Ocean Wind
An Ørsted & PSEG project

Ocean Wind Offshore Wind Farm

Green Acres Diversion Application

Section 2

Alternatives Analysis for Green Acres Encumbered Parcels Along the Cable Route for the BL England Point of Interconnection

Table of Contents

List of Tables

List of Figures

Abbreviations and Acronyms

AC	alternating current
BOEM	Bureau of Energy Management
GIS	geographic information system
GWh	gigawatt-hours
HDD	horizontal directional drilling
Lease	Ocean Wind BOEM Lease Area OCS-A 0498
MW	megawatt
NJBPU	New Jersey Board of Public Utilities
NJDEP	New Jersey Department of Environmental Protection
Ocean Wind	Ocean Wind LLC
OCW01	Ocean Wind 1 Offshore Wind Farm, Offshore Wind Farm or Project
OREC	Offshore Wind Renewable Energy
Orsted	Orsted Wind Power North America LLC
	Ocean Wind Offshore Wind Farm
USACE	U.S. Army Corps of Engineers
WTG	wind turbine generators

2. Alternatives

The Green Acres regulations, N.J.A.C. 7:36-26.9(d)2 and 26.11, require an applicant for the major diversion of parkland to identify alternatives that could be taken to fulfill the compelling public need or yield the significant public benefit to be derived from the applicant's proposed project. The applicant must identify all feasible, reasonable and available alternatives, including (1) the alternative of "no build" or "no action;" (2) alternatives presented at the scoping hearing and during the public comment period; and (3) alternatives involving private lands or other public lands.

Section 2.2 describes the alternatives considered in detail and summarizes the environmental impacts for each. Pursuant to N.J.A.C. 7:36-26.9(d)2 and 26.11, Ocean Wind, LLC analyzed the alternatives that would meet the purpose and need of the Project while avoiding or minimizing impacts to Green Acres encumbered parcels.

2.1 Description of the Proposed Action

Ocean Wind, LLC (Ocean Wind 1), a joint venture between Ørsted Wind Power North America LLC (Ørsted) and Public Service Enterprise Group Renewable Generation LLC (PSEG), proposes to construct and operate the Ocean Wind 1 Offshore Wind Farm (Project). The purpose of the Project is to develop an offshore wind generation project within the Bureau of Ocean Energy Management (BOEM) Lease Area OCS-A 0498 and connected to the grid, that meets the need to deliver competitively priced renewable energy and additional capacity to meet State and regional renewable energy demands and goals. Once complete, the Project will fulfill the requirements of the State's Offshore Wind Economic Development Act, which mandates the development of a minimum of 1,100 megawatts (MW) of offshore wind resources. The Project will also contribute to meeting the goals of both Executive Order 8 (2018), which set a goal of 3,500 MW of renewable energy by 2030, and Executive Order 92, which in November 2019 increased the goal to 7,500 MW by 2035.

The Project includes up to 98 wind turbine generators (WTGs), up to three offshore alternating current (AC) substations, array cables linking the individual turbines to the offshore substations, substation interconnector cables linking the substations to each other, offshore export cables, an onshore export cable system[1], two onshore substations, and connections to the existing electrical grid in New Jersey (underground cables or overhead transmission lines would be required to connect each onshore substation to the existing grid). The WTGs and offshore substations, array cables, and substation interconnector cables will be located in Federal waters approximately 13 nautical miles (nm, 15 statute miles) southeast of Atlantic City. The offshore export cables will be buried below the seabed surface within Federal and State waters. The onshore export cables, substations, and grid connections will be located in Ocean, and Cape May Counties, New Jersey.

The information presented focuses on the landfall and onshore export cable route for the BL England interconnection, located in Ocean City in Cape May County, New Jersey. This application is specific to the activities affecting Green Acres encumbered parcels at the beach and in nearshore waters at the 35th Street landfall location and along Roosevelt Boulevard in Ocean City.

The proposed export cables will cross Green Acres encumbered parcels on route to the BL England substation. At the 35th Street landfall in Ocean City, three parcels owned by Ocean City and a riparian grant will be crossed (Figure 1.2-1 in Section 1). An additional parcel owned by Ocean City will be crossed along the BL England export cable route along the north side of Roosevelt Boulevard east of the Roosevelt Boulevard bridge (Figure 1.2-2 in Section 1). The proposed Project is scheduled for installation beginning in 2023 with first power in 2024.

[1] The onshore export cable system will include the onshore export cable, transition joint bays, onshore splice vaults/grounding link boxes and fiber optic system, including manholes.

Please refer to Section 1 (Detailed Description of Proposed Major Diversion for the BL England Point of Interconnection) of this application package for further details of the Proposed Action and the lands affected, along with the purpose and need for the Project.

Ocean Wind 1 has prepared this Green Acres Alternatives Analysis for the BL England export cable route in Ocean City, Cape May County and it is being submitted pursuant to the requirements of the Green Acres regulations at N.J.A.C 7:36-26.9(d)(2) and 26.11.

The Project will be installed under the Green Acres encumbered parcels using horizontal directional drilling (HDD) technology. HDD entry/exit points will be located outside of the Green Acres parcels; within 35th Street and in the Atlantic Ocean for landfall, and within the Roosevelt Boulevard ramp on the east side of Peck Bay and in a marina parking lot on the west side of Peck Bay. The export cables will be installed under the Green Acres encumbered parcels by drilling below the seabed, land surface and under Peck Bay between the HDD entry/exit points, avoiding disturbance of the surface at the Green Acres parcels.

Table 2.1-1. Acreages of Land Affected within Each Tract of Ocean City Land.

Block/Lot	Owner	County/ Municipality/Street Address	Acreage of Permanent Easement through Green Acres Restricted Areas (30 foot wide)
Block 611.11/ Lot 145	City of Ocean City	Cape May County/ Ocean City/ 3500-02 Wesley Ave	0.026 acre
Block 611.11/ Lot 137	City of Ocean City	Cape May County/ Ocean City/ 3501-03 Wesley Ave	0.362 acre
Block 3500, Lot 1 (Inlcuding Riparian Grant)	City of Ocean City	Cape May County/Ocean City	0.191 acre[2]
Block 3350.01/ Lot 17	City of Ocean City	Cape May County/ Ocean City/ Bay Ave and 34th St	0.068 acre

2.2 No Action Alternative

Under the No Action alternative, Ocean Wind 1 would not construct the Project and easements would not be required across the Green Acres encumbered parcels including the riparian grant area. The Green Acres encumbered parcels and riparian grant area would not be subject to temporary construction impacts such as noise, or the permanent restrictions required for an underground utility easement. If the proposed facilities are not constructed, the benefits of the Project would not occur, including development of BOEM Lease Area OCS-A 0498 to meet the need to deliver competitively priced renewable energy and additional capacity to meet State and regional renewable energy demands and goals; replacement of fossil fuel energy generation with renewable energy generation; air quality benefits; and increased employment, income, and tax revenues. Further, Ocean Wind 1 would not be able to supply the 4,851 gigawatt-hours (GWh)/year of renewable energy production to

[2] Since the March 7, 2022 Scoping Hearing, Ocean Wind 1 reduced impacts to the Green Acres parcels at landfall. Specifically, acreage impacts at landfall went from 0.77 acres to 0.579 acres.

NJBPU pursuant to the 2019 Power Purchase Agreement resulting from the NJBPU's competitive selection process.

Implementing the No Action alternative would not support the projected increases in renewable energy use and access to renewable generation in New Jersey to meet that demand. If adequate renewable energy generation is not available, consumers would need to seek other sources of fuel for energy generation, many of which are environmentally less desirable. Furthermore, short term environmental impacts would not be completely avoided as the demand for renewable energy would eventually be met through some other infrastructure project. The purpose and need for the Project cannot be met with the No Action alternative.

2.2.1 Energy Conservation

Energy conservation is the prevention of the wasteful use of energy to ensure its continuing availability. Energy conservation reduces the demand or growth in demand for energy. It is possible that the development and implementation of additional conservation measures could have an effect on the demand for energy. However, it is expected that the capacity saved would result in reductions in other non-renewable energy generation in an effort to meet Assembly Bill 3723, which passed in the State Senate on May 23, 2018, and set goals that 35 percent of kilowatt hours sold by each electric power supplier and each basic generation service provider be from renewable energy in New Jersey by 2025, 50 percent by 2030, and 100 percent by 2050.

2.2.2 Energy Alternatives

Alternative forms of energy could be used to meet increased demand for power in New Jersey. Potential alternative energy sources include natural gas, coal, oil, nuclear energy, and other renewable energy sources such as solar, onshore wind, and geothermal energy.

Natural gas-fired and coal-fired generation made up 45.3 percent and 0.9 percent of New Jersey's utility scale net electricity generation in 2019 (EIA 2021). New Jersey's energy goals include reduction of non-renewable energy generation in New Jersey; therefore, these fossil fuel generation processes are not consistent with New Jersey's goals. Natural gas-fired and coal-fired generation would not meet the purpose of the Project, which is to deliver competitively priced renewable energy and additional capacity to meet State and regional renewable energy demands and goals per the 2019 Power Purchase Agreement with NJBPU.

While nuclear power generation has the positive benefits of limiting air emissions of criteria pollutants, nuclear generation in New Jersey has declined in recent years. Nuclear powered generation made up 47.1 percent of generation in New Jersey in 2019 (EIA 2021). Nuclear power supplied the majority of generation in New Jersey until 2015, when natural gas-fired generation overtook nuclear generation (EIA 2021). In September of 2018, the Oyster Creek single reactor nuclear power plant closed, reducing nuclear generation in New Jersey. Nuclear generation would not meet the purpose of the Project, which is to deliver competitively priced renewable energy and additional capacity to meet State and regional renewable energy demands and goals per the 2019 Power Purchase Agreement with NJBPU.

Renewables provided 5.6 percent of generation in New Jersey in 2019 (EIA 2021). The majority (80 percent) of the renewable generation was solar generation and by mid 2020 solar capacity in New Jersey totaled 2,700 megawatts (MW) (EIA 2021). Biomass accounted for nearly all of the non-solar renewable energy generation (EIA 2021). While other renewable energy generation is New Jersey is expected to expand, New Jersey mandated 3,500 MW of offshore wind capacity by 2030 and raised the goal to 7,500 MW by 2035. Under the New Jersey Offshore Wind Economic Development Act, the NJBPU is required to establish an OREC program requiring a percentage of electricity sold in the state be derived from offshore wind energy, in order to support at least 1,100 MW of generation from qualified projects. On June 21, 2019, the NJBPU selected the Ocean Wind 1

Project and subsequently entered into a Power Purchase Agreement with Ocean Wind 1 for 4,851 GWh/year of energy production. The Project is expected to have first power in 2024.

2.3 Construction Alternatives

Ocean Wind 1 proposes to install the onshore cables at landfall under the beach at Ocean City using HDD installation techniques to minimize impacts to the nearshore area and the beach. Ocean Wind 1considered open-cut installation for this area as an alternative to HDD installation. Open-cut installation would have greater impacts because the surface of the beach, dunes, and associated vegetation would be disturbed. Access would be restricted on portions of the beach during construction work, which would interfere with public use of the Green Acres encumbered parcels, and construction would have greater visual impacts. This technique is not proposed because it would involve greater impacts to the nearshore areas and beach. Open cut installation remains an option in the event that HDD installation is determined to be infeasible or fails.

Ocean Wind 1 also proposes to install the onshore cables under Peck Bay and associated wetlands along Roosevelt Boulevard using HDD to avoid impacts to wetlands, aquatic resources and recreational facilities. The HDD entry and exit workspaces would be located in upland areas outside of the Green Acres encumbered area. Ocean Wind 1 also considered open cut installation for this area. Using open cut installation, impacts to wetlands, aquatic resources and recreational facilities would not be avoided. This technique is not proposed since it would involve greater impacts to Peck Bay, the adjacent wetlands, and recreational uses of the area. Open cut installation remains an option in the event that HDD installation is determined to be infeasible or fails.

2.4 Alternative Means of Meeting Project Purpose

New Jersey mandated 3,500 MW of offshore wind capacity by 2030 and raised the goal to 7,500 MW by 2035. Under the New Jersey Offshore Wind Economic Development Act, the NJBPU is required to establish an OREC program requiring a percentage of electricity sold in the state be from derived from offshore wind energy, in order to support at least 1,100 MW of generation from qualified projects. The alternative means to accomplish this are other alternative offshore wind projects. Other offshore wind projects would have similar impacts to the proposed Project. On September 20, 2018, NJBPU solicited applications for the OREC program, and three offshore wind projects responded. NJBPU evaluated the applications and on June 21, 2019, the NJBPU selected the Ocean Wind 1 Project. Subsequent to that selection, NJBPU and Ocean Wind 1 entered into a Power Purchase Agreement with an allowance for 4,851 GWh/year of energy production from the Project. The Project is expected to have first power in 2024.

2.5 Alternative Routes

An alternative route analysis for the BL England route was conducted in order to compare the environmental impacts of the proposed route to alternative routes when avoiding parcels encumbered by Green Acres.

The BL England proposed route and each alternative route were analyzed using geographic information system (GIS) data and publicly available GIS databases. **Tables 2.5-1** and **2.5-2** summarize and compare each route while **Figure 2.5-1** through **Figure 2.5-4** show the proposed route as compared to alternatives in relation to Green Acres encumbered parcels.

Table 2.5-1. Comparison of Landfall Alternative Routes and the Proposed Route.

Route	Total Length of Route (miles)	Acreage of Permanent Easement through Green Acres Restricted Areas at Landfall	Parcels with Green Acres Restrictions[3]	Environmental and Other Constraints	Zoning and Land Use
Proposed Route	4.88	0.579	Block 611.11/ Lots 145 and 137 Block 3500, Lot 1 (including riparian grant)	Beaches/dunes Rank 4 Habitat at landfall	Zoned Residential Oceanfront- Two Family and Beach Dune Land use/land cover mapped as residential, high density or multiple dwelling, urban land use; vegetated dune communities, wetlands and barren land and estuarine and marine deepwater wetland Adjacent to multi family resdiential
Landfall Alternative 1- 5th St. Landfall and Route	8.52	0.122	Block 72.01/Lot1 (stretches from 18th St to East Surf Rd)	Beaches/dunes Increased route length and traffic impacts to Ocean City Streets Rank 4 Habitat at landfall	Zoned Residential Multi-family and Public and Corinthian Neighborhood Land use/land cover mapped as water, wetlands, urban and barren land Adjacent to high school and multi family resdinces Boardwalk Groin
Landfall Alternative 2 – 13th St. Landfall and Route	7.36	0.142	Block 72.01/Lot1 (stretches from 18th St to East Surf Rd)	Beaches/dunes Increased route length and traffic impacts to Ocean City Streets Rank 4 Habitat at landfall	Zoned Beach-Dune, On Boardwalk Land use/land cover mapped as water, wetlands, urban and barren land Adjacent to Hotels, baordwalk businesses, and multi family residences Boardwalk Groin
Landfall Alternative 3 – 34th St. Block 611.11/Lot116; 611.11/Lot115; 611.11/Lot103	4.99	0.00	None at landfall	Beaches/dunes Infeasible due to public restroom/beach changing facility Rank 5 Habitat at landfall	Zoned Beach-Dune and Residential Oceanfront Two Family Land use/land cover mapped as water, wetlands, urban and barren land public restroom/beach changing
Landfall Alternative 4 – 35th St. Block611.11/Lot 136 and Block 611.11/Lot 126	4.88	0.00	None at landfall	Not available to Ocean Wind 1 and Unavailable for use. Would constrain development of the parcels (e.g., houses) Beaches/dunes Rank 4 Habitat at landfall	Zoned as Residential Oceanfront- Two Family and Beach Dune Land use/land cover mapped as water, wetlands, urban and barren land

2.5.1 Landfall Route Alternatives

Landfall options and routes considered for BL England included the proposed route and Landfall Alternatives 1 through 4. **Table 2.5-1** provides a comparison of these routes.

2.5.1.1 Proposed Route

The proposed route would make landfall via HDD within a local roadway at 35th Street in Ocean City, then travel on local roads northwest. The cable would cross Peck Bay (undeveloped area) at Roosevelt Boulevard Bridge via HDD and then the cable would continue on existing county road right-of-way of Roosevelt Boulevard, turning north on State Rte. 9 to the potential substation property at the decommissioned BL England Generating Station. The route would be within existing roadways and a paved parking lot (**Figure 2.5-1**). The parcels are zoned as Residential Oceanfront- Two Family (Block 611.11/ Lots 145 and 137). The area from the parcel boundaries to the ocean is zoned as Beach Dune (Ocean City 2016) (Block 611.11/ Lot 137). The surrounding area is zoned Residential Two Family. The land use/land cover at the Green Acre encumbered parcels at the HDD landfall are mapped as residential, high density or multiple dwelling, urban land use (Block 611.11/ Lots 145 and 137). The area from the edge of the parcels through the beach to the water is mapped as vegetated dune communities, wetlands and barren land (Block 611.11/ Lot 137)(NJDEP n.d.). The riparian grant area is categorized as an estuarine and marine deepwater wetland (Block 3500/ Lot 1). The parcels proposed for diversion at the landfall are currently used for recreation as undeveloped beach in Ocean City (Block 611.11/ Lots 145 and 137). The riparian grant area proposed for diversion is also currently used for recreation including boating, swimming, surfing, scuba diving, sailing, paddle sports, and whale watching (Block 611.11/ Lot 137)((NJDEP n.d.).

Justification: HDD landfall from the Atlantic Ocean will allow the project to avoid impacts to sensitive resources such as beaches, dunes, and overwash areas. The beach is a U.S. Army Corps of Engineers (USACE) beach nourishment project, which is not currently active and HDD installation will allow for burial below the depth of closure while avoiding surface impacts. Landfall workspace is within 35th Street, a previously disturbed, paved area with sufficient space for HDD work areas.

With the exception of landfall HDD and a portion of the HDD at the Peck Bay crossing, the route is sited within existing road ROW areas that are previously disturbed, thus avoiding impacts to wetlands, water bodies, residential and historic properties.

2.5.1.2 Landfall Alternative 1

Landfall Alternative 1 would make landfall within a parking lot at 5th Street in Ocean City. The route would continue north on 5th Street to West Avenue, then would be within West Avenue to 35th Street. It would then follow the proposed route north from 35th Street (**Figure 2.5-2**). The route would be within existing roadways and parking lots. The area at landfall is zoned Residential Multi-family and Public and the adjacent area is zoned Corinthian Neighborhood (Ocean City 2016). Land use/land cover is mapped as water, wetlands, urban and barren land (NJDEP n.d.). Ocean City High School facilities, an existing multi-family development, and multiple residences are adjacent to 5th Street at the landfall and landfall would cross under a boardwalk.

This alternative would also affect a Green Acres encumbered parcel owned in fee by Ocean City identified as Block 72.01/Lot1 at landfall and the permits required would be the same as the proposed route. Impacts to Green Acres encumbered parkland would not be avoided and a Green Acres diversion would be required. The alternative would be longer than the proposed route, construction costs would be proportionately higher and would take longer to build. While environmental impacts to the beach and riparian areas would be similar to the proposed route, Alternative 1 would increase impacts to the developed areas within Ocean City due to its longer route within existing roadways, particularly those related to traffic and surrounding land use.

2.5.1.3 Landfall Alternative 2

Landfall Alternative 2 would make landfall within a local roadway at 13th Street in Ocean City. The route would continue north on 13th Street to West Avenue, then would be within West Avenue to 35th Street. It would then follow the proposed route north from 35th Street (**Figure 2.5-2**). The route would be within existing roadways and parking lots. The area at landfall is zoned Beach-Dune and On Boardwalk and the surrounding area is zoned Hospitality (Ocean City 2016). Land use/land cover is mapped as water, wetlands, urban and barren land (NJDEP n.d.). Landfall would cross under a boardwalk and landfall would be adjacent to boardwalk businesses, a hotel and multiple family residences.

This alternative would also affect a Green Acres encumbered parcel owned in fee by Ocean City identified as Block 72.01/Lot1 at landfall and the permits required would be the same as the proposed route. Impacts to Green Acres encumbered parkland would not be avoided and a Green Acres diversion would be required. Environmental impacts to the beach and riparian areas would be comparable to the proposed route. Landfall Alternative 2 would be longer than the proposed route but shorter than Landfall Alternative 1, and the difference in construction costs and schedule would be proportionate. Similarly, impacts to the developed areas within Ocean City would be less than Landfall Alternative 1 but greater than the proposed route.

2.5.1.4 Landfall Alternative 3

Ocean Wind 1 reviewed landfall at 34th Street (Landfall Alternative 3). The route would continue on 34th Street to its convergence with the proposed route, and then would follow the proposed route (**Figure 2.5-2**). The area at landfall is zoned Beach-Dune and Residential Oceanfront Two Family and the surrounding area is zoned Gateway (Ocean City 2016). Land use/land cover is mapped as water, wetlands, urban and barren land (NJDEP n.d.). Landfall would be adjacent to existing multi-family residences and the route would go under a public restroom/beach changing building at the end of 34th Street.

This route includes unacceptable impacts to existing restroom/beach changing building. Landfall Alternative 3 would not affect Green Acres encumbered parcels and would not require a diversion in accordance with the Green Acres regulations at N.J.A.C. 7:36-26.9. However, the landfall at 34th Street was not carried forward because the HDD workspace needed for this route and HDD drill path would go under the public restroom/beach changing building at the end of the street, which would conflict with the public restroom/beach changing building (**Figure 2.5-3**). This landfall and route were determined to be infeasible due to these conflicts.

2.5.1.5 Landfall Alternative 4

Ocean Wind 1 considered making landfall at 35th Street using privately owned parcels identified as Block 611.11, Lots 126 and 136 adjacent to the proposed route (**Figure 2.5-3**). The route would otherwise be the same as the proposed route including relative to environmental impacts. The parcels are zoned as Residential Oceanfront-Two Family (Block611.11/Lots 136 and 126). The area from the mapped parcel boundary to the ocean is zoned as Beach Dune (Block611.11/Lot 136). Land use/land cover is mapped as water, wetlands, urban and barren land (NJDEP n.d.). While this alternative would avoid the Green Acres encumbered parcels at the landfall including the riparian grant in nearshore waters, Ocean Wind 1 discussed use of these parcels with the current landowners and these parcels are not currently available for use by Ocean Wind. Therefore, this alternative was eliminated because it is not available.

Figure 2.5-1. Landfall Alternatives Overview.

Figure 2.5-2 Landfall Alternatives 1 through 3

Figure 2.5-3. Landfall Alternative 4.

2.5.2 Roosevelt Boulevard Route Alternatives

Along Roosevelt Boulevard, Ocean Wind 1 considered three alternates, two of which are south of the Roosevelt Boulevard bridge over Peck Bay (Roosevelt Boulevard Parcel Alternative 1 and Roosevelt Boulevard Parcel Alternative 2). **Table 2.5-2** provides a comparison of these routes to the proposed route at this location.

Table 2.5-2. Comparison of Roosevelt Boulevard Parcel Alternative Routes 1 and 2 and the Proposed Route.

Route	Total Length of Alternative (miles)	Acreage of Permanent Easement through Green Acres Restricted Areas[2]	Parcels with Green Acres Restrictions[3]	Environmental and Other Constraints	Zoning and Land Use
Proposed Route	4.88	0.068	Block 3350.01/ Lot 17	Wetlands Rank 1 and 4 Habitat	Zoned as Conservation area Land use/land cover mapped as wetlands and water
Roosevelt Boulevard Parcel Alternative 1	4.92	0	None along Roosevelt Boulevard	Multiple crossings of Roosevelt Boulevard Rank 3 and 4 Habitat	Zoned Residential Multi-Family Bayfront Land use/land cover mapped as urban, wetlands and water Adjacent to multi family residentail
Roosevelt Boulevard Parcel Alternative 2	4.90	0	None along Roosevelt Boulevard	Existing utilities Multiple crossings of Roosevelt Boulevard Rank 1, 3 and 4 Habitat	Zoned Conservation and Residential Multi-Family Bayfront Land use/land cover mapped as urban, wetlands and water Adjacent to multi family residentail Dock, a boat launch and associated parking facilities
Roosevelt Boulevard Parcel Alternative 3	4.90	0	None along Roosevelt Boulevard	Cape May County, the owner of the bridge, refused the request.	Attached to bridge, surrounding zoning Conservation. Land use/land cover mapped as urban, wetlands and water

2.5.2.1 Proposed Route along Roosevelt Boulevard

The proposed route along Roosevelt Boulevard follows the north side of Roosevelt Boulevard to an HDD entry point on the east side of the bridge over Peck Bay, continues under wetlands and Peck Bay to an HDD exit point on the west side of Peck Bay, and then continues to State Rte. 9 and as described in Section 2.4.1. The proposed route crosses Green Acres encumbered land adjacent to Peck Bay (**Figure 2.5-4**). The area north of Roosevelt Boulevard is zoned as Conservation area and is a phragmites dominated tidal marsh along Peck Bay (Block 3350.01/Lot 17). Land use/land cover is mapped as wetlands and water (Block 3350.01/Lot 17)(NJDEP n.d).

Justification: HDD installation under Peck Bay will allow for avoidance of impacts to shellfish, wetlands, recreational facilities at the Green Acres encumbered parcel (Block 3350.01/Lot 17). HDD installation under Peck Bay will allow the project to avoid impacts to sensitive resources such as wetlands and waterbodies. The location of the route on the north side of Roosevelt Boulevard avoids conflicts with existing utilities on the south side of Roosevelt Boulevard, as well as minimizing impacts to residential and recreation uses.

2.5.2.2 Roosevelt Boulevard Parcel Alternative 1

Roosevelt Boulevard Parcel Alternative 1 diverts from the proposed route east of the bridge over Peck Bay, crosses Roosevelt Boulevard, continues west to an HDD entry point in Nautilus Drive, continues under Peck Bay to the south of the Bridge and existing utilities to an HDD exit point west of Peck Bay, crosses over Roosevelt Boulevard on the west side of the bridge, and then rejoins the proposed route (**Figure 2.5-4).** The parcels crossed are zoned Residential Multi-Family Bayfront and the surrounding area is zoned Residential Two-family (Ocean City 2016). Land use/land cover is mapped as urban, wetlands and water (NJDEP n.d). The area is currently existing roadway, wetland and water.

The route would avoid Green Acres encumbered parcels and would not require a diversion per the Green Acres regulations at N.J.A.C. 7:36-26.9. However, the route would be longer, and would be immediately adjacent to residential development, resulting in greater noise impacts to residents and longer construction period. The curved HDD would also be a more complex drilling option with greater risk. In addition, more workspace would be needed and there would be conflicts with existing utilities.

2.5.2.3 Roosevelt Boulevard Parcel Alternative 2

Roosevelt Boulevard Parcel Alternative 2 diverts from the proposed route east of the bridge over Peck Bay, crosses Roosevelt Boulevard, continues west to a parking lot south of the bridge at the end of Nautilus Drive, continues west adjacent to the bridge, crosses over Roosevelt Boulevard on the west side of the bridge, and then rejoins the proposed route (**Figure 2.5-4**). The parcels crossed are zoned Conservation and Residential Multi-Family Bayfront and the surrounding area is zoned Residential Two-family (Ocean City 2016). Land use/land cover is mapped as urban, wetlands and water (NJDEP n.d). The area currently contains wetlands, water, a dock, a boat launch and associated parking facilities, and existing utilities.

Overall, the Roosevelt Boulevard Parcel Alternative 2 route is slightly longer than the proposed route, but the HDD segment is shorter, which would reduce associated noise impacts. While this route alternative is within the Cape May County road ROW on either side of Peck Bay, that portion of the County ROW on the west side of Peck Bay is subject to a lease held by the Ocean City Crew Boosters, Inc. (“Boosters”), a non-profit corporation, to use for recreation. Ocean Wind 1 is in discussions with the Boosters to determine the feasibility of locating the route within the leased area. These discussions remain positive and ongoing. At this time, the Alternative 2 route is not available to Ocean Wind 1. However, this alternative is still under review by Ocean Wind 1 to determine engineering and land acquisition feasibility. In the event this alternative route becomes available, Ocean Wind 1 will amend its proposed route to avoid impacts to the Green Acres-encumbered property owned by Ocean City near the Roosevelt Boulevard Bridge identified as Block 3350.01, Lot 17.

2.5.2.4 Roosevelt Boulevard Parcel Alternative 3

Ocean Wind 1 also considered attaching the export cables to the Roosevelt Boulevard bridge; however, Cape May County, the owner of the bridge, refused the request. Therefore, the alternative is not feasible.

Figure 2.5-4. Roosevelt Boulevard Parcel Alternatives.

2.6 Alternatives Raised During Scoping and Public Comment Period

Several alternatives were raised by members of the public during the March 7, 2022 scoping hearing. These alternatives included: (1) landfall on privately owned parcels instead of publicly owned beach parcels; (2) landfall at 33rd Street in Ocean City; (3) use of alternate energy sources

2.6.1 Landfall on Privately Owned Parcels

A commenter asked why Ocean Wind 1 did not consider landfall on privately owned parcels instead of publicly owned beaches. A commenter also suggested that Ocean Wind 1 could use eminent domain and, therefore, private property is "available" as used in the Green Acres regulations. Commenters opined that that the Project is proposing landfall on Ocean City-owned parcels because it is easier and/or less expensive.

Ocean Wind 1 explained at the hearing the various public and private alternatives to the proposed diversion. Contrary to commenters statement, Ocean Wind 1 does not have condemnation authority over private property. If a private landowner does not voluntarily convey an easement to Ocean Wind, then Ocean Wind 1 has no other legal mechanism to acquire the easement. Accordingly, because the owner of the private properties adjacent to the proposed Ocean City-owned beach parcels will not convey an easement to Ocean Wind 1, these properties are not available.

2.6.2 Landfall at 33rd Street

A commenter asked why Ocean Wind 1 could not make landfall at 33rd Street instead of 35th Street. Landfall at 33rd Street would cross properties owned by Ocean City, which are Green Acres encumbered. Accordingly, avoidance of Green Acres encumbered property would not be avoided and a diversion would still be required.

2.6.3 Alternate Energy Sources

Several commenters stated that other energy sources like natural gas and nuclear are better options. These alternatives are discussed above in Section 2.2.2.

2.6.4 Great Egg Harbor Inlet Alternative

Several commenters suggested that the cable could go through Great Egg Harbor Inlet to avoid Ocean City.

Ocean Wind 1 considered a route through Great Egg Harbor Inlet, the Shipping Channel and Great Egg Harbor Bay, making landfall near the substation site. The route was not carried forward due to increased impacts and construction feasibility within Great Egg Harbor Inlet and Great Egg Harbor Bay. Sediments in the inlet are dynamic; therefore, additional cable protection such as cable mattresses would be needed, resulting in additional impacts to natural resources and navigation. Access to the inlet by other vessels would be restricted during construction, which would result in additional impacts to other marine uses and navigation. Due to low water depth within the Great Egg Harbor, the cable would need to be buried within the limits of the authorized federal and state channel. The Great Egg Harbor Inlet is approximately 1,100 feet wide while the state channel is approximately 500 feet wide. If the cable were installed into the Great Egg Harbor Inlet there would be a safety zone around the cable laying vessel while within the Inlet and channel. Cable laying vessels are functionally stationary within the Inlet or channel while placing submarine cable and disrupt typical vessel traffic. This may force vessels transiting into or out of Great Egg Harbor to transit more slowly, divert into auxiliary channels, or use alternative pathways while transiting the harbor.

There is an existing USACE borrow area at the mouth of the inlet. USACE typically does not authorize crossing of borrow areas or would require mitigation that could not be implemented by the Project, including burial depths of up to 80 feet below the federal project limit.

2.7 Methods Used to Identify Alternatives

To identify alternatives to the proposed diversion, Ocean Wind:

- Reviewed technical requirements for landfall for the BL England point of interconnection,
- Reviewed aerial photography and conducted windshield reconnaissance to look for siting opportunities (such as parking lots, paved areas, and previously disturbed areas and roadways),
- Reviewed environmental constraints data,
- Reviewed Green Acres data layers and title searches,
- Conducted site reconnaissance, and
- Talked with landowners and stakeholders.
- Explored alternatives raised during Scoping Hearing and Public Comment Period

2.8 References

New Jersey Department of Environmental Protection (NJDEP). n.d.-c *NJ-GeoWeb* GIS database. Retrieved from: http://njwebmap.state.nj.us/NJGeoWeb/WebPages/Map/FundyViewer.aspx?THEME=Sapphire&UH=True&RIDZ=636573996414976654/NJGeoWeb/WebPages/Map/MapViewer.aspx?THEME=Sapphire&UH=True&RIDZ=636573996414976654.

Ocean City 2016. Ocean City Zoning Map. Retrieved from: https://imageserv11.team-logic.com/mediaLibrary/242/Zoning_Map_eff_10_15_14.pdf. December 2021

U.S. Energy Information Administration (EIA) 2021. New Jersey Energy Profile. Online at: https://www.eia.gov/state/print.php?sid=NJ accessed September 2021.