Period/s	Cultural Affiliation
28-Mo-164	Church (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-165	Row of 5 Houses (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-166	Row of 8 Houses (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-167	Canal and road (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-168	Foreman's house (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-169	Lower mill pond (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-170	Saw mill (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-171	Grinding and screw mill (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-172	Grist mill (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-173	Smith's shop (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-174	Bakery and outbuilding (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-175	Manager's house (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-176	Store (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-177	Carpenter's shop and outbuilding (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-178	Enameling furnace (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-179	File mill (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-182	Furnace pond (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American

Site Number	Site Name	Distance and Direction from APE	NRHP-Eligibility	Time Period/s	Cultural Affiliation
28-Mo-183	Furnace race and penstock (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-184	Farm buildings (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-185	Barn (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-186	Carriage House (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-187	Outbuilding (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-188	Coal depot (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-189	Blast furnace buildings and office (contributing resource to Allaire Village NR site)	[redacted]	Listed	Nineteenth Century	Euro-American
28-Mo-023	[NO NAME RECORDED]	[redacted]	Undetermined	Native American, unspecified	Native American
28-Mo-071	Floodplain Site - East	[redacted]	Eligible	Woodland	Native American
28-Mo-070	Kandy Bar Ranch Archaeological Site	[redacted]	Eligible	Paleoindian; Woodland	Native American
28-Mo-063	Pig Farm Site	[redacted]	Undetermined	Late Archaic; Post-1500	Native American; Euro-American

2.4 Historic Context

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 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 APE. A summary of Native American cultural periods that are typically recognized by archaeologists can be found in Table 2.

Table 2. Native American Cultural Periods for Coastal New Jersey

Time Period	Environment	Settlement Pattern & Subsistence Strategy	Artifact Assemblage	Comments
Paleo-Indian Period (Prior to 10,000 BP)	Non-forested plains, Pleistocene megafauna present along the coast, low sea level causes coastline to be miles out to sea from its current location.	Mobile hunting and gathering.	Fluted points.	Sites along coastlines now inundated under the Atlantic Ocean surface. Low population density. Sites are extremely rare. Very few sites dating to the Paleoindian Period are known from New Jersey.
Early Archaic Period (10,000-8,000 BP)	Warmer and wetter conditions relative to previous period, sea level begins to rise.	Mobile hunting and gathering (but somewhat decreased mobility)	Bifurcate Points.	Sites along coastlines now inundated under the Atlantic Ocean surface. Low population density. Sites are extremely rare. Very few sites dating to the Early Archaic Period are known from New Jersey.
Middle Archaic Period (8,000-6,000 BP)	Continuation of warm and wet conditions, sea level rises and coast stabilizes near current extent. Pine and oak dominated forests give way to mixed deciduous forests.	Mobile hunting and gathering. Seasonal exploitation of resources. Initial exploitation of marine resources at the end of this period.	Poplar Island complex; Stanly Stemmed and Neville projectile points, notched atlatl weights, biface knives, drills, side scrapers, hammerstones, and choppers.	Small seasonal sites utilizing a majority of terrestrial fauna for subsistence. Marine shellfish were utilized but not deposit in great number due to high mobility.
Late Archaic Period (6,000-3,500 BP)	Continuation of warm and wet conditions	Somewhat high residential mobility, likely on a seasonal basis. Exploitation of marine resources (not widely represented).	Susquehanna point types, cremation burials in shallow pits, diversifying stone toolkit.	Larger population sizes than the previous period, small seasonal settlements seasonally located on upland landforms and sandy plateaus.
Transitional Period (4,000-3,000 BP)	Cooling trend. Mixed deciduous forests persist.	Somewhat high residential mobility, likely on a seasonal basis. Small scale exploitation of marine resources.	Orient Culture influences. Small shell middens. Cemeteries. Orient fishtail projectile points. Steatite vessels.	Shellfish exploitation in seasonal camps leaving middens. Cemeteries for burials.

Time Period	Environment	Settlement Pattern & Subsistence Strategy	Artifact Assemblage	Comments
Early Woodland Period (3,000-2,300 BP)	Cooler temperatures persist. Mixed deciduous forests persist.	Terrestrial foraging coupled with intensive exploitation of marine resources.	Cadwalader Complex. Large shell middens/rings. Introduction of ceramics.	Increased sedentism leads to larger communities developing leaving more material trace.
Middle Woodland Period (2,300-1,000 BP)	Warming and drying trend (Medieval Climatic Anomaly). Mixed deciduous forests persist.	Terrestrial foraging coupled with intensive exploitation of marine resources, introduction of agriculture.	Meadowwood Culture. Lithic toolkits including quartz and quartzite projectile points. Shell tempered and stamped undecorated ceramics.	Large communities exploiting all resources available. Introduction of agriculture.
Late Woodland Period (1,000-400 BP)	Warm and dry conditions persist. Mixed deciduous forests persist.	Sedentary villages supported by agriculture, seasonal camps targeting large and small game, plants, riverine, and marine resource.	Wide variety of projectile point types, high frequency of triangular projectile points including quartz and quartzite. Increasing use of decorated ceramics.	Large communities exploiting all resources available including agriculture, relationships with surrounding populations cause consistent trade.
Post-1600 (400 BP)	Cooler and wetter conditions (Little Ice Age). Mixed deciduous forests persist.	Sedentary villages supported by agriculture, seasonal camps targeting large and small game, plants, riverine, and marine resource.	Similar technology to Late Woodland Period, with increasing presence of European trade goods.	Relationships with the English and Dutch reveal a mixture of material culture, large manufacture of wampum to facilitate political interests.

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 ed. 1982). Diagnostic artifacts and features that indicate a Middle Archaic period occupation include Stanly Stemmed and Neville projectile point types, while Late Archaic bifaces and tool kits are marked by non-local sources of lithic materials, such as rhyolite and porphyry (Chesler ed. 1982). 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 ed. 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 Transitional Period spanning between the Late Archaic and Early Woodland Periods 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).

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 Meadowwood 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 ed. 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 ed. 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.

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 Struyvesant 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, ed. 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 the 27 previously recorded archaeological sites associated with the Howell Works is noted on Figure 4.

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; Figure 7). Today the single-track line remains in use but for infrequent freight service and has been determined as eligible for listing in the NRHP as the “New Jersey Southern Railroad Historic District.” Construction of the Farmingdale and Squan Village Railroad began in the 1860s, creating a rail connection between the vicinity of Allaire Village and local farms with other regional railroads to the west and coast to the east (Cunningham 1997; Figure 7). In 1879, the Farmingdale and Squan Village Railroad was consolidated into the Freehold and Jamesburg Agricultural Railroad, a consolidated line that remained in operation until 1932 that carried farm produce and seafood to local and regional markets. In recent years, much of the former railbed of the Freehold and Jamesburg Agricultural Railroad has been adapted into the Edgar Felix Bikeway.

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, ed.

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-ac (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 (Parson 1928).

2.5 Existing Conditions

Existing conditions within and adjacent to the APE were observed and photographed during an archaeological reconnaissance completed by EDR personnel on September 22, 2020 and on December 3, 2020. The reconnaissance included observing the Monmouth Landfall Site on the Atlantic Ocean shore in the Borough of Sea Girt, Onshore Cable Route, preferred and alternate locations of the Onshore Substation, and the Larrabee POI in Howell Township. The proposed route was detailed in Section 1.2 and explained in further detail here. Recent aerial imagery and photographic documentation of the APE is provided in Figure 9 and in Appendix A.

From the landfall location and transition vault on the Atlantic shoreline in the Borough of Sea Girt, the Onshore Cable Route follows a northwards course through the New Jersey National Guard training facility for 1,480 ft (451 m) along an unnamed access road before turn northwest along Sea Girt Avenue (Appendix A: Photographs 1 and 2). The Onshore Cable Route follows Sea Girt Avenue (County Road 49) to the northwest for approximately 1.7 mi (2.8 km) through residential neighborhoods in the Boroughs of Sea Girt and Manasquan, passing into Wall Township (Appendix A: Photographs 3 and 4). The Onshore Cable Route turns to the south away from Sea Girt Avenue at Begonia Avenue, following along the rear face of a shopping center at the southeast corner of Sea Girt Avenue and N.J. State Route 35 before crossing to the west side of N.J. State Route 35 over a span of approximately 0.60 mi (1.0 km) (Appendix A: Photographs 5 and 6). Approximately 0.2 mi (0.3 km) southwest of the traffic circle between N.J. State Route 35 and County Route 524, the Onshore Cable Route turns to the northwest and follows the northern margin of the Edgar Felix Memorial Bikeway (i.e., former right-of-way of the Freehold and Jamesburg Agricultural Railroad) and follows the bikeway for approximately 2.6 mi (4.1 km) (Appendix A: Photographs 7 and 8). An overhead high-voltage power transmission line is also collocated with the bikeway. The bikeway passes through a mix of idle wooded area, residential areas, and light commercial developments and passes over the limited-access highways N.J. State Route 34 and the Garden State Parkway.

At the intersection between the Edgar Felix Memorial Bikeway and Hospital Road, the Onshore Cable Route turns north to follow the western shoulder of Hospital Road for 0.2 mi (0.3 km) before turning to the northwest to follow the southern shoulder of County Route 524 (Allaire Road) for a span of 2.0 mi (3.2 km) (Appendix A: Photographs 9-12).

As the Onshore Cable Route follows along County Route 524, it passes adjacent to largely idle private land and the northern boundary of Allaire State Park. At an intersection point with Interstate Route 195 (I-195), the Onshore Cable Route turns west from County Route 524 into Howell Township and follows along the embankment of I-195 for approximately 0.9 mi (1.4 km), crossing the Mingamahone Brook within Allaire State Park and the Manasquan River before meeting County Route 547 (Lakewood-Farmingdale Road) and turning to the southwest (Appendix A: Photographs 13 and 14). The Onshore Cable Route travels south along the eastern shoulder of County Route 547 for approximately 3.9 mi (6.2 km) in Howell Township before turning east for 0.2 mi (0.3 km) within idle wooded area to meet the Larrabee POI (Appendix A: Photographs 15 and 16).

The preferred Onshore Substation location is situated within a 10.2-ac (4.1-ha) parcel encompassing an active bulk materials processer and seller (doing business as Material Transport Group), located immediately east of County Route 547 and south of Randolph Road (Appendix A: Photograph 17). The alternate Onshore Substation location is situated immediately south of the preferred location and is within a 12.2-ac (4.9-ha) parcel encompassing an idle wooded area, a scrap vehicle storage lot, and an overhead electrical transmission corridor. The alternate location is situated between Lakewood Farmington Road and the existing Larrabee POI (Appendix A: Photograph 18).

Prior ground disturbance is evident and significant throughout the APE and largely originates from the construction and expansion of transportation infrastructure along the Onshore Cable Route. Prior ground disturbance within the APE was recorded by EDR staff on September 22, 2020 and December 3, 2020 and is discussed in greater detail in Section 3.3.

3.0 ARCHAEOLOGICAL SENSITIVITY ASSESSMENT

3.1 Native American Archaeological Sensitivity Assessment

As noted in Section 2.3 above, there are no previously recorded archaeological sites found within the APE for the Onshore Cable Route. There are 13 previously identified archaeological sites with Native American associated artifacts located within 0.5 mi (0.8-km) of the APE (see Table 1; see Figure 4). These sites consist of low to higher density deposits of lithic debitage with diagnostic lithic tools, indicating occupation of the landscape at both a transient, short-term, and intensive scale.

All previously identified sites with Native American components mapped in the vicinity of the APE were identified within 0.25-mi (0.40-km) of a perennial stream or waterbody. This suggests a higher likelihood for sites to be situated near permanent sources of freshwater, specifically the Manasquan River and Mingamahone Brook, both intersected by the APE, like other regions in the Middle Atlantic. Overall, establishing longer-term sites proximal to freshwater streams, wetlands, and the coast offered a diverse set of resources to Native Americans that were used on a seasonal basis.

Due to the presence of several previously identified Native American archaeological sites within 0.5-mi (0.8-km) of the APE, the proximity of the APE to the Atlantic Coast and Intracoastal Waterway, the APE should be considered to have a moderate sensitivity for the presence of Native American archaeological resources (in the absence of historic-period and modern ground disturbance). This sensitivity is particularly elevated in the northern segment of the APE near the Manasquan River and Mingamahone Brook between County Routes 524 and 547 (see Figure 4). Portions of the APE within the Boroughs of Sea Girt and Manasquan, however, have a reduced sensitivity for Native American archaeological resources due to the active nature of the surface geology in this coastal setting, which is prone to erosion and tidal inundation, and more recently, significant modern commercial and residential development.

As noted in Section 2.2, EDR was not able to examine the reports for previous cultural resources services in the vicinity of the APE. The site forms for the previously recorded resources, however, do indicate that they were discovered through a cultural resources survey. This is the case for the sites in the vicinity of the intersection of Routes 524 and 547, which were discovered through a survey of that section of the Interstate 195 transportation corridor. As the Onshore Cable Route passes along this roadway and through this intersection, it is not anticipated that any previously unrecorded archaeological resources would be discovered.

Due to the extent of prior ground disturbance within the APE (see Section 3.3) there is, overall, a very low likelihood for intact Native American archaeological resources to be located within the APE for the Onshore Cable Route.

3.2 Historic-Period Archaeological Sensitivity Assessment

As noted in Section 2.3 above, there are no previously recorded archaeological sites found within the APE for the Onshore Cable Route. There are 36 previously recorded archaeological sites dating from the seventeenth century to the twentieth century located within 0.5 mi (0.8 km) of the APE (see Table 1; see Figure 4). Of these, 27 sites are associated with the Howell Works (e.g., related to ironmaking, workers' housing, retail, and food preparation) and are clustered relatively close together within present-day Allaire State Park. The remaining nine sites are largely associated with residence sites and agriculture and are mapped in the vicinity of the western portion of the APE. Overall, these archaeological sites highlight the probability of encountering historic-period archaeological resources increases at the locations of former buildings, along roadways, and intersections between roadways. As such, a review of historic maps for identifying map-documented sites (MDSs) is an effective method for assessing archaeological sensitivity for sites dating from the seventeenth century and later. The following represents a brief review of historic maps for the Onshore Project Area, which in short underwent slow, gradual development throughout the nineteenth century before undergoing rapid suburbanization in the twentieth century with the advent of automobile transportation.

As described in Section 2.4 above and illustrated on historic maps, the surrounding area was settled by Europeans in the mid-seventeenth century as a part of the East Jersey province. Documented settlements of that period are sparse, however, and denser, map-documented settlement in Monmouth County follows later in the late eighteenth century (see Figures 5 to 8). By the early nineteenth century local road networks well established throughout Monmouth County, as seen in the 1828 T. F. Gordon *A Map of the State of New Jersey*. However, no major settlements are depicted in the Gordon map in the immediate vicinity of the Onshore Cable Route but notably mill sites are depicted on tributaries to the Manasquan River. The largest nearby settlement of this period, Freehold, is visible to the northwest of the Onshore Cable Route, and a series of roads traversed the area adjoining Freehold and areas south of Manasquan River (Gordon 1828).

The Onshore Project Area witnessed further development from the mid to late nineteenth century. The 1860 *Topographical Map of the State of New Jersey* by G. M. Hopkins depicts much of the same roadway network depicted in the 1828 Gordon map but includes several dwellings and other buildings along the mapped roadways, as well as the New Jersey Southern Railroad (Hopkins 1860). The 1873 *Atlas of Monmouth Co., New Jersey* by F. W. Beers depicts marginally greater development in the Onshore Cable Route vicinity relative to the 1860 Hopkins map, with the most significant growth concentrated in and around Squan Village (today the Borough of Manasquan) and closer to Farmingdale, south of the Larrabee POI (Beers 1873). Present-day county and local municipal roadways that intersect and parallel the APE largely conform to the roadways depicted in the 1873 Beers Monmouth County atlas, with several residences and churches depicted along many of these roadways. These roadways are depicted again in *The State of New Jersey* (Figure 6) by G. W. Howell (1878) and are mapped with higher accuracy with respect to present-day

mapping methods employed in preparing editions of USGS 15-minute and later 7.5-minute topographic quadrangle maps encompassing the Onshore Project Area and its vicinity from 1901 to 1954 (USGS) (Figures 7 and 8). Sanborn Fire Insurance Maps and historic aerial photography encompassing the adjoining Boroughs of Sea Girt and Manasquan dating from 1890 to the 1950s demonstrate in detail the steady growth of residential neighborhoods and business places in both communities within the APE (Sanborn Fire Insurance Map Company 1889, 1890, 1905, and 1921). Residential and commercial development is most concentrated along Sea Girt Avenue and progressively expanded from the shore towards N.J. State Route 35 to the west. In the northern and western portions of the APE, the construction of the Garden State Parkway in the mid-1950s and the later construction of I-195 in the late 1970s were the most significant development projects in Wall and Howell Townships in the mid- to late twentieth century.

In brief, the historic map review demonstrates that MDSs are mapped in the immediate vicinity of the Onshore Project Area, with most mapped along existing roadways and at intersections that were largely established by the mid-nineteenth century (see Figures 5 to 8). Due to the presence of previously identified historic-period archaeological sites and MDS locations near the Onshore Cable Route, the APE should be considered to have a moderate sensitivity for the presence of historic-period archaeological resources, if not for prior ground disturbance. With the growth of residential neighborhoods in the Boroughs of Sea Girt and Manasquan and separate single-family home sites in Wall and Howell Townships, historic-period archaeological sites most likely to be encountered within the APE would be associated with early to mid-twentieth century residences and commercial buildings.

As noted in Section 2.2 and 3.1, EDR was not able to examine the reports for previous cultural resources services in the vicinity of the APE. The site forms for the previously recorded resources, however, do indicate that they were discovered through a cultural resources survey and it is apparent that several portions of the APE have been subjected to previous Phase I investigations.

In general terms, due to the prior ground disturbance within the APE (see Section 3.3) there is, a very low likelihood for intact historic-period archaeological resources to be located within the APE for the Onshore Cable Route.

3.3 Prior Ground Disturbance

Prior ground disturbance within the APE was recorded by EDR archaeologists on September 22, 2020 and December 3, 2020, which included walking or driving adjacent to or across the proposed locations of the Onshore Cable Route, both preferred and alternate Onshore Substation locations, the Monmouth Landfall Site, and Larrabee POI to record existing conditions, which were documented by photographs, field notes, and GNSS-collected data. The primary goal of the reconnaissance was to identify those areas that had undergone prior ground disturbance (e.g., engineered/artificial landforms, grading, cut and fill, and/or buried utility markers) was evident (therefore, would not

necessitate archaeological testing), as well as those areas that appear undisturbed and would require archaeological testing. Observations of existing conditions at select locations of the APE are depicted on Figure 9 and in Appendix A.

The NJHPO archaeological survey guidelines advise that Phase I archaeological survey is not necessary in delineated wetlands, inundated terrain, previously disturbed areas, and areas where slopes exceed 12 to 15 percent (NJHPO 2008). Slope is not a significant factor in the archaeological sensitivity of the APE as the proposed Onshore Cable Route is predominately located across flat to gently sloping terrain. However, previous ground disturbance is evident and significant throughout the APE and vicinity and largely originated from the construction and expansion of roadways and railroads along which the Onshore Cable Route is collocated with for most of its layout. Grading and construction of these roadways and railroads would have significantly disturbed, if not destroyed, any archaeological sites that predated construction. Other sources of disturbance include residential and commercial development (especially along Sea Girt Avenue and its intersection with N.J. State Route 34) and the trenching of buried utilities that are collocated with existing roadways.

4.0 PHASE IB ARCHAEOLOGICAL SURVEY RESEARCH DESIGN

4.1 Phase IB Archaeological Survey Recommendations

As discussed in Section 3 above, the results of the archaeological reconnaissance indicate that the APE, the preferred Onshore Substation location, and a portion of the alternate Onshore Substation location are previously disturbed due to transportation infrastructure development (principally roadways and railroads) and adjoining business and residential neighborhoods. A portion of the alternate Onshore Substation location is located on potentially undisturbed terrain. In order to identify any archaeological sites that could be disturbed by onshore facility-related construction, a Phase IB archaeological survey is proposed only in those areas which have been identified as potentially undisturbed (see Figure 9, Sheet 13). No archaeological survey is recommended in the APE for the Onshore Cable Route, until it reaches the alternate Onshore Substation location.

4.2 Phase IB Archaeological Survey Methodology

Prior to initiating the archaeological fieldwork, New Jersey 811 will be contacted to request a utility mark-out. The utility mark-out will enable the archaeologists to avoid excavation in the area of existing utilities and help identify previously disturbed areas where no archaeological work is necessary.

The archaeological survey will consist of the hand excavation of shovel test pits in a 50-by-50-ft (15-by-15-m) grid in the alternate Onshore Substation location where it has been identified as potentially undisturbed. If areas on either sides of existing infrastructure are potentially undisturbed and less than 50 ft (15 m) apart, shovel test pits may be staggered on either side of the existing infrastructure (i.e., not directly across from one another) to increase coverage. For portions of the APE which are wider than 50 ft (15 m), shovel tests will be excavated on; however, EDR does not anticipate testing any such areas according to the current Onshore Cable Route design.

Shovel tests will measure approximately 18 to 20 in (45 to 50 cm) in diameter and be excavated to a depth of at least 4 inches (10 cm) into a sterile subsoil stratum or to the practical limits of hand excavation (typically 3 to 4 ft [0.9 to 1.2 m] below the ground surface). No machinery or heavy equipment will be use during excavation. The locations of all shovel tests will be 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 on standardized field record forms.

All soils excavated from shovel tests will be screened through 0.25 inch (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 will be

noted on field forms, but these materials will not be collected for subsequent analysis. All shovel tests will be backfilled immediately upon completion. All shovel tested areas will be 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 shovel tests, then additional shovel tests at closer intervals may be excavated within adjacent portions of road rights-of-way, to determine if an archaeological site is present. If Native American artifacts are recovered from an isolated shovel test, then up to eight additional shovel tests will be excavated at 3- and 10-ft (1- and 3-m) intervals around the original shovel test 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-mil. archival quality plastic bags and inventoried in accordance with the Requirements for Phase I Archaeological Survey and Requirements for Archaeological Survey Reports (NJHPO 2008).

A complete inventory of all archaeological finds will be included in the Phase IB archaeological survey technical report, which will be provided to appropriate federal, state, and/or local agencies and interested parties. This technical report will be marked "confidential – not for public disclosure" 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 Requirements for Archaeological Survey Reports (NJHPO 2008).

5.0 SUMMARY AND CONCLUSIONS

5.1 Summary of Phase IA Archaeological Survey

The results of the Phase IA archaeological survey can be summarized as follows with respect to archaeological potential in the APE:

- No previously recorded cultural resources are located within the APE for the Onshore Cable Route.
- Atlantic Shores has sited the Larrabee Onshore Interconnection Cable to be buried within existing paved roadways, a bike path, and a railroad ROW as much as possible. Siting within paved roadways avoids potential impact to adjacent undisturbed soils and previously unrecorded cultural resources.
- There are 13 previously identified archaeological sites with Native American associated artifacts located within 0.5 mi (0.8-km) of the APE. These sites consist of low to higher density debitage deposits with diagnostic lithic tools, indicating occupation of the landscape at both a transient, short-term, and intensive scale. However, none of these thirteen sites are mapped within the APE. These sites were mostly identified through a transportation-related cultural resources survey, the report for which is currently unavailable due to pandemic safety standards. As the Onshore Cable Route passes directly through this prior survey area, it is not likely that additional, previously unrecorded archaeological resources would be discovered in the APE (see Figure 4, Sheet 3).
- There are 36 previously recorded archaeological sites dating to the seventeenth century and later that are located within 0.5 mi (0.8 km) of the APE. Of these, 27 sites are associated with the Howell Works (e.g., related to ironmaking, workers' housing, retail, and food preparation) and are clustered relatively close together within present-day Allaire State Park (see Figure 4, Sheet 2). The remaining nine sites are largely associated with residence sites and agriculture and are mapped in the vicinity of the western portion of the APE.
- Historic map review demonstrates that MDSs are mapped in the immediate vicinity of the Onshore Cable Route, with most mapped structures along existing roadways and at intersections that were largely established by the mid-nineteenth century.
- Due to the extent of prior ground disturbance within the APE, there is a very low likelihood for intact archaeological resources to be located within the Onshore Cable Route.

5.2 Conclusions

Atlantic Shores has proposed that the Onshore Cable be located within existing paved roadways, a bike path, and a railroad corridor which avoids potential impacts to adjacent undisturbed soils and avoids or minimizes the risk of potentially encountering undisturbed archaeological deposits. The results of background research and the

archaeological reconnaissance described herein indicate that the Onshore Cable Route, Larrabee POI, and preferred Onshore Substation locations have been significantly disturbed due to transportation infrastructure development (principally roadways and railroads) and adjoining business and residential neighborhoods. Therefore, in the opinion of EDR, there is very little likelihood for intact or potentially significant archaeological resources to be located within those areas of the APE. Phase IB archaeological testing is recommended for the alternate location of the Onshore Substation as noted on Figure 9, Sheet 13.

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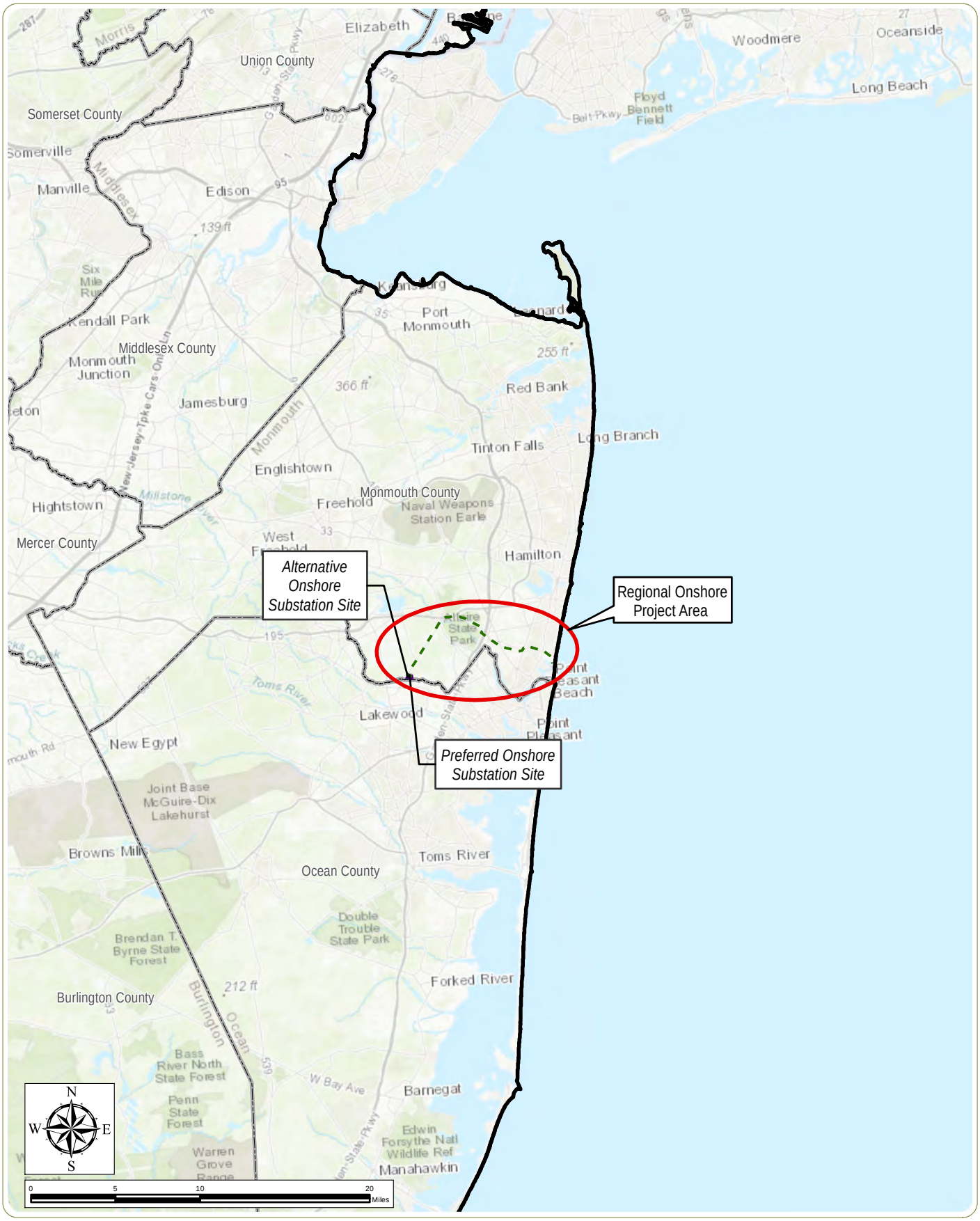
Figures



Atlantic Shores Offshore Wind
Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall
Monmouth County, New Jersey

Figure 1: Regional Facility Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on January 25, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- State Boundary
- County Boundary

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Atlantic Shores Offshore Wind Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

Figure 3. Proposed Onshore Cable Route - Topographic Conditions

- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- Preferred Onshore Substation Site
- Alternative Onshore Substation Site

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Atlantic Shores Offshore Wind Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

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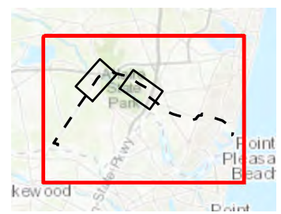
Figure 4. Previously Identified Cultural Resources
Sheet 1

- Previously Identified Archaeological Site
- Previously Identified Archaeological Area
- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- Preferred Onshore Substation Site
- Alternative Onshore Substation Site



Sheet 1 of 3

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Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

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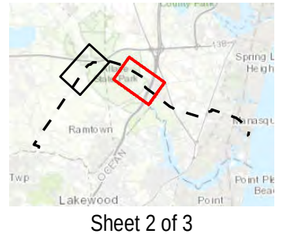
Figure 4. Previously Identified Cultural Resources
Sheet 2

- Previously Identified Archaeological Site
- Previously Identified Archaeological Area
- Larrabee Onshore Cable Route



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Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

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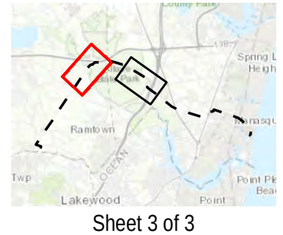
Figure 4. Previously Identified Cultural Resources
Sheet 3

Previously Identified Archaeological Site

Larrabee Onshore Cable Route



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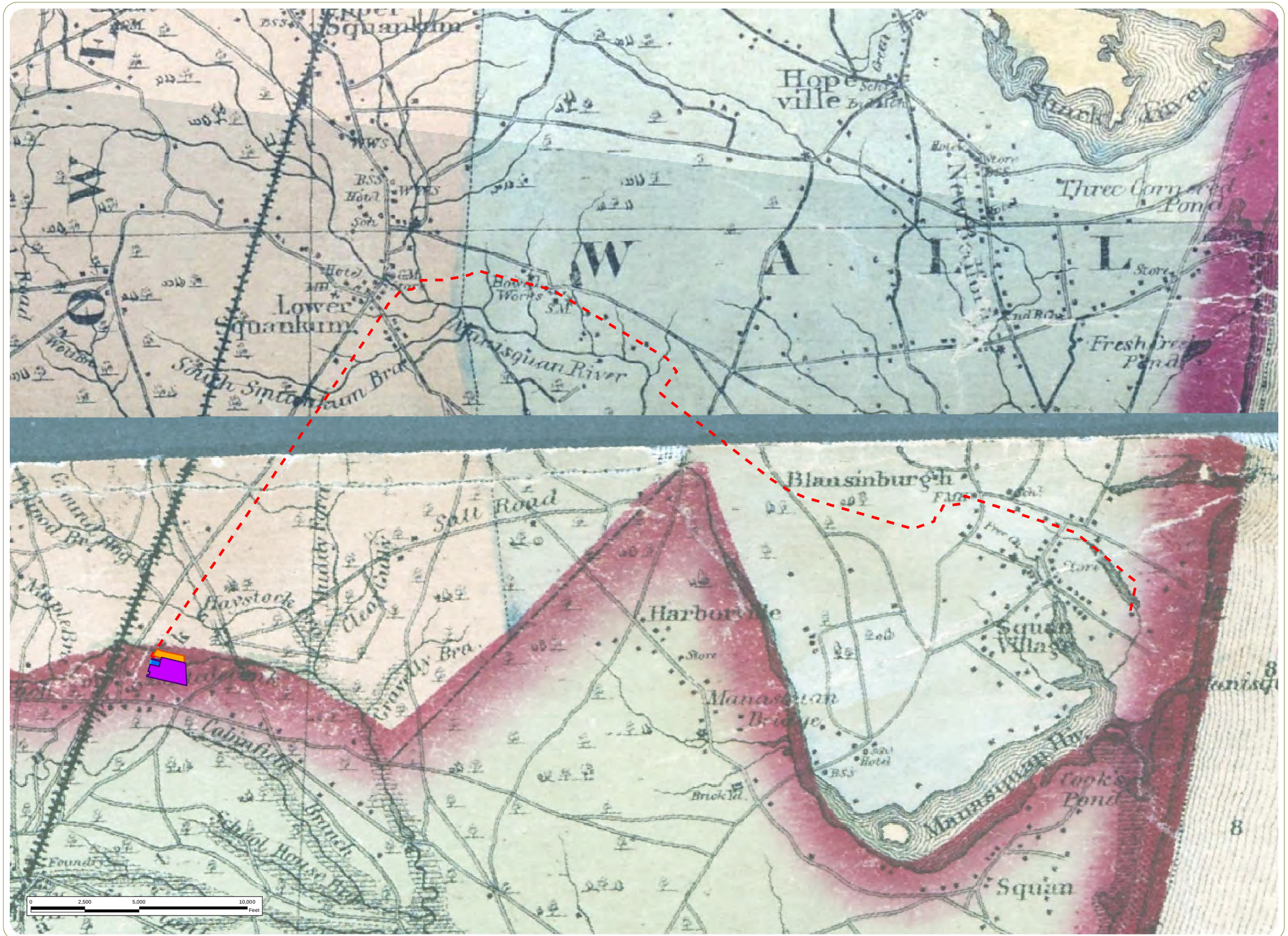
Atlantic Shores Offshore Wind Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

Figure 5. 1860 Gordon, *Topographical Map of Atlantic County, New Jersey*



Larrabee Onshore Cable Route
Larrabee Point of Interconnection
Preferred Onshore Substation Site
Alternative Onshore Substation Site

Notes: 1. Basemap: 1860 Gordon *Topographical Map of Atlantic County New Jersey* 2. This map was generated in ArcMap on February 2, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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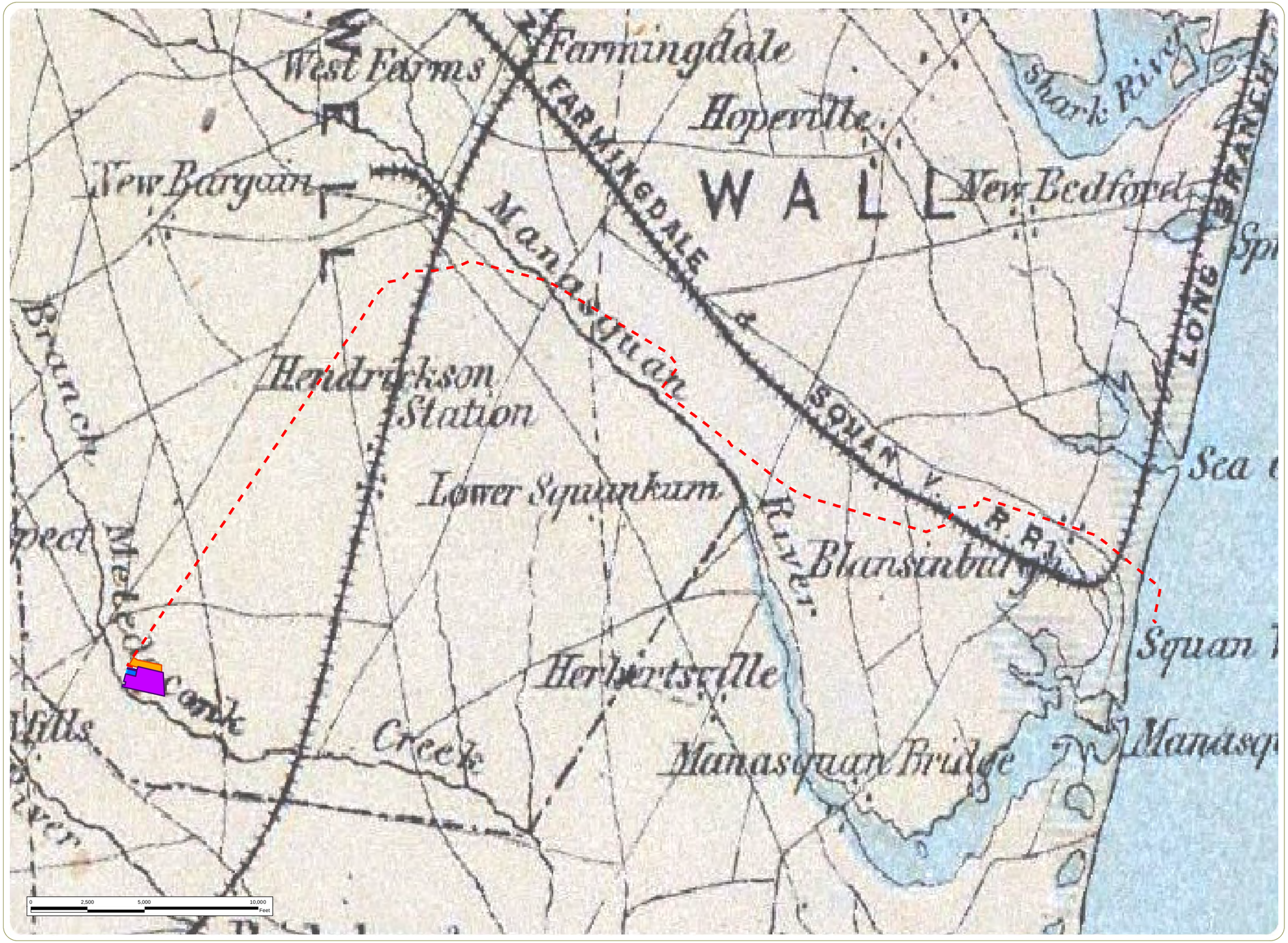

Atlantic Shores Offshore Wind Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall,
Monmouth County, New

Figure 6. 1878 Howell, *Topographical Map of Atlantic County, New Jersey*

- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- Preferred Onshore Substation Site
- Alternative Onshore Substation Site

Notes: 1. Basemap: 1878 Howell *Topographical Map of Atlantic County New Jersey* 2. This map was generated in ArcMap on February 2, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall

Figure 7. 1901 USGS 1:62,500-scale topographical maps, *Asbury, NJ*

- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- Preferred Onshore Substation Site
- Alternative Onshore Substation Site

Notes: 1. Basemap: 1901 USGS *Asbury Park, NJ* 1:62,500 Topographic Quadrangles 2. This map was generated in ArcMap on February 2, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Atlantic Shores Offshore Wind Larrabee Onshore Interconnection Cable Route

Boroughs of Manasquan and Sea Girt, and Townships of Howell and Wall

Figure 8. 1953 and 1954 USGS 1:62,500-scale topographical maps, *Asbury Park, NJ, Farmingdale, NJ, Lakewood, NJ and Point Pleasant, NJ*

- Larrabee Onshore Cable Route
- Larrabee Point of Interconnection
- Preferred Onshore Substation Site
- Alternative Onshore Substation Site

Notes: 1. Basemap: 1953 USGS *Point Pleasant, NJ* and 1954 USGS *Asbury Park, NJ, Farmingdale, NJ, Lakewood, NJ* 1:62,500 Topographic Quadrangles 2. This map was generated in ArcMap on February 2, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route

Sheet 1 of 13

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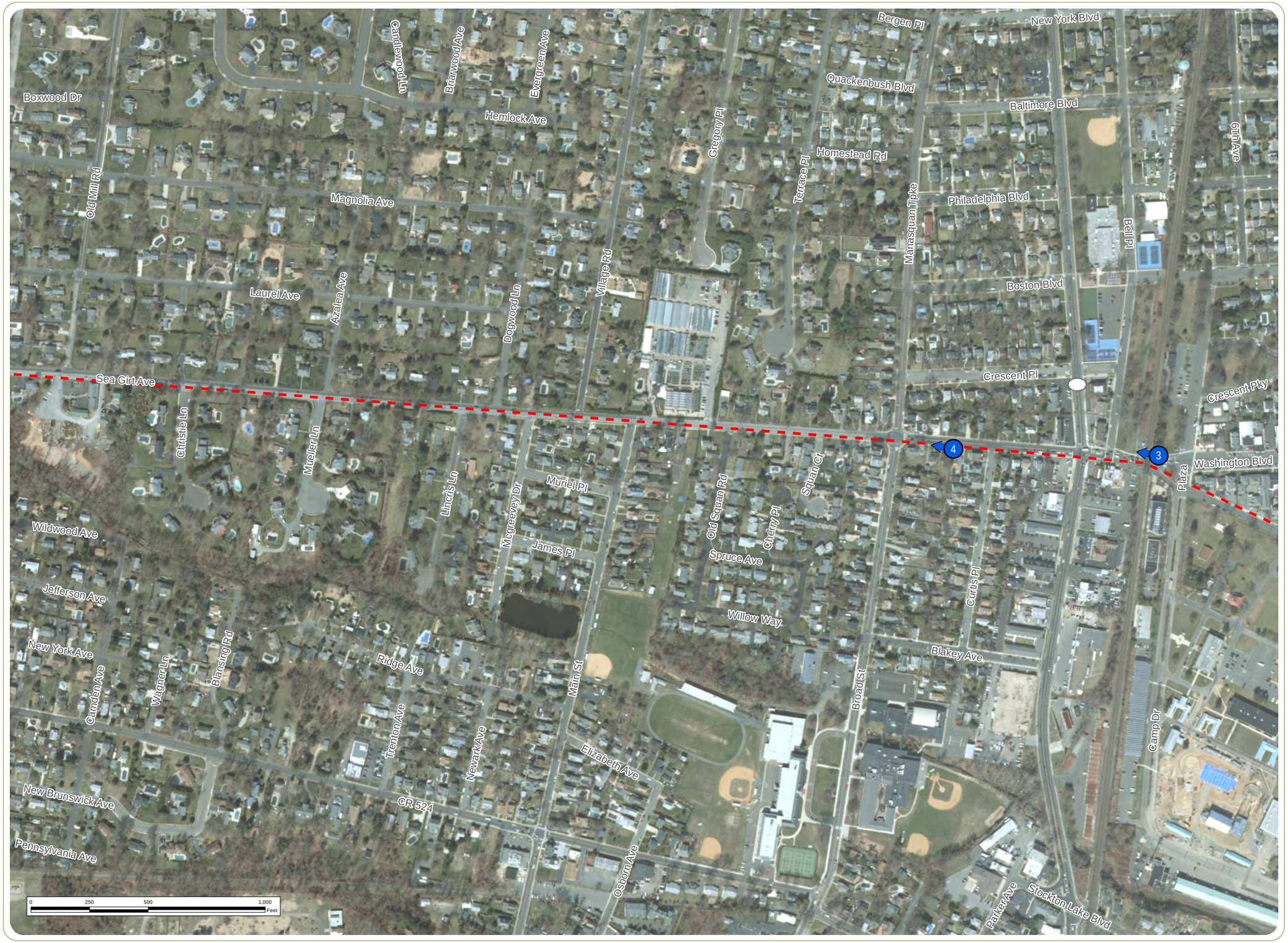
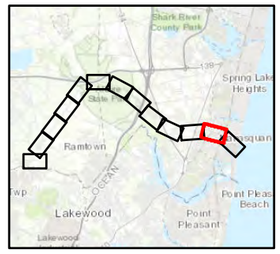
Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key



Photograph Location

Larrabee Onshore Cable Route



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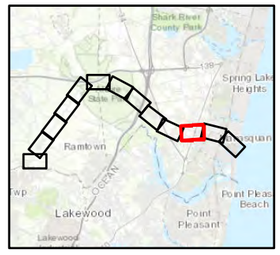
Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route



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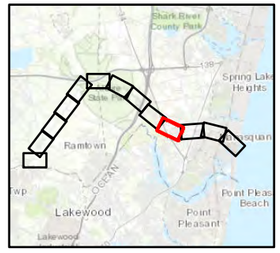
Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route



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Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route

Sheet 5 of 13

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Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route

Sheet 6 of 13

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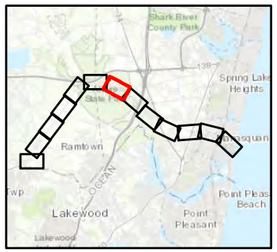
Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route



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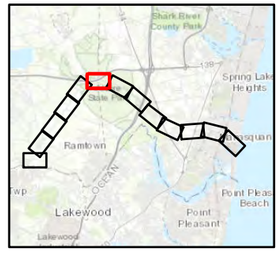
Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route



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Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route

Sheet 9 of 13

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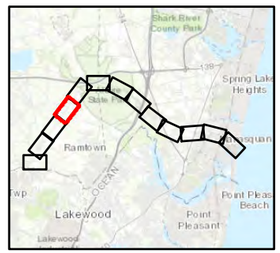
Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

Larrabee Onshore Cable Route



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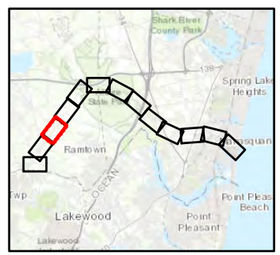
Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Larrabee Onshore Cable Route



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Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Larrabee Onshore Cable Route

Sheet 12 of 13

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Atlantic Shores Offshore Wind Cardiff Onshore Interconnection Cable Route

Borough of Egg Harbor Township, Pleasantville City, and the City of Atlantic City
Atlantic County, New Jersey

Figure 9. Existing Conditions and Photo Key

Photograph Location

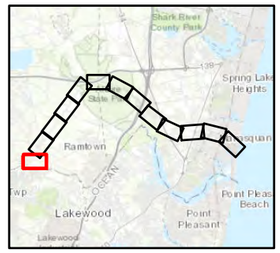
Proposed Area of Archaeological Survey

Larrabee Onshore Cable Route

Larrabee Point of Interconnection

Preferred Onshore Substation Site

Alternative Onshore Substation Site



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Appendix A

Photographs

Photograph 1

Training field of the New Jersey Army National Guard Training Center, encomapssing cable landing site adjacent to shoreline. View to the south.

Photograph 2

Area of cable route along Sea Girt Avenue adjacent to New Jersey Army National Guard Training Center. View to the northwest.

Photograph 3

Area of cable route along Sea Girt Avenue (NJ Route 71) within a commercial area of the Borough of Manasquan. View to the west-northwest.

Photograph 4

Area of cable route along Sea Girt Avenue (NJ Route 71) within a residential area of the Borough of Manasquan. View to the west-northwest.

Photograph 5

Area of cable route immediately south of a shopping center at the southeastern intersection at Sea Girt Avenue (NJ Route 71) and NJ Route 35. View to the west.

Photograph 6

Area of cable route along Edgar Felix Memorial Bikeway at intersection of Lightbridge Trail, west of NJ Route 34. View to the northwest.

Photograph 7

Area of cable route along Edgar Felix Memorial Bikeway at intersection of Hospital Road. View to the northwest.

Photograph 8

Area of cable route along Allaire Road (County Route 524) northwest of the intersection with Atlantic Avenue. View to the northwest.

Photograph 9

Area of cable route along Allaire Road (County Route 524) adjacent to parking lot for Edgar Felix Memorial Bikeway. View to the northwest.

Photograph 10

Area of cable route along Allaire Road (County Route 524) at the entrance to Allaire State Park. View to the northwest.

Photograph 11

Area of cable route along Allaire Road (County Route 524) within Allaire State Park, immediately east of Interstate 195 northbound. View to the southeast.

Photograph 12

Area of cable route along Lakewood-Farmingdale Road (County Route 547) south of the interchange with Interstate 195. View to the northeast.

Photograph 13

Area of cable route along Lakewood-Farmingdale Road (County Route 547) at the entrance to Soldier Memorial Park. View to the southwest.

Photograph 14

Area of cable route along Lakewood-Farmingdale Road (County Route 547) at the crossing of Dicks Brook. View to the southwest.

Photograph 15

Overview of existing conditions of the Preferred GIS location. View to the south.

Photograph 16

Overview of existing conditions of the Alternate GIS location. View to the southwest.