Appendix B: Supplemental Information and Additional Figures and Tables

B.1 Wetlands

Table B-1 summarizes National Wetland Inventory (NWI) wetland communities in the Massachusetts part of the wetlands geographic analysis area. Table B-2 quantifies the potential wetland impacts based on NWI data for the Falmouth onshore components for the SouthCoast Wind Project (Project). These tables are similar to Table 3.5.8-1 and Table 3.5.8-3 in Section 3.5.8, *Wetlands*, respectively, but show NWI data instead of Massachusetts Department of Environmental Protection (MassDEP) wetland data. Note that the NWI GIS data were used for the analysis in Rhode Island in Section 3.5.8, *Wetlands*, including the impacts disclosed for Alternatives C-1 and C-2, so that information is not repeated here.

Table B-1. NWI wetland communities in the Massachusetts part of the geographic analysis area

Wetland Community	Falmouth Onshore Project Area	Percent of Total
Estuarine and Marine Wetland	4,901	34%
Freshwater Emergent Wetland	992	7%
Freshwater Forested/Shrub Wetland	8,600	59%
Total	**14,493**	**100%**

Source: USFWS 2021

Table B-2. NWI wetland impacts in the Falmouth Onshore Project area—Proposed Action

Onshore Project Component	Wetland Community	Impact (acres)	% Relative to Wetlands in GAA	Duration
Falmouth Onshore				
Onshore Export Cable Routes				
Worcester Avenue Route	N/A	0	0	N/A
Shore Street Route Eastern Option	N/A	0	0	N/A
Shore Street Route Western Option	N/A	0	0	N/A
Central Park Route	N/A	0	0	N/A
Lawrence Lynch to Cape Cod Aggregates Route	N/A	0	0	N/A
Paper Road – Thomas B Landers Road Deviation	N/A	0	0	N/A
Onshore Substation Locations				
Lawrence Lynch	N/A	0	0	N/A
Cape Cod Aggregates	N/A	0	0	N/A

Onshore Project Component	Wetland Community	Impact (acres)	% Relative to Wetlands in GAA	Duration
Underground Transmission Route and Point of Interconnection				
Underground Transmission Route from Cape Cod Aggregates to POI	Freshwater Forested/ Shrub Wetland	0.06	<0.1	Long term (> 5 years)
Point of Interconnection (Falmouth Switching Station)	N/A	0	0	N/A

Source: USFWS 2021
Note: The disturbance area used to calculate the potential wetland impact areas from export cables is based on a 40-foot-wide corridor along the cable route, except for the cable route from Cape Cod Aggregates to POI, which is a 100-foot-wide corridor.
GAA = geographic analysis area; N/A = not applicable; POI = point of interconnection

B.1.1 Characteristic Wetland Communities in the Falmouth Onshore Project Area

B.1.1.1 Red Maple Swamp

Red maple (*Acer rubrum*) swamps are the most common forested wetlands in Massachusetts (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024). Within these wetlands, red maple is the dominant species in the tree stratum. The shrub layer within red maple swamps in Eastern Massachusetts typically includes sweet pepper-bush, highbush blueberry, northern arrow-wood (*Viburnum dentatum*), spicebush, and greenbrier (*Smilax rotundifolia*). Ferns are typically abundant with cinnamon fern (*Osmundastrum cinnamomeum*) being the most common. Other ferns include sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), marsh fern (*Thelypteris palustris*), and spinulose wood fern (*Dryopteris carthusiana*). Skunk cabbage (*Symplocarpus foetidus*) is one of the most common herbaceous species (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.2 Atlantic White Cedar Bog

Atlantic white cedar bogs are semi-forested, acidic, dwarf-shrub wetlands (Natural Heritage and Endangered Species Program [COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024]). Short (6–30 feet [2-10 meters]) Atlantic white cedar (*Chamaecyparis thyoides*) trees dominate the open canopy. An open to nearly continuous, low (3 feet [1 meter]) shrub layer often includes small Atlantic white cedars. Scattered red maple may be present with occasional associates including white and pitch pine, grey birch (*Betula populifolia*), and black spruce (*Picea mariana*). Scattered tall shrubs may be present and include highbush blueberry and swamp azalea. A dense low shrub layer is frequently comprised of leatherleaf, sheep laurel (*Kalmia angustifolia*), black huckleberry, rhodora (*Rhododendron canadense*), and bog rosemary (*Andromeda polifolia var. glaucophylla*). There is typically a well-formed sphagnum moss (*Sphagnum spp*.) layer below the shrubs, and large and small cranberry (*Vaccinium macrocarpon and V. oxycoccos*), sundews (*Drosera* spp.), and pitcher plants (*Sarracenia purpurea*) may be present (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.3 Kettlehole Level Bog

Kettlehole level bogs are unique peatland ecosystems that develop in valley bottoms without inlets or outlets. Species composition in this ecosystem includes sphagnum moss blueberries, leatherleaf (*Chamaedaphne calyculata*), and species of laurel (*Kalmia spp*.). The Natural Heritage and Endangered Species Program identifies this ecosystem as Imperiled (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.4 Shrub Swamp

Shrub swamps are shrub-dominated wetlands and often occur within overhead electric utility rights-of-way as a result of previous tree clearing for installation of the utility and subsequent integrated vegetation management activities that targets removal of tree species while allowing for continued growth and establishment of low-growing species, such as shrubs. The species composition of shrub swamps is highly variable and can include meadowsweet (*Spiraea alba var. latifolia*), steeplebush (*Spirea tomentosa*), swamp azalea, silky dogwood (*Swida amomum*), winterberry (*Ilex verticillata*), sweet gale (*Myrica gale*), and arrowwood. Low-growing, weak-stemmed shrubs include dewberry (*Rubus hispidus*), water-willow (*Decodon verticillatus*), and Canadian burnet (Sanguisorba canadensis). The herbaceous layer often includes common arrowhead (*Sagittaria latifolia*), skunk cabbage, ferns, sedges (*Carex* spp.), bluejoint grass (Calamagrostis canadensis), bur reed (*Sparganium* spp.), virgin's-bower (*Clematis virginiana*), swamp candles (*Lysimachia terrestris*), clearweed (*Pilea pumila*), and turtlehead (*Chelone glabra*). Sphagnum moss is often abundant. Invasive species include reed canary-grass (*Phalaris arundinacea*), glossy buckthorn (Frangula alnus), common buckthorn (*Rhamnus alnifolia*), and purple loosestrife (*Lythrum salicaria*) (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.5 Emergent Marsh

The deep emergent marsh wetland type occurs along rivers, streams, lakes, ponds, and other waterbodies. Water depths are less than 3 feet (1 meter), though some depth of water is usually always present in most years and influences the vegetation present. Often this wetland type is part of a wetland mosaic with shrub swamp and forested wetland bordering the emergent portions of the wetland. Vegetation consists primarily of herbaceous species and graminoids. These often include broad-leaved cattail (*Typha latifolia*), sphagnum moss, wool-grass (*Scirpus cyperinus*), common threesquare (*Schoenoplectus pungens*), bluejoint grass, reed canary-grass, rice cut-grass (*Leersia oryzoides*), tussock-sedge (*Carex stricta*), arrow-leaf tearthumb (*Persicaria sagittata*), beggar-ticks (*Bidens* spp.), bedstraw (*Galium* spp.), common arrowhead, slender-leaved goldenrod (*Euthamia caroliniana*), marsh-fern, marsh St. John's-wort (*Triadenum virginicum*), Joe-Pye-weeds (*Eutrochium* spp.), bonesets (*Eupatorium* spp.), and water-horehound (*Lycopus* spp.). Areas with more permanent open water often support floating-leaved plants like water-lilies (*Nymphaea odorata and Nuphar* spp.). Shrubs can include red osier dogwood (*Swida sericea*), leatherleaf (*Chamaedaphne calyculata*), sweet-gale, meadowsweet, steeplebush, and highbush blueberry; however, shrub cover is sparse (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.6 Highbush Blueberry Thicket

Highbush blueberry thickets are peatlands that host tall shrubs and sometimes small red maple trees. Common species within this ecosystem include the namesake highbush blueberry along with other common blueberry species including swamp azalea (*Rhododendron viscosum*), winterberry (*Ilex verticillata*), and sweet pepperbush (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.1.1.7 Vernal pools

Vernal pools are temporary pools or ponds, typically occurring within wetlands, that fill with water in the fall or winter due to rainfall and seasonal high groundwater levels and remain ponded through the spring and into summer. Often vernal pools dry up completely by the middle or end of the summer, or at least every few years, which prevents fish populations from becoming established within the pool. The absence of fish is critical to the reproductive success of many amphibian and invertebrate species that rely exclusively on vernal pools to provide breeding habitat, including wood frog (*Lithobates sylvaticus*), mole salamanders (*Ambystoma* spp.), and fairy shrimp (*Eubranchipus* spp.). For this reason, vernal pools are a unique and sensitive aquatic habitat, and have specific protections under both the Massachusetts Wetlands Protection Act regulations (310 Code of Massachusetts Regulations [CMR] 10.00) and the U.S. Army Corps of Engineers New England District's General Permits for the Commonwealth of Massachusetts for activities subject to Corps jurisdiction in waters of the U.S., including wetlands (COP Appendix J, Section 4.1.4.1; SouthCoast Wind 2024).

B.2 Climate and Meteorology

The Atlantic seaboard is classified as a mid-latitude climate zone based upon the Köppen Climate Classification System. The region is characterized by mostly moist subtropical conditions, generally warm and humid in the summer with mild winters. The Massachusetts climate is characterized by frequent and rapid changes in weather, large daily and annual temperature ranges, large variations from year to year, and geographic diversity. During the winter, the main weather feature in the northeastern United States is the northeaster (cold-core extratropical cyclone). During the summer, convective thunderstorms occur frequently. The Atlantic hurricane season runs from June 1 to November 30.

The National Climatic Data Center (NCDC) defines distinct climatological divisions to represent geographic areas that are nearly climatically homogeneous. Locations within the same climatic division are considered to share the same overall climatic features and influences. The site of the Proposed Action is located within the Massachusetts coastal division (NOAA 2021).

B.2.1 Ambient Temperature

According to NCDC data for the Massachusetts coastal division, the average annual temperature is 50.5 degrees Fahrenheit (°F) (10.3 degrees Celsius [°C]), the average winter (December–February) temperature is 31.7°F (-0.2°C) and the average summer (June–August) temperature is 69.6°F (20.9°C), based on data collected from 1987 through 2019. Table B-3 summarizes average temperatures at the individual recording stations within the general area of the proposed Project area. Data for some stations as seen in the table are reflective of different years of weather observations; however, the general pattern shows little difference across the listed locations.

Table B-3. Representative temperature data

Station	Annual Average °F/°C	Annual Maximum °F/°C	Annual Minimum °F/°C
Coastal Division	50.5/10.3	59.2/15.1	41.8/5.4
Nantucket	50.7/10.4	57.6/14.2	43.9/6.6
Martha's Vineyard	51.2/10.7	59.1/15.1	43.2/6.2
Hyannis	51.1/10.6	58.8/14.9	43.4/6.3
Buzzards Bay Buoy	50.4/10.2	N/A	N/A
Nantucket Sound Buoy	52.4/11.3	N/A	N/A

Sources: NOAA 2019a (Coastal Division 2019 data; Nantucket 2019 data; Martha's Vineyard 2019 data; Hyannis 2019 data), NOAA 2019b (Buzzards Bay Buoy 2009-2019 data; Nantucket Sound Buoy 2009-2019 data).
°C = degrees Celsius; °F = degrees Fahrenheit; N/A = not available.

B.2.2 Wind Conditions

Prevailing winds in the middle latitudes over North America flow mostly west to east ("westerlies"). Westerlies within the Lease Area vary in strength, pattern, and directionality. Extreme wind conditions on the U.S. East Coast are influenced by both winter storms and tropical systems. Several northeasters occur each winter season, while hurricanes are rarer but potentially more extreme. The tropical systems, therefore, define the wind farm design, based on extreme wind speeds (those with recurrence periods of 50 years or more).

Table B-4 summarizes wind conditions in the Massachusetts coastal division. This table shows the monthly average wind speeds, monthly average peak wind gusts, and the hourly peak wind gusts for each individual month. Data from 2009 through 2019 show that monthly wind speeds range from a low of 11.97 miles per hour (mph) (19.27 kilometers per hour [km/hr]) in July to a high of 17.02 mph (27.38 km/hr) in January. The monthly wind peak gusts reach a maximum during November at 21.23 mph (34.17 km/hr). The one-hour average wind gusts reach a maximum during October at 64.65 mph (104.04 km/hr).

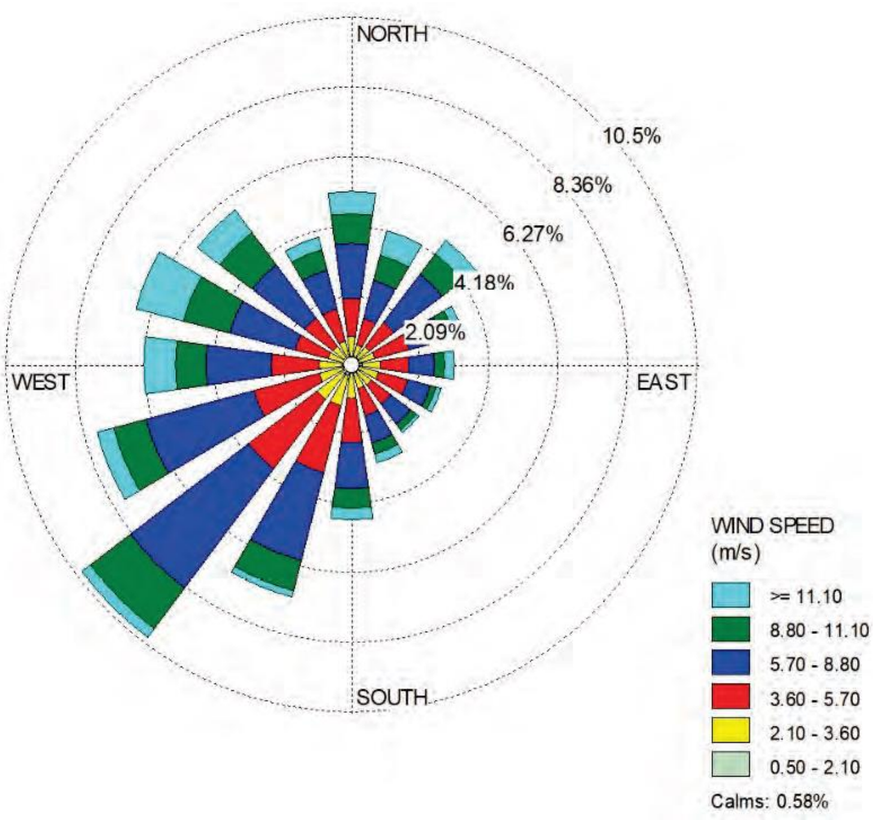
Table B-4. Representative wind speed data for the Massachusetts coastal division

Month	Monthly Average Wind Speed		Monthly Average Peak Gust		Peak One-Hour Average Gust	
	mph	km/hr	mph	km/hr	mph	km/hr
January	17.02	27.38	20.97	33.75	61.29	98.64
February	15.77	25.38	19.35	31.15	63.53	102.24
March	15.91	25.61	19.44	31.29	64.42	103.68
April	14.90	23.97	18.12	29.16	49.21	79.20
May	13.14	21.14	15.89	25.58	58.16	93.60

Month	Monthly Average Wind Speed		Monthly Average Peak Gust		Peak One-Hour Average Gust	
	mph	km/hr	mph	km/hr	mph	km/hr
June	12.31	19.81	14.93	24.03	44.52	71.64
July	11.97	19.27	14.49	23.32	57.04	91.80
August	12.48	20.08	15.14	24.37	59.95	96.48
September	13.92	22.40	17.08	27.48	51.90	83.52
October	16.45	26.48	20.40	32.82	64.65	104.04
November	17.01	27.38	21.23	34.17	57.71	92.88
December	15.99	25.73	19.84	31.93	59.50	95.76

Source: NOAA 2019b (National Data Buoy Center, Nantucket Sound Station 44020, 2009–2019).
km/hr = kilometer per hour; mph = miles per hour.

Throughout the year, wind direction is variable. However, seasonal wind directions are primarily focused from the west/northwest during the winter months (December–February) and from the south/southwest during the summer months (June–August). Figure B-1 shows a 5-year wind rose for Buoy Station 44020 (Nantucket Sound). Wind speeds are in meters per second. Percentages indicate how frequently the wind blows from that direction.



Source: NOAA 2019b.

Figure B-1. 5-year (2015–2019) wind rose for Nantucket Sound

B.2.3 Precipitation and Fog

Data from NCDC show that the annual average precipitation is 49.75 inches (126.37 centimeters) in the Massachusetts coastal division. Table B-5 shows monthly variations in average precipitation, which ranges from a high of 5.59 inches (14.20 centimeters) for October to a low of 3.30 inches (8.38 centimeters) in May.

Snowfall amounts can vary quite drastically within small distances. Data from the Martha's Vineyard Station (KMVY) shows that the annual snowfall average is approximately 23 inches (58.4 centimeters), and the month with the highest snowfall is February, averaging around 8 inches (20.3 centimeters).

Fog is a common occurrence along coastal Massachusetts. Fog is especially dense across the water south of Cape Cod toward the islands of Martha's Vineyard and Nantucket. Fog data were collected from 1997 to 2009 at the BUZM3 meteorological station located in Buzzard's Bay, approximately 25 miles (40 kilometers) from the Project area; and from 2007 to 2009 at the Martha's Vineyard Coastal Observatory (MVCO) meteorological station located 2 miles (3 kilometers) south of Martha's Vineyard (Merrill 2010). The data show that fog is most common in the Project area during the months of June, July, and August, with a typical range of 6 to 11 days per month with at least 1 hour of fog. In the winter, fog is much less frequent, with 3 or fewer days with at least 1 hour of fog.

Table B-5. Representative monthly precipitation data for the Massachusetts coastal division (2009–2019) [a]

Month	Average Precipitation	
	Inches	Centimeters
January	4.04	10.26
February	3.86	9.80
March	4.67	11.85
April	4.14	10.51
May	3.30	8.38
June	4.20	10.67
July	3.72	9.44
August	3.67	9.33
September	3.56	9.03
October	5.59	14.20
November	4.15	10.53
December	4.87	12.36
Annual Average	49.75	126.37

Source: NOAA 2019a.

[a] Precipitation is recorded in melted inches (snow and ice are melted to determine monthly equivalent). Data are representative of the Massachusetts coastal division.

The potential for icing conditions, i.e., atmospheric conditions that can lead to the deposition of ice from the atmosphere onto a structure, was also predicted based on data collected at the BUZM3 tower

(Merrill 2010). Icing is rare when the water temperature is greater than 43°F (6°C), so in most months of the year, and for many days during the winter months, there is no potential for icing to occur. The data show that moderate icing (defined by the Federal Aviation Administration as a rate of accumulation such that short encounters become potentially hazardous) is unlikely to occur more than 1 day per month, while the potential for light icing is above 5 days per month in December, January, and February. Icing would be unlikely to occur at any time from April through October.

B.2.4 Hurricanes and Tropical Storms

During the 160 years for which weather records have been kept, ten hurricanes have made landfall in Massachusetts and five others have passed through the Wind Farm Area without making landfall. The latest hurricane that made a direct landfall was Hurricane Bob in 1991. Out of those ten hurricanes, five ranked as Category 1 on the Saffir-Sampson Scale, two were Category 2 hurricanes, and three were Category 3 hurricanes. Since records have been kept, no Category 4 or 5 hurricanes have made landfall in Massachusetts. Of the hurricanes that passed through the Wind Farm Area without making landfall in Massachusetts, one was Category 2, one was Category 1, and three were tropical storms when they passed through the Wind Farm Area (NOAA 2018). The most recent of these storms was Beryl in 2006. The National Oceanic Atmospheric Administration (NOAA) 2019c defines the winds speeds and typical damage associated with each category of hurricane.

In addition to hurricanes, northeasters may occur several times per year in the fall and winter months. Wind gusts during the strongest northeasters can cause similar damage to a Category 1 hurricane, although northeasters typically are larger and last longer than hurricanes.

B.2.5 Mixing Height

The mixing height is the altitude above ground level to which air pollutants vertically disperse. The mixing height affects air quality because it acts as a lid on the height pollutants can reach. Lower mixing heights can allow less air volume for pollutant dispersion and lead to higher ground-level pollutant concentrations than do higher mixing heights. Table B-6 presents atmospheric mixing height data from the nearest measurement locations to the Project area (Nantucket and Chatham, Massachusetts). As shown in the table, the minimum average mixing height is 389 meters (1,276 feet), while the maximum average mixing height is 1,421 meters (4,662 feet).

Table B-6. Representative seasonal mixing height data

Season	Data Hours Included [a]	Average Mixing Height (meters/feet)	
		Nantucket	Chatham
Winter (December, January, February)	Morning: no-precipitation hours	780/2,559	668/2,192
	Morning: all hours	905/2,969	655/2,149
	Afternoon: no-precipitation hours	791/2,595	774/2,539
	Afternoon: all hours	890/2,920	747/2,451

Season	Data Hours Included [a]	Average Mixing Height (meters/feet)	
		Nantucket	Chatham
Spring (March, April, May)	Morning: no-precipitation hours	588/1,929	681/2,234
	Morning: all hours	734/2,408	664/2,178
	Afternoon: no-precipitation hours	746/2,447	1,218/3,996
	Afternoon: all hours	827/2,713	1,110/3,642
Summer (June, July, August)	Morning: no-precipitation hours	389/1,276	569/1,867
	Morning: all hours	448/1,470	568/1,863
	Afternoon: no-precipitation hours	609/1,998	1,421/4,662
	Afternoon: all hours	667/2,188	1,295/4,249
Fall (September, October, November)	Morning: no-precipitation hours	625/2,051	586/1,923
	Morning: all hours	739/2,425	583/1,913
	Afternoon: no-precipitation hours	765/2,510	1,036/3,399
	Afternoon: all hours	831/2,726	945/3,100
Annual Average	Morning: no-precipitation hours	595/1,952	620/2,034
	Morning: all hours	707/2,320	618/2,028
	Afternoon: no-precipitation hours	727/2,385	1,121/3,678
	Afternoon: all hours	804/2,638	1,028/3,373

Source: USEPA 2021.
[a] Missing values are not included.

B.2.6 Potential General Impacts of Offshore Wind Facilities on Meteorological Conditions

A known impact of offshore wind facilities on meteorological conditions is the wake effect. A wind turbine generator (WTG) extracts energy from the free flow of wind, creating turbulence downstream of the WTG. The resulting "wake effect" is the aggregated influence of the WTGs for the entire wind farm on the available wind resource and the energy production potential of any facility located downstream. Christiansen and Hasager (2005) observed offshore wake effects from existing facilities via satellite with synthetic aperture radar to last anywhere from 1.2 to 12.4 miles (2 to 20 kilometers) depending on ambient wind speed, direction, degree of atmospheric stability and the number of turbines within a facility. During stable atmospheric conditions, these offshore wakes can be longer than 43.5 miles (70 kilometers).

Under certain conditions, offshore wind farms also can affect temperature and moisture downwind of the facilities. For example, from September 2016 to October 2017, a study using aircraft observations accompanied by mesoscale simulations examined the spatial dimensions of micrometeorological impacts from a wind energy facility in the North Sea (Siedersleben et al. 2018). Measurements and associated modeling indicated that measurable redistribution of moisture and heat were possible up to 62 miles (100 kilometers) downwind of the wind farm. However, this occurred only when (a) there was a strong, sustained temperature inversion at or below hub height and (b) wind speeds were greater than approximately 13.4 mph (6 meters/second) (Siedersleben et al. 2018). Typically, air temperature will decrease with height above the sea surface in the lower atmosphere (i.e., the troposphere), and air will freely rise and disperse up to the mixing height (Holzworth 1972; Ramaswamy et al. 2006). A temperature inversion occurs when a warmer overlying air mass causes temperatures to increase with height; a strong inversion inhibits the further rise of cooler surface air masses, thus limiting the mixing height (Ramaswamy et al. 2006). Therefore, the North Sea study suggests that rapidly spinning turbines with hub heights at or above a strong inversion may induce mixing between air masses that would otherwise remain separated, which can significantly affect temperature and humidity downwind of a wind farm.

As shown in Table B-6, the minimum average mixing height in the region is much higher than the height of the top of the proposed WTG rotors (780–1,066 feet [238–325 meters]) or the WTG hubs (419–605 feet [128–184 meters]). Therefore, WTG hub heights are expected to remain well below the typical mixing height and associated temperature inversions over the open ocean in the Project region. Accordingly, the redistribution of moisture and heat due to rotor-induced vertical mixing, and any associated shifts to the microclimate, would be limited to the immediate vicinity of the Project.

B.3 Marine Mammals

There are 38 species of marine mammals within the Northwest Atlantic Outer Continental Shelf (OCS) region and 31 that have been documented or are considered likely to occur in the Project area (Table B-7). Species' federal protection status, occurrence in the geographic analysis area and Project area, critical habitat, population size trends, and mortality data must be considered to understand the potential impacts and their magnitude from the Proposed Action, action alternatives, and the No Action Alternative. The West Indian manatee (*Trichechus manatus*) is considered extralimital and rare and is not expected to occur in the Project area; thus, this species is not considered further. In addition, six species within the toothed whales and dolphins group were considered to have "hypothetical" occurrence and were excluded from the assessment of the Proposed Action (BOEM 2014). For an in-depth discussion of marine mammals in the vicinity of the Project area and the analysis of impacts, refer to Chapter 3, Section 3.5.6, *Marine Mammals*.

Table B-7. Marine mammal species documented or likely to occur in the Project area and their stock information

Species	Scientific Name	Stock	Best Population Estimate [a]	Status under MMPA [b]	Status under ESA	Relative Occurrence in Project Region [c]	Population trend [d]	Reference for Population Data
Baleen Whales (Mysticetes)								
Blue whale	*Balaenoptera musculus*	W. North Atlantic	402 [e]	Strategic	Endangered	Rare	Unavailable	Hayes et al. (2020)
Fin whale	*Balaenoptera physalus*	W. North Atlantic	6,802	Strategic	Endangered	Common	Unavailable	Hayes et al. (2021)
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	1,396	Non-Strategic	Not Listed	Common	+2.8%/year	Hayes et al. (2021)
Minke whale	*Balaenoptera acutorostrata*	Canadian East Coast	21,968	Non-Strategic	–	Common	Unavailable	Hayes et al. (2021)
North Atlantic right whale	*Eubalaena glacialis*	W. North Atlantic	338 [f]	Strategic	Endangered	Common	Decreasing	Hayes et al. (2023)
Sei whale	*Balaenoptera borealis*	Nova Scotia	6,292	Strategic	Endangered	Common	Unavailable	Hayes et al. (2021)
Toothed Whales (Odontocetes)								
Atlantic spotted dolphin	*Stenella frontalis*	W. North Atlantic	39,921	Non-Strategic	–	Rare	Decreasing	Hayes et al. (2020)
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	W. North Atlantic	93,233	Non-Strategic	–	Common	Unavailable	Hayes et al. (2020)
Common bottlenose dolphin	*Tursiops truncatus*	W. North Atlantic, Northern Migratory Coastal	62,851	Strategic	–	Common	Decreasing	Hayes et al. (2021)
Pantropical spotted dolphin	*Stenella attenuata*	W. North Atlantic	6,593	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Risso's dolphin	*Grampus griseus*	W. North Atlantic	35,215	Non-Strategic	–	Uncommon	Unavailable	Hayes et al. (2020)

Species	Scientific Name	Stock	Best Population Estimate [a]	Status under MMPA [b]	Status under ESA	Relative Occurrence in Project Region [c]	Population trend [d]	Reference for Population Data
Short beaked common dolphin	*Delphinus delphis*	W. North Atlantic	172,974	Non-Strategic	–	Common	Unavailable	Hayes et al. (2021)
Striped dolphin	*Stenella coeruleoalba*	W. North Atlantic	67,036	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
White-beaked dolphin	*Lagenorhynchus albirostris*	W. North Atlantic	536,016	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Harbor porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy	95,543	Non-Strategic	–	Common	Unavailable	Hayes et al. (2021)
Blainville's beaked whale	*Mesoplodon densirostris*	W. North Atlantic	10,107 [g]	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Cuvier's beaked whale	*Ziphius cavirostris*	W. North Atlantic	5,744 [g]	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Dwarf sperm whale	*Kogia sima*	W. North Atlantic	7,750[h]	Non-Strategic	–	Rare	Increasing [i]	Hayes et al. (2020)
Gervais' beaked whale	*Mesoplodon europaeus*	W. North Atlantic	10,107 [g]	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Killer whale	*Orcinus orca*	W. North Atlantic	Unknown	Non-Strategic	–	Rare	Unavailable	Waring et al. (2015)
Long-finned pilot whale	*Globicephala melas*	W. North Atlantic	39,215	Non-Strategic	–	Uncommon	Unavailable	Hayes et al. (2020)
Pygmy sperm whale	*Kogia breviceps*	W. North Atlantic	7,750 [h]	Non-Strategic	–	Rare	Increasing [i]	Hayes et al. (2020)
Short-finned pilot whale	*Globicephala macrorhynchus*	W. North Atlantic	28,924	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Sowerby's beaked whale	*Mesoplodon bidens*	W. North Atlantic	10,107 [g]	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Sperm whale	*Physeter macrocephalus*	North Atlantic	4,349	Strategic	Endangered	Uncommon	Unavailable	Hayes et al. (2020)
True's beaked whale	*Mesoplodon mirus*	W. North Atlantic	10,107 [g]	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)

Species	Scientific Name	Stock	Best Population Estimate [a]	Status under MMPA [b]	Status under ESA	Relative Occurrence in Project Region [c]	Population trend [d]	Reference for Population Data
Earless Seals (Pinnipeds)								
Harbor seals	*Phoca vitulina*	W. North Atlantic	61,336	Non-Strategic	–	Common	Unavailable	Hayes et al. (2021)
Gray seals	*Halichoerus grypus*	W. North Atlantic	27,300	Non-Strategic	–	Common	Increasing	Hayes et al. (2021)
Hooded seals	*Cystophora cristata*	W. North Atlantic	Unknown	Non-Strategic	–	Rare	Unavailable	Hayes et al. (2020)
Harp seal	*Phoca groenlandica*	W. North Atlantic	7.6 million	Non-Strategic	–	Uncommon	Unavailable	Hayes et al. (2020)

[a] Unless otherwise noted, best available abundance estimates are from NMFS stock assessment reports (Hayes et al. 2020, 2021, 2023).
[b] The MMPA defines a “strategic” stock as a marine mammal stock (a) for which the level of direct human-caused mortality exceeds the potential biological removal level; (b) which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; (c) which is listed as a threatened or endangered species under the ESA; or (d) is designated as depleted.
[c] Data from SouthCoast Wind COP Volume 2.
[d] Increasing = beneficial trend, not quantified; Decreasing = adverse trend, not quantified; Unavailable = population trend analysis not conducted on this species.
[e] The minimum population estimate is reported as the best population estimate in the most recently updated 2021 draft stock assessment report (SouthCoast Wind 2024).
[f] This estimate is based on the 2022 U.S Atlantic and Gulf of Mexico Marine Mammal Stock Assessments (Hayes et al. 2023).
[g] This estimate includes Gervais’ beaked whales and Blainville’s beaked whales for the Gulf of Mexico stocks, and all species of *Mesoplodon* undifferentiated beaked whales in the Atlantic.
[h] This estimate includes both dwarf and pygmy sperm whales.
i Increasing trend should be interpreted with caution (Hayes et al. 2020)
ESA = Endangered Species Act; MMPA = Marine Mammal Protection Act

B.4 Finfish

There are a variety taxa of state- and federally managed fishes managed finfish within the Northeast Continental Shelf Large Marine Ecosystem that have essential fish habitat (EFH) designated in the Project area (COP Volume 2, Section 6.7.2.2.1, Table 6-49 through Table 6-51; SouthCoast Wind 2024) or recorded catch in (COP Appendix V, Section 2.2, Table 2-5; SouthCoast Wind 2024) or in and around (COP Appendix V, Section 2.1, Table 2-1; SouthCoast Wind 2024) the Project area. These species are listed in Table B-8.

Table B-8. Relevant managed fish taxa in the Northeast Continental Shelf Large Marine Ecosystem

Taxa		
Acadian redfish (*Sebastes fasciatus*)	Albacore tuna (*Thunnus alalunga*)	Coastal and non-coastal sharks (for full list of shark species see COP Volume 2, Section 6.7.2.2.1, Table 6-51; SouthCoast Wind 2024)
American eel (*Anguilla rostrata*)	American plaice (*Hippoglossoides platessoides*)	Goosefish (*Lophius americanus*)
American shad (*Alosa sapidissima*)	Atlantic cod (*Gadus morhua*)	Hickory shad (*Alosa mediocris*)
Atlantic croaker (*Micropogonias undulatus*)	Atlantic halibut (*Hippoglossus hippoglossus*)	Ocean pout (*Macrozoarces americanus*)
Atlantic herring (*Clupea harengus*)	Atlantic mackerel (*Scomber scombrus)*	Pollock (*Pollachius pollachius)*
Atlantic menhaden (*Brevoortia tyrannus)*	Atlantic striped bass (*Morone saxatilis)*	River herring (*Alosa* spp.*)*
Atlantic sturgeon (*Acipenser oxyrinchus)*	Atlantic wolffish (*Anarhichas lupus)*	Scup (*Stenotomus chrysops)*
Barndoor skate (*Dipturus laevis*)	Black sea bass (*Centropristis striata*)	Cobia (*Rachycentron canadum*)
Bluefin tuna (*Thunnus thynnus*)	Bluefish (*Pomatomus saltatrix*)	Haddock (*Melanogrammus aeglefinus*)
Butterfish (*Peprilus triacanthus*)	Clearnose skate (*Raja eglanteria*)	Little skate (*Leucoraja erinacea*)
Skipjack tuna (*Katsuwonus pelamis)*	Smooth skate (*Mustelus canis)*	Offshore hake *(Merluccius albidus)*
Spanish mackerel (*Scomberomorus maculatus)*	Spiny dogfish (*Squalus acanthias)*	Red hake *(Urophycis chuss)*
Spot (*Leiostomus xanthurus)*	Summer flounder (*Paralichthys dentatus*)	Rosette skate (*Leucoraja garmani*)
Swordfish (*Xiphias gladius)*	Tautog (*Tautoga onitis*)	Silver hake (*Merluccius bilinearis)*
Thorny skate	Tilefish	Witch flounder

Taxa		
(Amblyraja radiata)	(*Caulolatilus microps and Lopholatilus chamaelonticeps)*	*(Glyptocephalus cynoglossus)*
Weakfish (*Cynoscion regalis*)	White hake (*Urophycis tenuis*)	Winter flounder (*Pseudopleuronectes americanus*)
White marlin (*Tetrapturus albidus)*	Windowpane (*Scopthalmus aquosus)*	Winter skate (*Leucoraja ocellata*)

Source: SouthCoast Wind 2024.

B.5 Environmental Justice

The U.S. Census tracts with environmental justice communities in the geographic analysis area, as described in Section 3.6.4, *Environmental Justice*, are presented in the following tables. Table B-9 presents the tracts for Massachusetts based on Massachusetts Executive Office of Energy and Environmental Affairs data. Table B-10 presents the tracts for Rhode Island, Connecticut, Maryland, South Carolina, and Texas based on U.S. Environmental Protect Agency's Environmental Justice Screening and Mapping Tool's data.

Table B-9. U.S. census tracts with environmental justice populations in Massachusetts

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
Barnstable County									
010100	Block Group 5		1						1
010208	Block Group 1		1						1
010304	Block Group 2		1						1
010304	Block Group 3		1						1
010400	Block Group 2		1						1
010700	Block Group 4		1						1
010800	Block Group 2		1						1
011200	Block Group 3		1						1
011400	Block Group 4		1						1
011600	Block Group 1						1		1
011600	Block Group 2		1						1
011700	Block Group 3		1						1
012002	Block Group 1				1				1
012101	Block Group 2				1				1
012101	Block Group 4				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
012102	Block Group 1		1						1
012102	Block Group 3		1						1
012102	Block Group 4				1				1
012502	Block Group 2						1		1
012502	Block Group 3					1			1
012502	Block Group 4				1				1
012601	Block Group 1				1				1
012601	Block Group 2				1				1
012602	Block Group 1						1		1
012602	Block Group 2							1	1
012602	Block Group 3				1				1
012602	Block Group 4						1		1
013900	Block Group 1		1						1
014002	Block Group 3		1						1
014100	Block Group 1						3		3
014500	Block Group 3		1						1
014600	Block Group 2		1						1
014700	Block Group 2		1						1
014800	Block Group 1		1						1
014800	Block Group 3		1						1
015002	Block Group 2				1				1
015300	Block Group 1						1		1
015300	Block Group 2						1		1
015300	Block Group 3						1		1
Bristol County									
610204	Block Group 2				1				1
610204	Block Group 3				1				1
613100	Block Group 1				1				1
613400	Block Group 2				1				1
613600	Block Group 1						1		1
613600	Block Group 2				1				1
613600	Block Group 3						1		1
613700	Block Group 2						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
613800	Block Group 1						1		1
613800	Block Group 2				1				1
613800	Block Group 3				1				1
613800	Block Group 4						1		1
613901	Block Group 1				1				1
613901	Block Group 2						1		1
613902	Block Group 1				1				1
613902	Block Group 2				1				1
614000	Block Group 1						1		1
614000	Block Group 2				1				1
614000	Block Group 3						1		1
614101	Block Group 1				1				1
614101	Block Group 2						1		1
630101	Block Group 1				1				1
630101	Block Group 2		1						1
630102	Block Group 2		1						1
630102	Block Group 4		1						1
630400	Block Group 3				1				1
631101	Block Group 3		1						1
631102	Block Group 2		1						1
631102	Block Group 4				1				1
631200	Block Group 3		1						1
631300	Block Group 3				1				1
631400	Block Group 1						1		1
631400	Block Group 2						1		1
631500	Block Group 1				1				1
631600	Block Group 1						1		1
631600	Block Group 2				1				1
631600	Block Group 3						1		1
631800	Block Group 4				1				1
640100	Block Group 1				1				1
640100	Block Group 2						1		1
640100	Block Group 3				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
640100	Block Group 4				1				1
640100	Block Group 5		1						1
640201	Block Group 1						1		1
640201	Block Group 2						1		1
640202	Block Group 1						1		1
640202	Block Group 2						1		1
640202	Block Group 3						1		1
640300	Block Group 1						1		1
640300	Block Group 2		1						1
640300	Block Group 3						1		1
640400	Block Group 1							1	1
640400	Block Group 2		1						1
640500	Block Group 1						1		1
640500	Block Group 2						1		1
640500	Block Group 3						1		1
640500	Block Group 5						1		1
640600	Block Group 1						1		1
640600	Block Group 2						1		1
640600	Block Group 3				1				1
640600	Block Group 4						1		1
640800	Block Group 1				1				1
640800	Block Group 2						1		1
640901	Block Group 1						1		1
640901	Block Group 2						1		1
640901	Block Group 3						1		1
640901	Block Group 4					1			1
640901	Block Group 5						1		1
641000	Block Group 1						1		1
641000	Block Group 2							1	1
641000	Block Group 3							1	1
641101	Block Group 1						1		1
641101	Block Group 2						1		1
641200	Block Group 1						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
641200	Block Group 2						1		1
641300	Block Group 1							1	1
641300	Block Group 2						1		1
641300	Block Group 3						1		1
641300	Block Group 4				1				1
641300	Block Group 5						1		1
641400	Block Group 1							1	1
641400	Block Group 2						1		1
641400	Block Group 3						1		1
641500	Block Group 1			1					1
641500	Block Group 2						1		1
641600	Block Group 1		1						1
641600	Block Group 2		1						1
641700	Block Group 1		1						1
641700	Block Group 4		1						1
641800	Block Group 1						1		1
641800	Block Group 2		1						1
641900	Block Group 1						1		1
641900	Block Group 2						1		1
642000	Block Group 1				1				1
642000	Block Group 2			1					1
642000	Block Group 3						1		1
642100	Block Group 1				1				1
642100	Block Group 2						1		1
642200	Block Group 1		1						1
642200	Block Group 2						1		1
642200	Block Group 3		1						1
642200	Block Group 4				1				1
642400	Block Group 1		1						1
646101	Block Group 3		1						1
650102	Block Group 1						1		1
650102	Block Group 3				1				1
650201	Block Group 2				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
650201	Block Group 3				1				1
650300	Block Group 2				1				1
650300	Block Group 3						1		1
650400	Block Group 1				1				1
650400	Block Group 2						1		1
650400	Block Group 3						1		1
650400	Block Group 4				1				1
650500	Block Group 1						1		1
650500	Block Group 2						1		1
650500	Block Group 3						1		1
650600	Block Group 1						1		1
650600	Block Group 2							1	1
650600	Block Group 3						1		1
650700	Block Group 1						1		1
650700	Block Group 2							1	1
650800	Block Group 1				1				1
650800	Block Group 2						1		1
650800	Block Group 3							1	1
650800	Block Group 4							1	1
650900	Block Group 1						1		1
650900	Block Group 2						1		1
650900	Block Group 3						1		1
651001	Block Group 1				1				1
651001	Block Group 2				1				1
651002	Block Group 2				1				1
651100	Block Group 1							1	1
651100	Block Group 2						1		1
651100	Block Group 3				1				1
651100	Block Group 4						1		1
651200	Block Group 1							1	1
651200	Block Group 2						1		1
651300	Block Group 1						1		1
651300	Block Group 2						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
651400	Block Group 1							1	1
651400	Block Group 2				1				1
651400	Block Group 3						1		1
651400	Block Group 4				1				1
651500	Block Group 1						1		1
651500	Block Group 2				1				1
651500	Block Group 3						1		1
651600	Block Group 1						1		1
651600	Block Group 2				1				1
651600	Block Group 3				1				1
651600	Block Group 4						1		1
651700	Block Group 1						1		1
651700	Block Group 2						1		1
651800	Block Group 1						1		1
651800	Block Group 2						1		1
651900	Block Group 1						1		1
651900	Block Group 2							1	1
652000	Block Group 1						1		1
652000	Block Group 2						1		1
652000	Block Group 3						1		1
652100	Block Group 1				1				1
652100	Block Group 2				1				1
652100	Block Group 3				1				1
652300	Block Group 1							1	1
652300	Block Group 2						1		1
652400	Block Group 1							1	1
652400	Block Group 2							1	1
652500	Block Group 1				1				1
652500	Block Group 2						1		1
652600	Block Group 1						1		1
652600	Block Group 2						1		1
652700	Block Group 1						1		1
652700	Block Group 2							1	1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
652700	Block Group 3						1		1
652700	Block Group 4						1		1
653101	Block Group 1		1						1
653102	Block Group 2				1				1
653301	Block Group 2		1						1
654200	Block Group 2		1						1
655200	Block Group 3		1						1
655200	Block Group 4		1						1
985500	Block Group 1				1				1
985500	Block Group 2				1				1
Dukes County									
200100	Block Group 1		1						1
200100	Block Group 2				1				1
200100	Block Group 4						1		1
200200	Block Group 2				1				1
200200	Block Group 4						1		1
200200	Block Group 5				1				1
200400	Block Group 5				1				1
Essex County									
202104	Block Group 4			1					1
202104	Block Group 5	1							1
203200	Block Group 1		1						1
203301	Block Group 3		1						1
204101	Block Group 2				1				1
204101	Block Group 3				1				1
204102	Block Group 2				1				1
204200	Block Group 1						1		1
204200	Block Group 2				1				1
204200	Block Group 3				1				1
204200	Block Group 4				1				1
204200	Block Group 5		1						1
204300	Block Group 1		1						1
204300	Block Group 2						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
204300	Block Group 3							1	1
204400	Block Group 3	1							1
204500	Block Group 1				1				1
204500	Block Group 2		1						1
204600	Block Group 2				1				1
204600	Block Group 4				1				1
204701	Block Group 1				1				1
204701	Block Group 2				1				1
204701	Block Group 3					1			1
204702	Block Group 1						1		1
204702	Block Group 2				1				1
204702	Block Group 3				1				1
204702	Block Group 4				1				1
205100	Block Group 1				1				1
205100	Block Group 2				1				1
205100	Block Group 3					1			1
205100	Block Group 4				1				1
205100	Block Group 5				1				1
205200	Block Group 1				1				1
205200	Block Group 2				1				1
205200	Block Group 3				1				1
205200	Block Group 4				1				1
205200	Block Group 5					1			1
205300	Block Group 1				1				1
205300	Block Group 2				1				1
205300	Block Group 4				1				1
205400	Block Group 3				1				1
205500	Block Group 1				1				1
205500	Block Group 2				1				1
205600	Block Group 1						1		1
205600	Block Group 2				1				1
205600	Block Group 3				1				1
205600	Block Group 4				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
205700	Block Group 1				1				1
205700	Block Group 2				1				1
205700	Block Group 3						1		1
205700	Block Group 4				1				1
205700	Block Group 5				1				1
205800	Block Group 1				1				1
205800	Block Group 2							1	1
205800	Block Group 3					1			1
205900	Block Group 1				1				1
205900	Block Group 2				1				1
205900	Block Group 3				1				1
206000	Block Group 1							1	1
206000	Block Group 2					1			1
206100	Block Group 1							1	1
206100	Block Group 2					1			1
206200	Block Group 1					1			1
206200	Block Group 2				1				1
206200	Block Group 3				1				1
206300	Block Group 1				1				1
206300	Block Group 2				1				1
206300	Block Group 3				1				1
206300	Block Group 4				1				1
206400	Block Group 1							1	1
206400	Block Group 2				1				1
206400	Block Group 3				1				1
206400	Block Group 4				1				1
206500	Block Group 1						1		1
206500	Block Group 2							1	1
206500	Block Group 3						1		1
206600	Block Group 1				1				1
206600	Block Group 2						1		1
206600	Block Group 3				1				1
206600	Block Group 4				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
206700	Block Group 1				1				1
206700	Block Group 2				1				1
206700	Block Group 3				1				1
206700	Block Group 4							1	1
206800	Block Group 1					1			1
206800	Block Group 2							1	1
206900	Block Group 1							1	1
206900	Block Group 2						1		1
206900	Block Group 3							1	1
206900	Block Group 4					1			1
207000	Block Group 1							1	1
207000	Block Group 2							1	1
207100	Block Group 1							1	1
207100	Block Group 2					1			1
207100	Block Group 3				1				1
207200	Block Group 1						1		1
207200	Block Group 2							1	1
208101	Block Group 2				1				1
208101	Block Group 3				1				1
208101	Block Group 4				1				1
208102	Block Group 1				1				1
208102	Block Group 2				1				1
208102	Block Group 3				1				1
208102	Block Group 4				1				1
208200	Block Group 3		1						1
208301	Block Group 1		1						1
208302	Block Group 1	1							1
208401	Block Group 1				1				1
208402	Block Group 2				1				1
210301	Block Group 2		1						1
210302	Block Group 1				1				1
210302	Block Group 4				1				1
210401	Block Group 1						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
210401	Block Group 2				1				1
210600	Block Group 1				1				1
210700	Block Group 1				1				1
210700	Block Group 2						1		1
210700	Block Group 3						1		1
210700	Block Group 4				1				1
210800	Block Group 1				1				1
210800	Block Group 2						1		1
210800	Block Group 3					1			1
210800	Block Group 4						1		1
210900	Block Group 1				1				1
211100	Block Group 1		1						1
211100	Block Group 2		1						1
211401	Block Group 3						1		1
215101	Block Group 4				1				1
215102	Block Group 4		1						1
217101	Block Group 2		1						1
217102	Block Group 1		1						1
217300	Block Group 1				1				1
217300	Block Group 3				1				1
217300	Block Group 5				1				1
217401	Block Group 2		1						1
217401	Block Group 3		1						1
217402	Block Group 1						1		1
217402	Block Group 2		1						1
217601	Block Group 2		1						1
220101	Block Group 3		1						1
221400	Block Group 1		1						1
221400	Block Group 2		1						1
221400	Block Group 3		1						1
221500	Block Group 1		1						1
221600	Block Group 1				1				1
221600	Block Group 3		1						1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
221700	Block Group 1		1						1
250100	Block Group 1							1	1
250100	Block Group 2							1	1
250200	Block Group 1				1				1
250200	Block Group 2						1		1
250200	Block Group 3				1				1
250300	Block Group 1							1	1
250300	Block Group 2					1			1
250400	Block Group 1						1		1
250400	Block Group 2							1	1
250400	Block Group 3							1	1
250500	Block Group 1						1		1
250500	Block Group 2							1	1
250500	Block Group 3							1	1
250600	Block Group 1							1	1
250600	Block Group 2						1		1
250600	Block Group 3							1	1
250600	Block Group 4					1			1
250700	Block Group 1						1		1
250700	Block Group 2					1			1
250700	Block Group 3					1			1
250800	Block Group 1						1		1
250800	Block Group 2				1				1
250800	Block Group 3						1		1
250800	Block Group 4						1		1
250800	Block Group 5							1	1
250900	Block Group 1							1	1
250900	Block Group 2							1	1
251000	Block Group 1							1	1
251100	Block Group 1							1	1
251100	Block Group 2							1	1
251100	Block Group 3					1			1
251200	Block Group 1							1	1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
251300	Block Group 1							1	1
251300	Block Group 2						1		1
251300	Block Group 3						1		1
251400	Block Group 1							1	1
251400	Block Group 2				1				1
251400	Block Group 3							1	1
251400	Block Group 4				1				1
251500	Block Group 1					1			1
251500	Block Group 2							1	1
251500	Block Group 3						1		1
251500	Block Group 4				1				1
251500	Block Group 5							1	1
251600	Block Group 1				1				1
251600	Block Group 2					1			1
251600	Block Group 3							1	1
251600	Block Group 4							1	1
251700	Block Group 1				1				1
251700	Block Group 2					1			1
251700	Block Group 3							1	1
251700	Block Group 4							1	1
251800	Block Group 1				1				1
251800	Block Group 2						1		1
251800	Block Group 3				1				1
251800	Block Group 4				1				1
252101	Block Group 1				1				1
252101	Block Group 2				1				1
252101	Block Group 3				1				1
252102	Block Group 3				1				1
252201	Block Group 1				1				1
252201	Block Group 2				1				1
252300	Block Group 1				1				1
252300	Block Group 2						1		1
252300	Block Group 3				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
252300	Block Group 4				1				1
252300	Block Group 5							1	1
252300	Block Group 6				1				1
252400	Block Group 1				1				1
252400	Block Group 2						1		1
252400	Block Group 3							1	1
252501	Block Group 1				1				1
252501	Block Group 2				1				1
252501	Block Group 3				1				1
252502	Block Group 1				1				1
252502	Block Group 2				1				1
252502	Block Group 3				1				1
252502	Block Group 4						1		1
252601	Block Group 1				1				1
252601	Block Group 2				1				1
252601	Block Group 3				1				1
252601	Block Group 4				1				1
252602	Block Group 3				1				1
252603	Block Group 1				1				1
252603	Block Group 2				1				1
253100	Block Group 4				1				1
253100	Block Group 5				1				1
253202	Block Group 2				1				1
253202	Block Group 3				1				1
253202	Block Group 4				1				1
253204	Block Group 1				1				1
253204	Block Group 2				1				1
254402	Block Group 4				1				1
260100	Block Group 1						1		1
260100	Block Group 2						1		1
260100	Block Group 3							1	1
260100	Block Group 4				1				1
260200	Block Group 1						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
260200	Block Group 2						1		1
260402	Block Group 2				1				1
260402	Block Group 3				1				1
260500	Block Group 3				1				1
260600	Block Group 1				1				1
260600	Block Group 2				1				1
260600	Block Group 3				1				1
260700	Block Group 1				1				1
260700	Block Group 2				1				1
260800	Block Group 1						1		1
260800	Block Group 2				1				1
260900	Block Group 2						1		1
260900	Block Group 3						1		1
260900	Block Group 4						1		1
261000	Block Group 1						1		1
261000	Block Group 2				1				1
261102	Block Group 1				1				1
262100	Block Group 3		1						1
266300	Block Group 1		1						1
266400	Block Group 2		1						1
268300	Block Group 1		1						1
268300	Block Group 3		1						1
Nantucket County									
950201	Block Group 1				1				1
950201	Block Group 2				1				1
950202	Block Group 1				1				1
950202	Block Group 2				1				1
950400	Block Group 1				1				1
950400	Block Group 2				1				1
Plymouth County									
501204	Block Group 3		1						1
502101	Block Group 2				1				1
502101	Block Group 4				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
502102	Block Group 3		1						1
502200	Block Group 2		1						1
503102	Block Group 4		1						1
506102	Block Group 5		1						1
510100	Block Group 1				1				1
510100	Block Group 2				1				1
510100	Block Group 3				1				1
510100	Block Group 4				1				1
510200	Block Group 1				1				1
510200	Block Group 2				1				1
510200	Block Group 3				1				1
510200	Block Group 4				1				1
510300	Block Group 1					1			1
510300	Block Group 2							1	1
510400	Block Group 1						1		1
510400	Block Group 2						1		1
510400	Block Group 3							1	1
510400	Block Group 4						1		1
510501	Block Group 1						1		1
510501	Block Group 2				1				1
510501	Block Group 3				1				1
510503	Block Group 1						1		1
510503	Block Group 2						1		1
510503	Block Group 3				1				1
510504	Block Group 1				1				1
510504	Block Group 2							1	1
510505	Block Group 1						1		1
510505	Block Group 2						1		1
510600	Block Group 1				1				1
510600	Block Group 2				1				1
510600	Block Group 3				1				1
510700	Block Group 1						1		1
510700	Block Group 2				1				1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
510700	Block Group 3							1	1
510700	Block Group 4				1				1
510700	Block Group 5				1				1
510800	Block Group 1					1			1
510800	Block Group 2				1				1
510800	Block Group 3							1	1
510800	Block Group 4				1				1
510800	Block Group 5				1				1
510800	Block Group 6				1				1
510900	Block Group 1							1	1
510900	Block Group 2							1	1
511000	Block Group 1				1				1
511000	Block Group 2						1		1
511100	Block Group 1				1				1
511100	Block Group 2				1				1
511100	Block Group 3				1				1
511200	Block Group 1							1	1
511200	Block Group 2				1				1
511200	Block Group 3						1		1
511301	Block Group 1						1		1
511301	Block Group 2				1				1
511301	Block Group 3				1				1
511302	Block Group 1				1				1
511302	Block Group 2						1		1
511302	Block Group 3				1				1
511400	Block Group 1				1				1
511400	Block Group 2				1				1
511400	Block Group 3				1				1
511400	Block Group 4						1		1
511500	Block Group 1					1			1
511500	Block Group 2							1	1
511500	Block Group 3				1				1
511500	Block Group 4						1		1

Tract	Block Group	English isolation	Income	Income and English isolation	Minority	Minority and English isolation	Minority and income	Minority, income and English isolation	Grand Total
511601	Block Group 1				1				1
511601	Block Group 2				1				1
511601	Block Group 3						1		1
511602	Block Group 1				1				1
511602	Block Group 2					1			1
511602	Block Group 3						1		1
511701	Block Group 1				1				1
511701	Block Group 2				1				1
511701	Block Group 3				1				1
511701	Block Group 4				1				1
511702	Block Group 1				1				1
526100	Block Group 4		1						1
530200	Block Group 1		1						1
530300	Block Group 2		1						1
530500	Block Group 2		1						1
530600	Block Group 5				1				1
542302	Block Group 3		1						1
544200	Block Group 1		1						1
544200	Block Group 3		1						1
545100	Block Group 1		1						1
545200	Block Group 1				1				1
545300	Block Group 1		1						1
545400	Block Group 4		1						1
545400	Block Group 5		1						1
561100	Block Group 4				1				1
561400	Block Group 2				1				1
980200	Block Group 1				1				1
980300	Block Group 1						1		1
Total Tracts		**3**	**89**	**3**	**252**	**25**	**160**	**69**	**601**

Source: MAEEA 2021.

Table B-10. U.S. census tracts with environmental justice populations in Rhode Island, Connecticut, Maryland, South Carolina, and Texas

Tract	Low Income	Low Income and Minority	Minority
Rhode Island – Newport County			
040200	1		
Rhode Island – Providence County			
000101		1	
000102		1	
000200		1	
000300		1	
000400		1	
000500		1	
000600		1	
000700		1	
000800	1		
000900	1		
001000		1	
001100	1		
001200		1	
001300		1	
001400		1	
001500			1
001600			1
001700		1	
001800		1	
001900		1	
002000		1	
002101			1
002102			1
002200		1	
002500			1
002600		1	
002700		1	
002800		1	
002900			1
003700	1		

Tract	Low Income	Low Income and Minority	Minority
010800		1	
010900		1	
011000		1	
011100		1	
014100			1
014700			1
015000			1
015100		1	
015200		1	
015300		1	
015400			1
015500			1
016000			1
016100		1	
016300			1
016400		1	
016600			1
016700			1
017100			1
017400		1	
017600		1	
017900	1		
018000	1		
018100	1		
018300	1		
Total Tracts – Rhode Island	**9**	**31**	**16**
Connecticut – New London County			
690300		1	
690400		1	
690500		1	
690700		1	
690800		1	
696100	1		
696400	1		
696700		1	

Tract	Low Income	Low Income and Minority	Minority
696800		1	
697000		1	
702500	1		
702800	1		
709200	1		
870200	1		
870300	1		
Total Tracts – Connecticut	**7**	**8**	**0**
Maryland – Baltimore County			
408503		1	
408506		1	
408507			1
411408	1		
411412		1	
420301	1		
420401	1		
420600		1	
420701	1		
420702	1		
420900	1		
421000	1		
421101	1		
421102	1		
421200	1		
430101		1	
430300		1	
430900	1		
440300			1
440400	1		
440701			1
440702			1
440800			1
440900			1
441000			1
450501	1		

Tract	Low Income	Low Income and Minority	Minority
450503		1	
450504		1	
450800			1
451100			1
451300	1		
451401			1
451402		1	
451500	1		
451801	1		
452500	1		
490303	1		
490304			1
490605	1		
490900	1		
491300		1	
491401		1	
491402			1
491600		1	
492300	1		
492401			1
492402			1
492500		1	
492700		1	
Total Tracts - Maryland	**22**	**26**	**45**
South Carolina – Charleston County			
003300			1
003400		1	
003700			1
002401			1
002402			1
002701			1
002702			1
003104		1	
003105		1	
003106			1

Tract	Low Income	Low Income and Minority	Minority
003107			1
003108			1
003110		1	
003111			1
003113			1
003115		1	
003116			1
003800			1
003900			1
004000		1	
004300		1	
004400			1
005002			1
005300			1
005400		1	
005500		1	
Total Tracts – South Carolina	**0**	**9**	**17**
Texas – Nueces County			
000500		1	
000700		1	
000800		1	
000900		1	
001000		1	
001100		1	
001300		1	
001400		1	
001500		1	
002101		1	
002200		1	
002400		1	
002500	1		
003500		1	
003601		1	
003602		1	
003700			1

Tract	Low Income	Low Income and Minority	Minority
001601		1	
001602		1	
002002		1	
005900		1	
000601		1	
000602		1	
001201		1	
001202		1	
001702		1	
001703		1	
001704		1	
001801		1	
001802		1	
001903		1	
001904		1	
001905		1	
001906		1	
002001		1	
002301		1	
002303		1	
002304			1
002601		1	
002602		1	
002603		1	
002703		1	
002705			1
002706			1
002707		1	
002708	1		
003002	1		
003003		1	
003004		1	
003202			1
003204			1
003205		1	

Tract	Low Income	Low Income and Minority	Minority
003206		1	
003303		1	
003304		1	
003305		1	
003306		1	
003401		1	
003402		1	
003603			1
005103	1		
005104	1		
005404			1
005406			1
005407			1
005408		1	
005409			1
005410		1	
005411			1
005412			1
005413			1
005414			1
005415			1
005416			1
005417			1
005603		1	
005604			1
005605		1	
005606			1
005803		1	
005804			1
006000		1	
006100		1	
006300		1	
006400		1	

Tract	Low Income	Low Income and Minority	Minority
Texas – San Patricio County			
010800		1	
010900		1	
011000		1	
011100		1	
011200		1	
010201	1		
010202		1	
010301	1		
010302		1	
010500		1	
010601		1	
010700			1
011300		1	
Total Tracts - Texas	**7**	**69**	**22**

Source: USEPA 2022.

B.6 Water Quality

SouthCoast Wind filed a National Pollutant Discharge Elimination System (NPDES) permit application for the high voltage direct current (HVDC) converter offshore substation platform (OSP) for Project 1 in October 2022 and revised applications on December 12, 2022, April 10, 2023, and August 25, 2023 (TetraTech and Normandeau Associates, Inc. 2023). An overview of the characteristics of the cooling water intake structure (CWIS) in the HVDC converter OSP is provided in Table B-11. Figure B-2 shows the indicative location of the HVDC converter OSP for Project 1. Figures B-3 to B-6 depict results of the modeled scenarios with the maximum seasonal temperature delta between ambient and thermal effluent during four seasons (Scenario 1: fall, Scenario 2: winter, Scenario 3: spring, and Scenario 4: summer) at the outfall location.

Table B-11. Characteristics of one SouthCoast Wind HVDC converter OSP

Configuration Parameter	SouthCoast Wind HVDC Converter OSP
Water Source	Atlantic Ocean
Cooling Water Intake System (CWIS)	Non-contact, once-through cooling. Each of the three intakes pipes (caissons) operates independently with its own seawater lift pump. No common entrance or shared piping between each intake caisson. Typical operations utilize no more than two seawater lift pumps, with the third serving only as a backup to the other two pumps (no operating scenario will utilize three seawater lift pumps simultaneously).

Configuration Parameter	SouthCoast Wind HVDC Converter OSP
Configuration of intake	Three, approximately 28-inch (0.7-m)-diameter vertical-shaft intake caissons, with flared ends to accommodate intake velocity requirements, set perpendicular to the seafloor, in the middle portion of the water column, located within the jacketed foundation structure. The discharge is in the middle portion of the water column. They are separated so that heated discharge is not withdrawn into the intake. The three intake caissons on the OSP are separated by approximately 3.3 feet (1 meter) distance from each other, with the first caisson located approximately 91.9 feet (28 meters) distance from the center of the platform coordinates. Note that the three intake caissons are independently operating structures with no common intake or entrance.
Configuration of discharge	The cooling water discharge includes one 36-inch (0.91-meter)-diameter vertical-shaft discharge caisson, located in the middle portion of the water column, and set perpendicular to the seafloor, located within the jacketed foundation structure. The discharge depth is 42.7 feet (13 meters) below the surface and the location of discharge is within a 20-meter radius from the center of the platform coordinates. This location/depth ensures sufficient distance is maintained between the lift pump caisson and the overboard water caisson.
Trash/debris bar rack	The intake caisson(s) will be equipped with a stainless steel trash or debris bar rack. The bar rack will consist of stainless steel bars approximately 0.8 inch (20 millimeters) wide, or similar, fixed to the bell mouth opening of the intake caisson. SouthCoast Wind will require the bar rack to be incorporated into the specific design elements of the OSP fabricator. However, the use of trash or debris bar racks is not optimal for a seawater lift pump caisson installed in an offshore environment. The use of a bar rack at the intake of the pump caisson will create maintenance concerns over time; the bar rack will biofoul with encrusting/fouling organisms and will require direct access to the pump caisson intake periodically for cleaning campaigns. The original design did not include a bar rack for this reason, but a bar rack will be added for compliance requirements of the NPDES permit application. SouthCoast Wind is considering a distance of 5 inches (12.7 cm) spacing between bars. The configuration details will be refined during the detailed design stage, which will include consultations with USEPA and other agencies to ensure appropriate spacing of bars is protective of marine organisms, as applicable within engineering constraints (e.g., flow velocity, biofouling).
Pump screens/strainers	Each seawater intake caisson is equipped with an in-built pump strainer with a typical outer screen size of 3/8 inch (9.5 millimeters), intended to protect the seawater lift pump impeller from debris in the water column. The strainers are retractable on the seawater lift pump for cleaning. At deck level 1 of the OSP, each pump flowline is also equipped with a dedicated filter (typical mesh size of 250 micrometers), intended to protect the equipment and ensure reliable operation of the CWIS. The filter is provided with an automated backwash cleaning system. No chemicals are involved in the cleaning cycles.
Number of traveling screens/ screen wells	N/A – no traveling screens
Water depth of withdrawal, below surface at MLLW	Proposed 74 feet (22.6 meters) below the water surface at MLLW and contingent on NPDES permit requirements.

<table>
<tr><th>Configuration Parameter</th><th>SouthCoast Wind HVDC Converter OSP</th></tr>
<tr><td>Water depth of withdrawal, above seafloor</td><td>Proposed 81 feet (24.7 meters) above seafloor and contingent on NPDES permit requirements.</td></tr>
<tr><td>Through-screen velocity (calculated from Design Intake Flow [DIF])</td><td>Intake velocity will not exceed 0.5 feet (0.2 meters) per second to meet the velocity-based impingement compliance option. A maximum velocity of less than or equal to 0.5 feet (0.2 meters) per second will be integrated into the engineering design of the CWIS to ensure compliance.
The intake velocity of 0.5 feet (0.2 meters) per second (or less) will be ensured to be the design limit velocity at the bar rack, accomplished by ensuring the CWIS intake bell mouth diameter is sized in relation to the lift pump maximum flow rate (i.e., determined at the maximum power of the motor driving the pump or the pump curve, whichever is greater) and that the bell mouth face velocity is not exceeding 0.5 feet (0.2 meters) per second. See NPDES permit application Section 6.2 (Tetratech and Normandeau Associates Inc., 2023) for intake velocity calculation, based on parameters below, including pump data from a submersible seawater lift pump deployed on another project with a similar cooling duty requirement of 50.16 Btu/h (14.7 megawatts):
• Maximum cooling seawater flow required DIF: 9.9 MGD (2 x 780 m^3/h = 1,560 m^3/h), including contingency
• Selected pump maximum operational flow (Qmax): (780 m^3/h), based on representative pump data
• CWIS intake bell mouth diameter: 4.74 ft (1.445 m)
• CWIS intake bell mouth area: 17.66 ft^2 (1.64 m^2)
• CWIS intake velocity (face velocity): < 0.5 ft/s (0.15 m/s)
• Cross-sectional open area of caisson inlet = 17.65 ft^2 (1.640 m^2), adjusted for the area occupied by the bar rack (0.936 ft^2 [0.087 m^2]) = 16.72 ft^2 [1.553 m^2])</td></tr>
<tr><td>Seawater lift pumps (intake pumps)</td><td>The seawater cooling system is a once-through (open loop) system. The maximum heat duty of the offshore substation platform (OSP) is 50.16 Btu/h (14.7 MW). This maximum heat duty of 50.16 Btu/h (14.7 MW) requires a maximum seawater flow of 9.9 MGD (i.e.,1,560 m3/h, including contingency) for cooling.

Up to two raw seawater vertical lift pumps are required to fulfill the cooling duty. Each seawater lift pump has a rated maximum nameplate flow capacity of 900 cubic meters per hour, but maximum operational flow would not exceed 780 cubic meters per hour per pump, resulting in a maximum design intake flow (DIF) of 9.9 MGD, with two pumps operating. Only two of the three pumps would be used under normal operating conditions, with the third pump only serving as a spare/backup. Each seawater lift pump supplies once-through, non-contact cooling water to a plate heat exchanger, to facilitate heat exchange/cooling with the seawater cooling system (of 7.35 megawatt heat duty capacity per heat exchanger). Internal cooling flow is controlled with the use of a 3-way valve while maintaining a constant speed with seawater once-through (open loop) cooling.
In addition, a variable frequency drive (VFD) on each of the seawater lift pump motors, to accomplish the following:
1. The seawater lift pumps are equipped with VFDs for slow start-up of the seawater supply lines.
2. Fine-scale control of the flow volume, based on cooling requirements.</td></tr>
</table>

Configuration Parameter	SouthCoast Wind HVDC Converter OSP
	3. In order to prevent freezing of the standby line, a VFD is used to operate the standby seawater lift pump at minimum flow capacity during the winter season (still within the maximum 9.9 MGD DIF for the facility)
Maximum Discharge Temperature	**86°F (30°C)**
Total DIF	**9.9 MGD** = maximum design intake flow required for cooling of the OSP. Two of the seawater lift pumps operating at approximately 87% of their rated nameplate capacity will provide up to 9.9 MGD (DIF) during normal operating conditions (up to 4.95 MGD each to supply the required cooling water. During normal operating conditions, each individual seawater lift pump will provide up to 4.95 MGD to ensure reliable, safe operating conditions at the unmanned OSP. Seawater Lift Pump settings can be controlled with or without variable frequency drive. Internal cooling flow is controlled by use of a 3-way valve while maintaining a constant speed with the seawater once-through (open loop cooling). The system is designed for a rated nameplate capacity of each seawater lift pump of 900 m^3/h. However, SouthCoast Wind is seeking 9.9 MGD maximum design intake flow (DIF) in the NPDES permit to align with the expected maximum operational conditions (two pumps operating at up to 780 m^3/h each), as the seawater lift pumps are not designed to operate at 100% of their total rated nameplate capacity to meet the cooling needs of the OSP.
Flow Reduction from Design Capacity	While 9.9 MGD is the DIF, a 50% flow reduction potential from DIF could be achieved by use of single-pump operation (4.95 MGD), or dual-pumps each operating at reduced capacity during low-load operating conditions.
Closed-cycle recirculating cooling	None. Closed-cycle (closed-loop) cooling using air or seawater is not an available technology for SouthCoast – Project 1.
Monitoring parameters and sensor locations	The three intake structures will include the following instrumentation: • Temperature & water conductivity monitoring devices installed at the seawater lift pump intake. • The intake seawater flowline has an inline flow meter installed upstream of the seawater filter at the topside of the converter station. • Temperature and flow monitoring devices are installed at the feed line and at the discharge outlet of the seawater heat exchanger. Mechanical sampling connections located at the return line of seawater.
Chlorination System	The CWIS is equipped with an antifouling system to prevent marine growth in the pump caissons and the Seawater System, which consists of Hypochlorite Generator Packages. The Hypochlorite Generator Packages produces Sodium Hypochlorite (NaOCl) by seawater electrolysis. The hypochlorite is injected into the pump caissons near the suction level of the Seawater Lift Pumps. Hypochlorite Generator Packages are designed to achieve a hypochlorite solution flow rate of sufficient concentration, corresponding with a 1 to 4 ppm equivalent free chlorine concentration in the seawater intake lines. This method of continuous injection into the pump caisson is preferred because at a low dosage of NaOCl (i.e., 2 mg/l, 95 kg/day), the residual free chlorine at the outlet would be negligible and oxidized in the water with no negative impact.

Source: TetraTech and Normandeau Associates, Inc. 2023

Btu/h = British thermal unit per hour; CWIS = cooling water intake structure; DIF = Design Intake Flow; °F = degrees Fahrenheit; °C = degrees Celsius; cm = centimeter; ft = feet; ft/s = feet per second; GPM = gallons per minute; m/s = meters per second;

m = meter; m[2] = square meter; m[3]/h = cubic meter per hour; MLLW = Mean Lower Low Water; MGD = million gallons per day; NaOCl = sodium hypochlorite; NPDES = National Pollutant Discharge Elimination System; OSP = offshore service platform

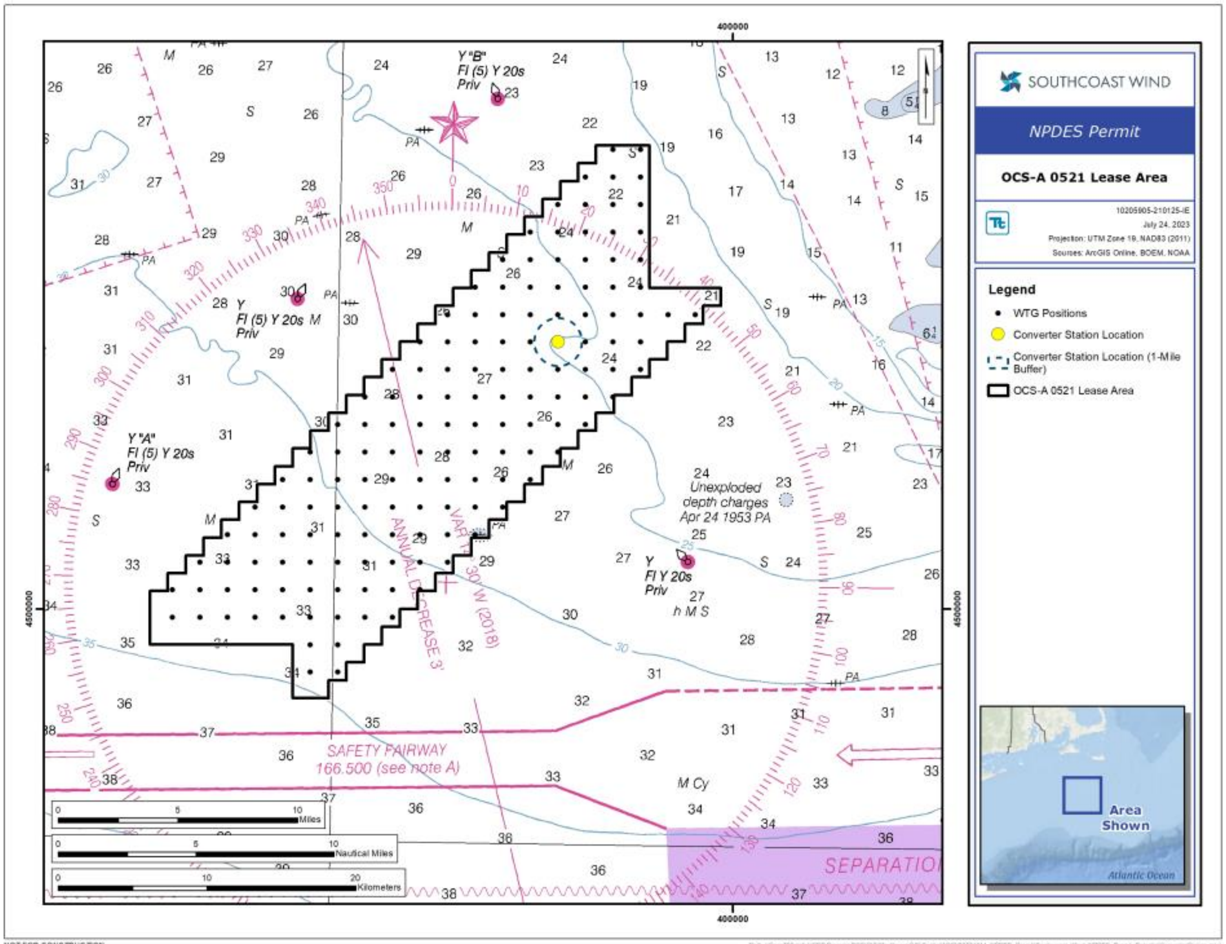


Figure B-2. Indicative location of the Offshore Substation Platform with Converter Station for Project 1 within the Lease Area

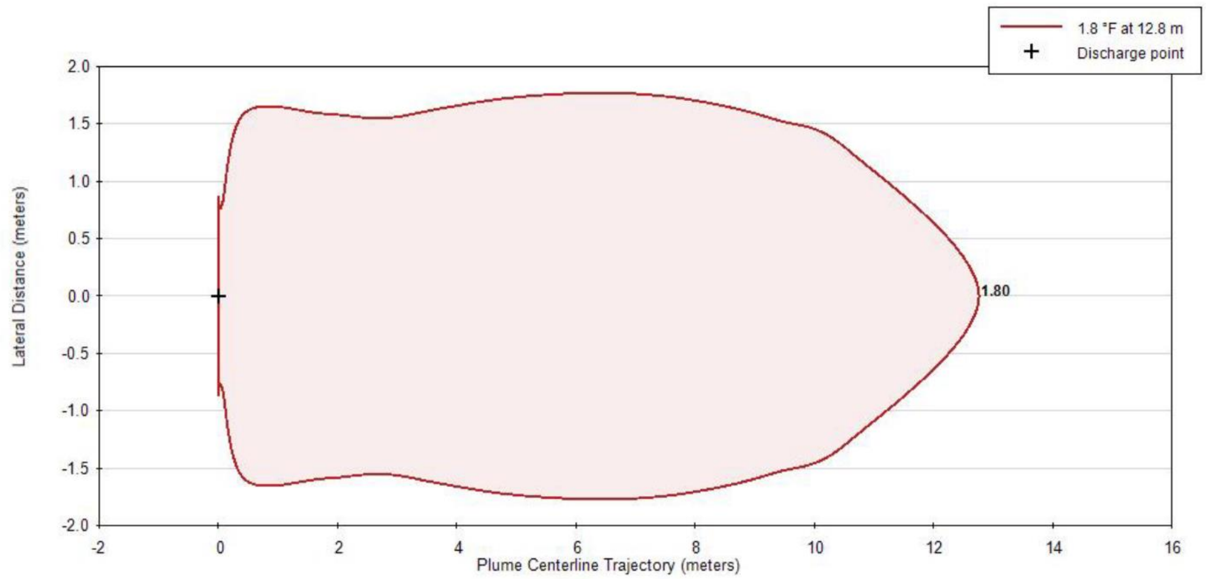


Figure B-3. 1.8°F (1°C) temperature delta isoline for Scenario 1: Fall

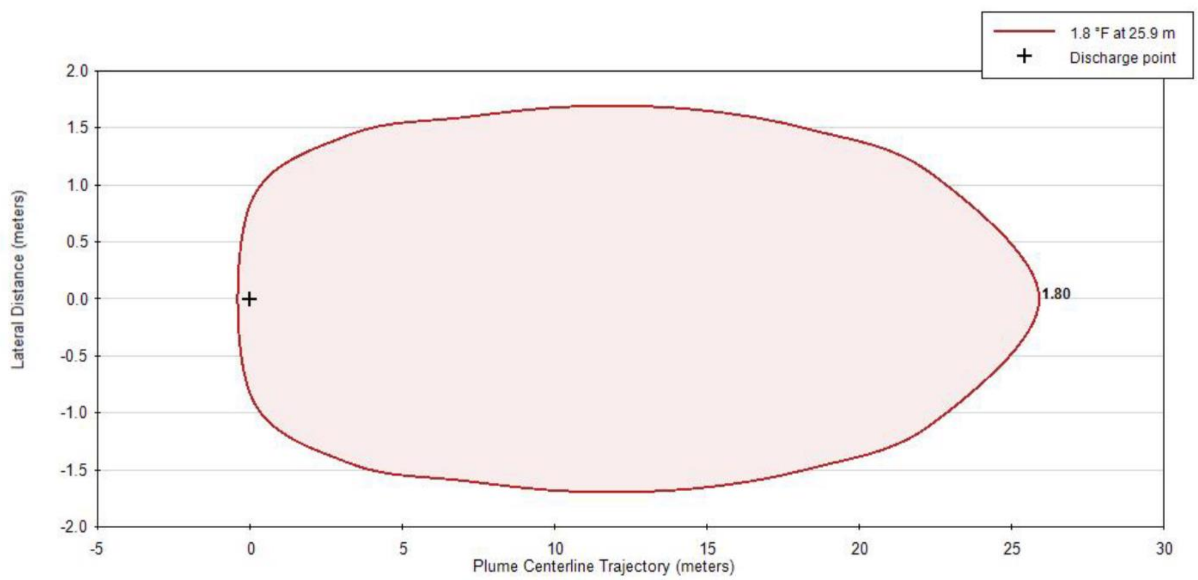


Figure B-4. 1.8°F (1°C) temperature delta isoline for Scenario 2: Winter

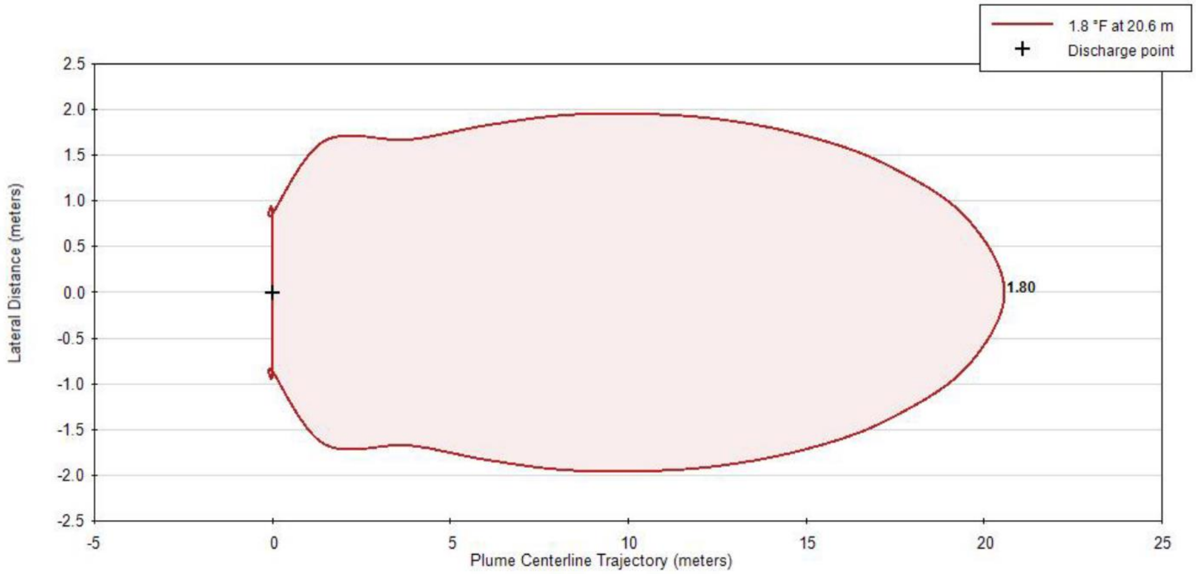


Figure B-5. 1.8°F (1°C) temperature delta isoline for Scenario 3: Spring

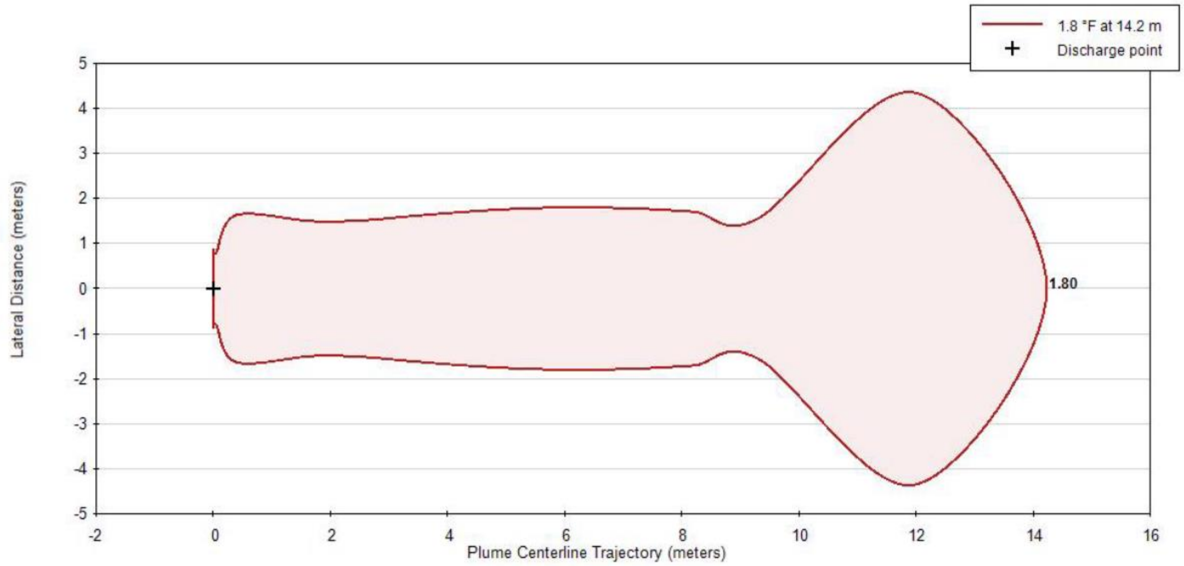
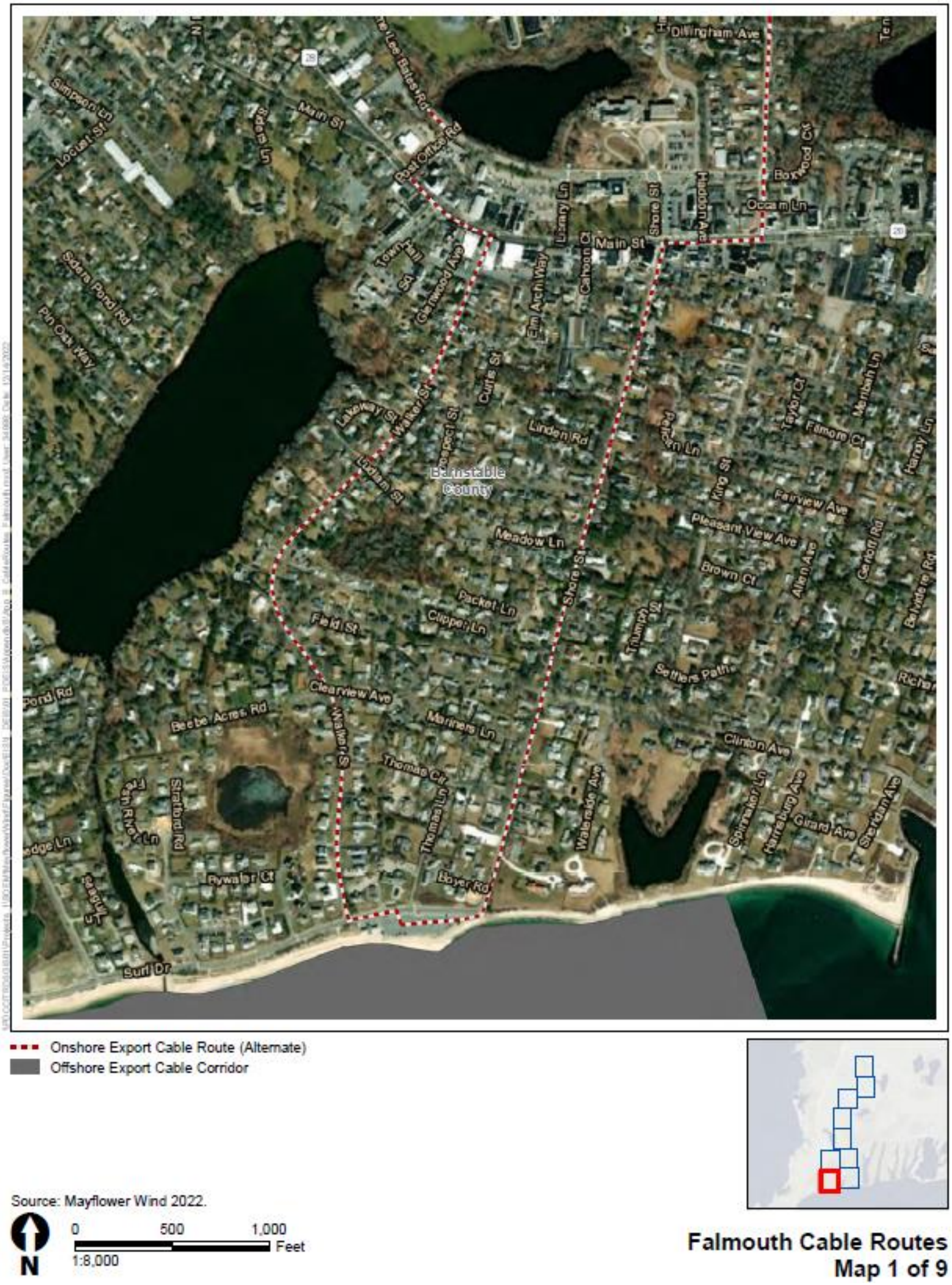


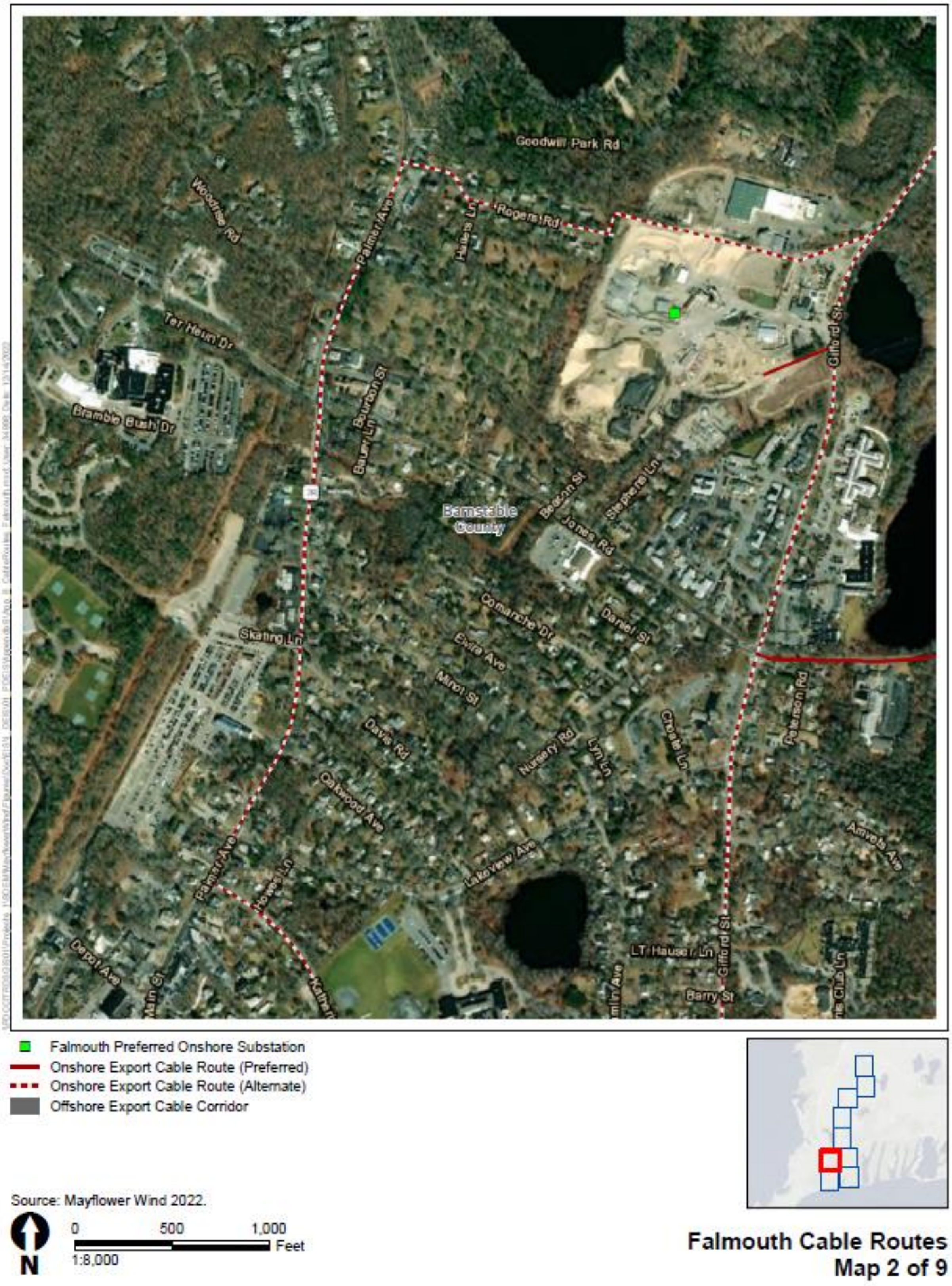
Figure B-6. 1.8°F (1°C) temperature delta isoline for Scenario 4: Summer

B.7 Onshore Cable Route Maps

This section contains detailed maps of the onshore cable routes analyzed in this EIS, as described in Chapter 2, *Alternatives*.

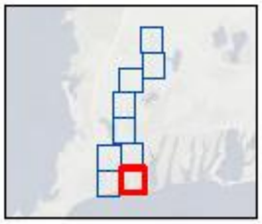
B.7.1 Proposed Action - Falmouth Onshore Cable Routes





Falmouth Cable Routes
Map 2 of 9

Onshore Export Cable Route (Preferred)
Onshore Export Cable Route (Alternate)
Offshore Export Cable Corridor

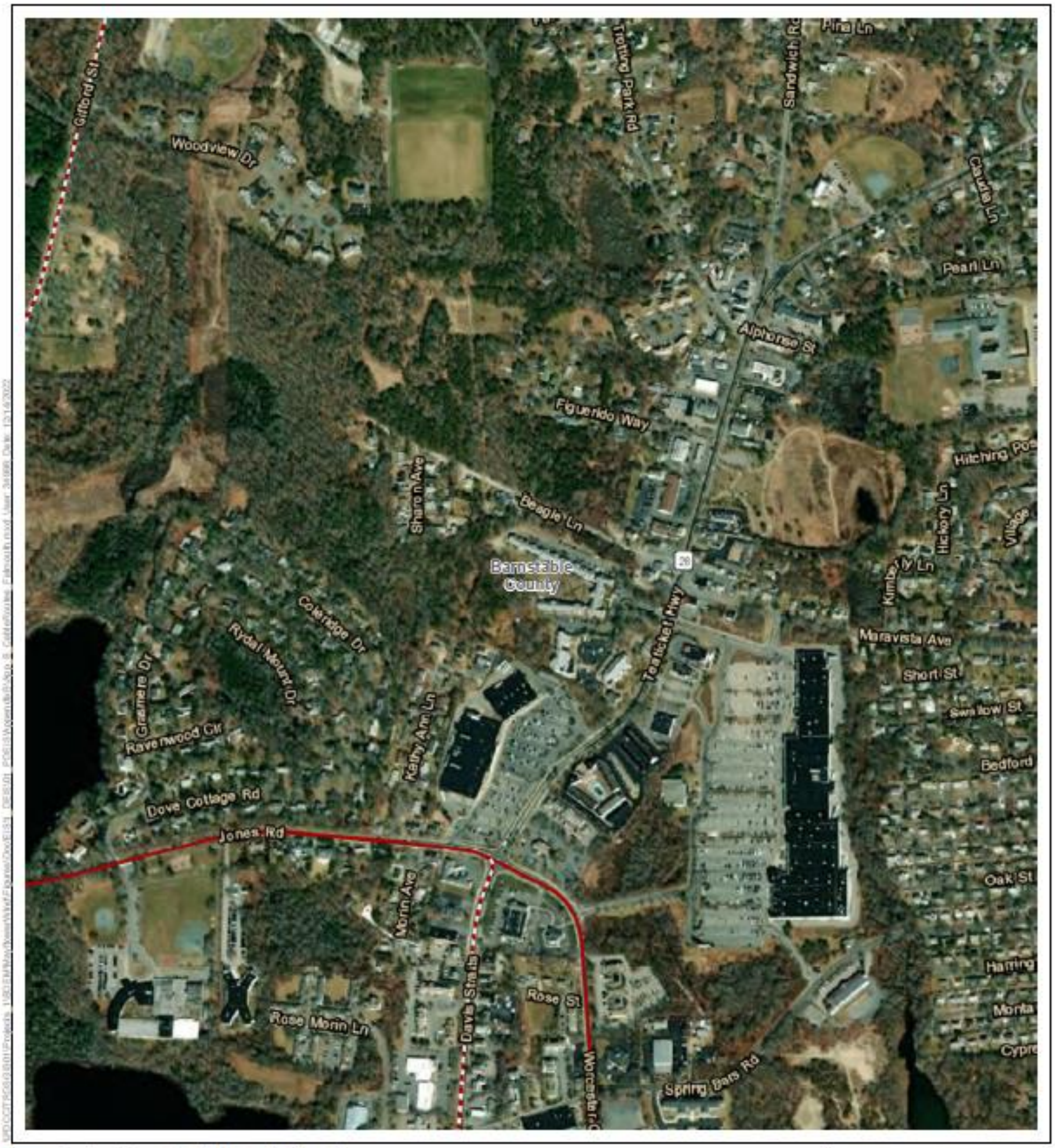


Source: Mayflower Wind 2022.

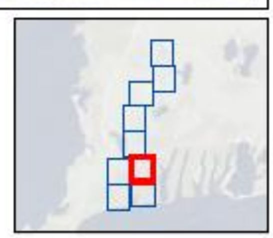
N

0 500 1,000 Feet
1:8,000

Falmouth Cable Routes
Map 3 of 9



- Onshore Export Cable Route (Preferred)
- Onshore Export Cable Route (Alternate)
- Offshore Export Cable Corridor



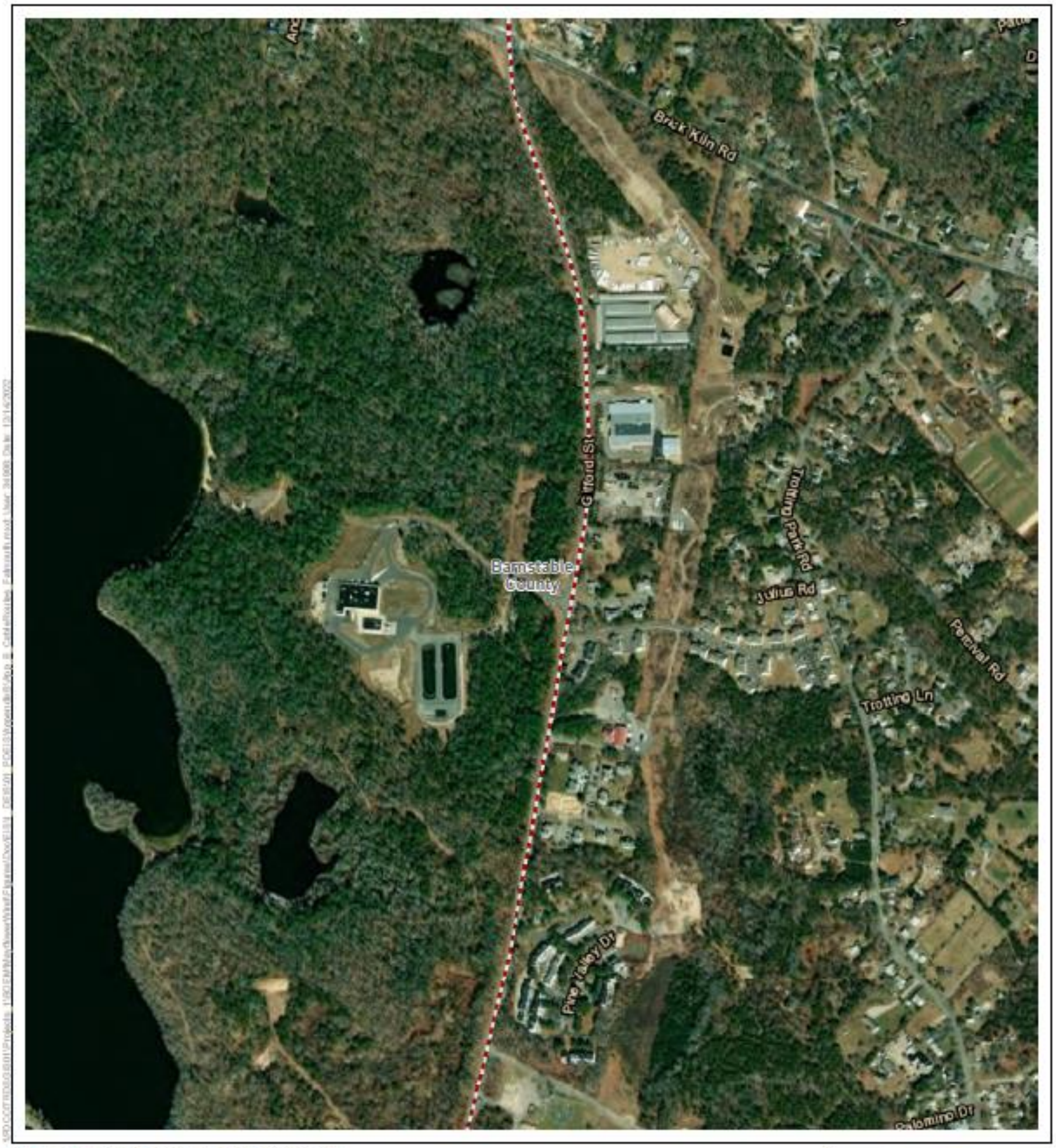
Source: Mayflower Wind 2022.

N

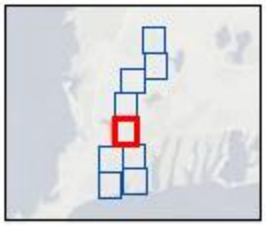
0 500 1,000 Feet

1:8,000

Falmouth Cable Routes
Map 4 of 9



Onshore Export Cable Route (Alternate)
Offshore Export Cable Corridor



Source: Mayflower Wind 2022.

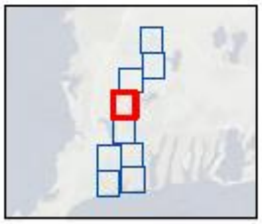
N

0 500 1,000 Feet

1:8,000

Falmouth Cable Routes
Map 5 of 9

Onshore Export Cable Route (Alternate)
Offshore Export Cable Corridor

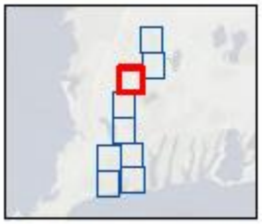


Source: Mayflower Wind 2022.

N 0 500 1,000 Feet
1:8,000

Falmouth Cable Routes
Map 6 of 9

Onshore Export Cable Route (Alternate)
Offshore Export Cable Corridor

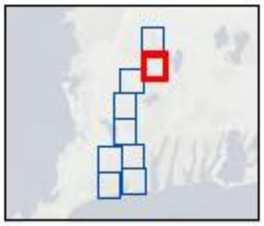


Source: Mayflower Wind 2022.

N 0 500 1,000 Feet
1:8,000

Falmouth Cable Routes
Map 7 of 9

- Falmouth Alternative Onshore Substation
- Onshore Export Cable Route (Alternate)
- Underground Transmission Route (Alternate)
- Offshore Export Cable Corridor



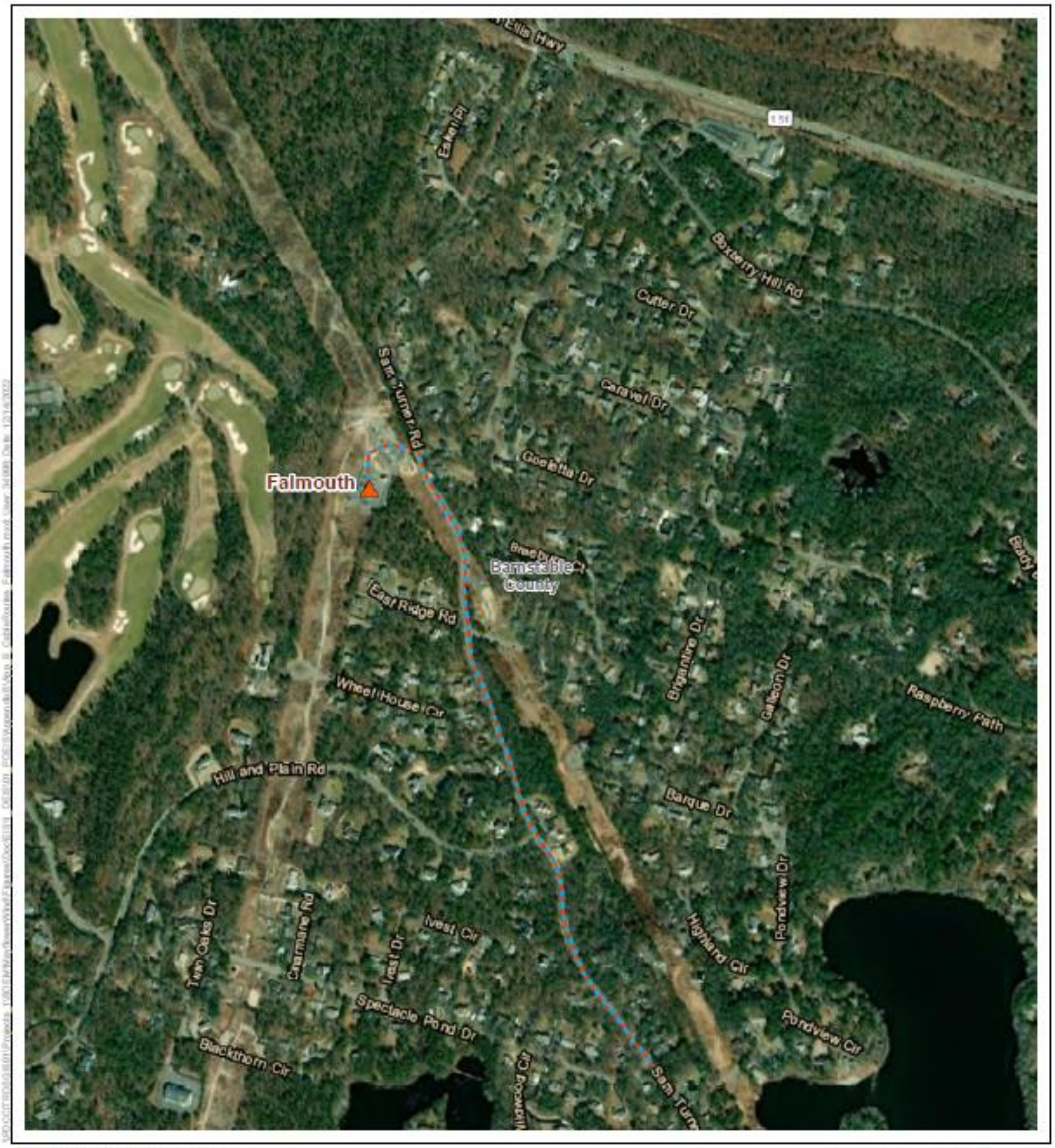
Source: Mayflower Wind 2022.

N

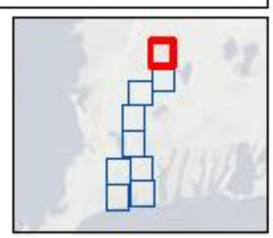
0 500 1,000 Feet

1:8,000

Falmouth Cable Routes
Map 8 of 9



Point of Interconnection
Underground Transmission Route (Alternate)
Offshore Export Cable Corridor



Source: Mayflower Wind 2022.

N

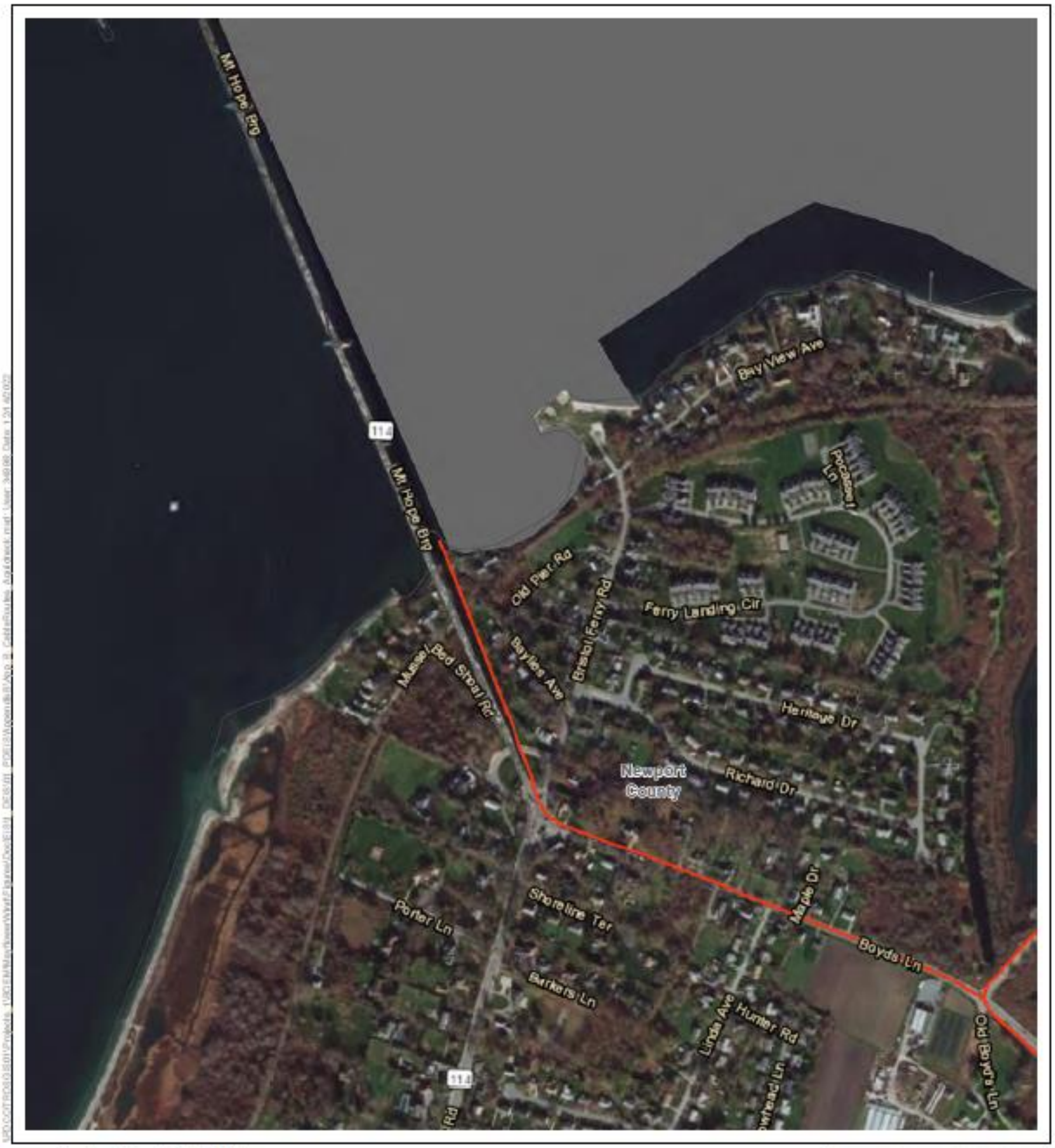
0 500 1,000 Feet

1:8,000

Falmouth Cable Routes
Map 9 of 9

B.7.2 Proposed Action - Brayton Point Onshore Cable Routes

B.7.3 Proposed Action - Aquidneck Island Cable Routes



Onshore Export Cable Route
Offshore Export Cable Corridor

Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Aquidneck Island Cable Routes
Map 2 of 3

Onshore Export Cable Route
Offshore Export Cable Corridor

Source: Mayflower Wind 2022.

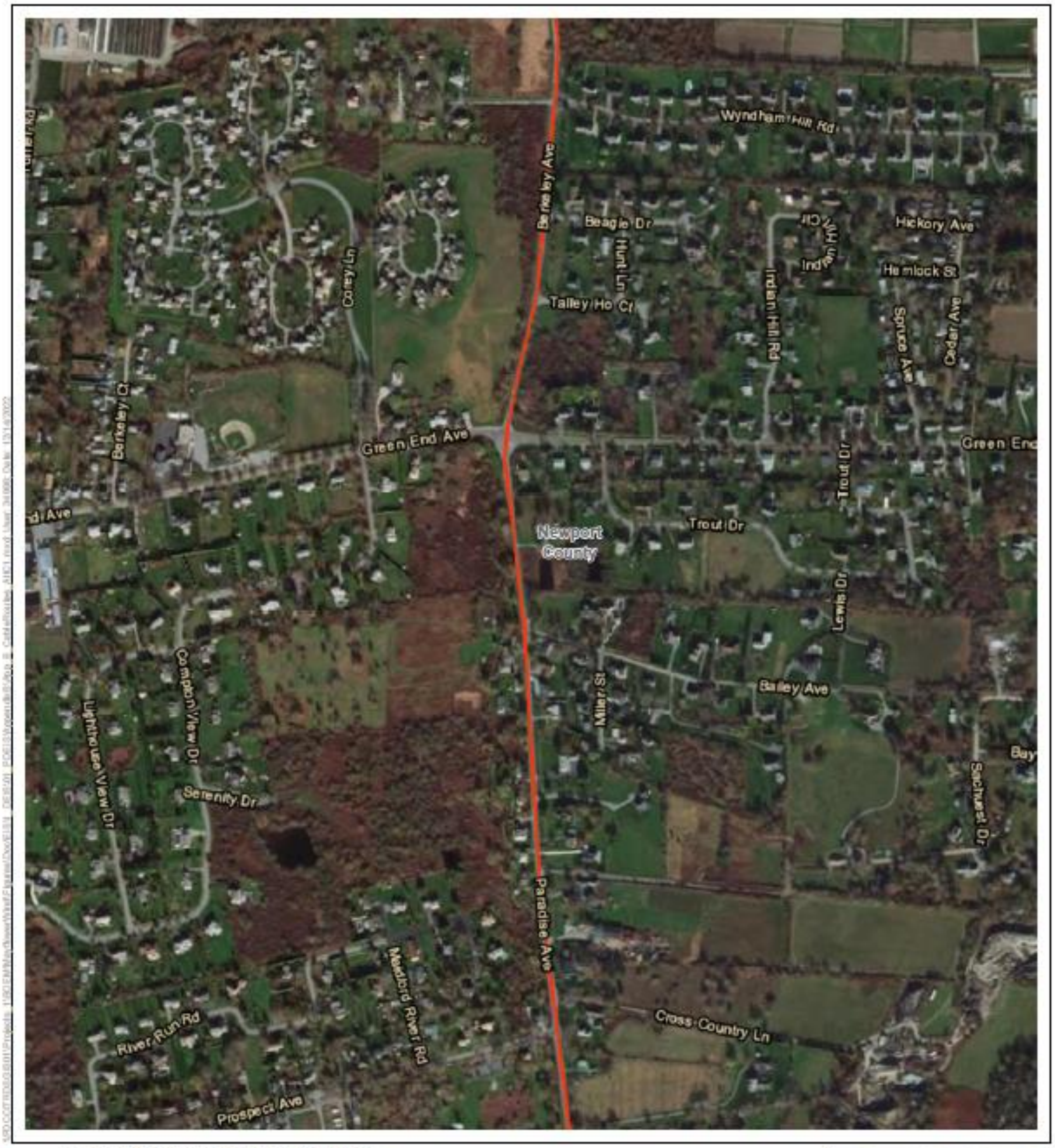
N

0 500 1,000 Feet
1:8,000

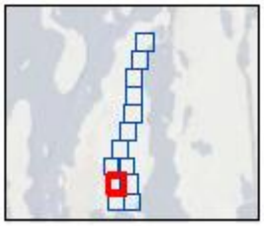
Aquidneck Island Cable Routes
Map 3 of 3

B.7.4 Alternative C-1 Onshore Cable Routes (Aquidneck Island)

Alternative C-1 Onshore Export Cable Route
Map 1 of 13



— Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor

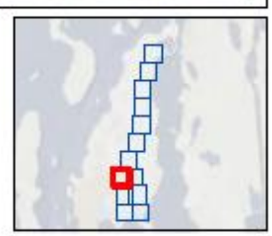


Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-1 Onshore Export Cable Route
Map 2 of 13

Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor

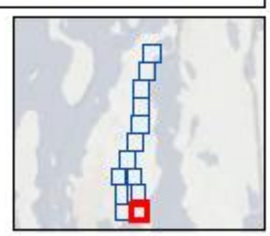


Source: Mayflower Wind 2022.

N
0 500 1,000 Feet
1:8,000

Alternative C-1 Onshore Export Cable Route
Map 3 of 13

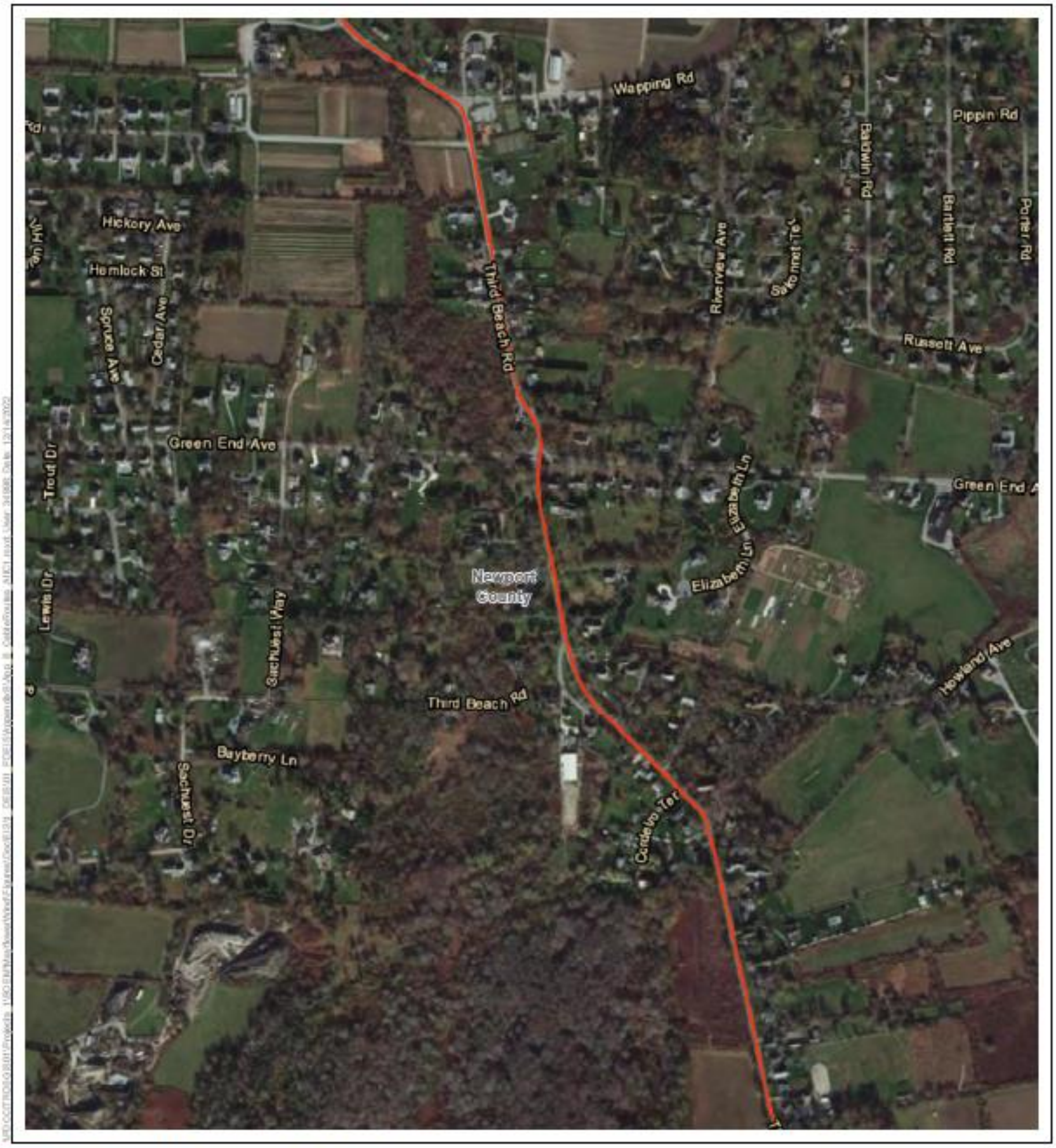
Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor

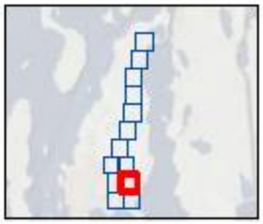


Source: Mayflower Wind 2022.

N
0 500 1,000 Feet
1:8,000

Alternative C-1 Onshore Export Cable Route
Map 4 of 13





Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor

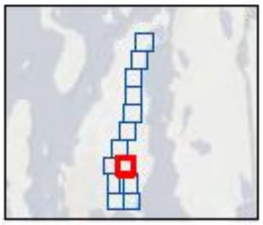
Source: Mayflower Wind 2022.

N
0 500 1,000 Feet
1:8,000

Alternative C-1 Onshore Export Cable Route
Map 5 of 13

Alternative C-1 - Onshore Export Cable Route

Offshore Export Cable Corridor



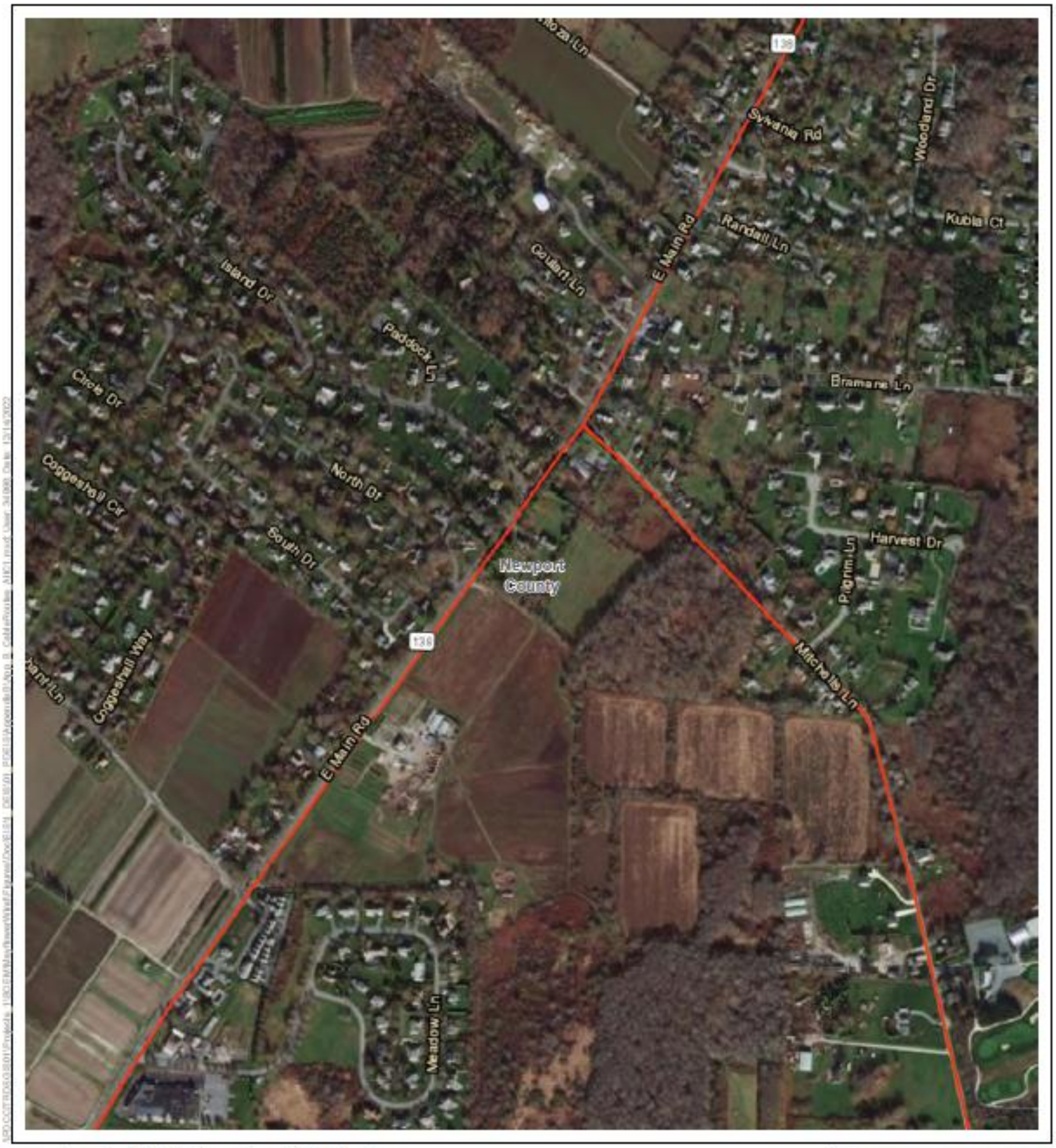
Source: Mayflower Wind 2022.

N

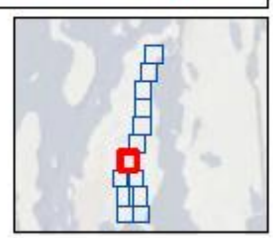
0 500 1,000 Feet

1:8,000

Alternative C-1 Onshore Export Cable Route
Map 6 of 13



Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor



Source: Mayflower Wind 2022.

N

0 500 1,000 Feet
1:8,000

Alternative C-1 Onshore Export Cable Route
Map 7 of 13

Source: Mayflower Wind 2022.

Alternative C-1 Onshore Export Cable Route
Map 8 of 13

Alternative C-1 - Onshore Export Cable Route

Offshore Export Cable Corridor

Source: Mayflower Wind 2022.

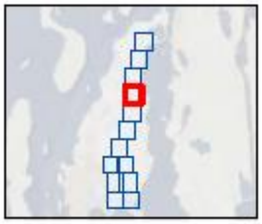
N

0 500 1,000 Feet

1:8,000

Alternative C-1 Onshore Export Cable Route
Map 9 of 13

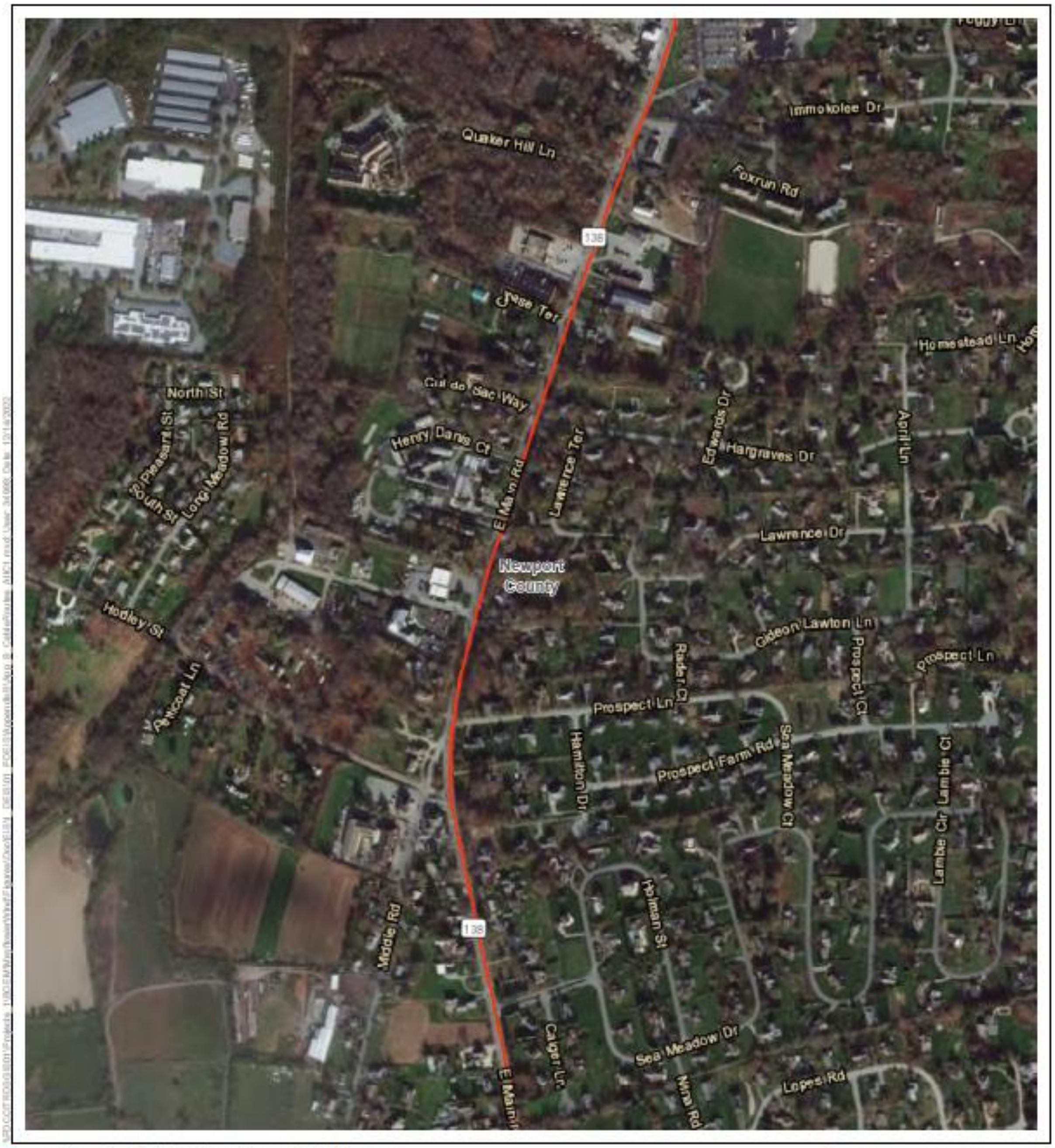
Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor



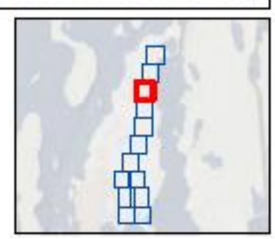
Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-1 Onshore Export Cable Route
Map 10 of 13



Alternative C-1 - Onshore Export Cable Route
Offshore Export Cable Corridor



Source: Mayflower Wind 2022.

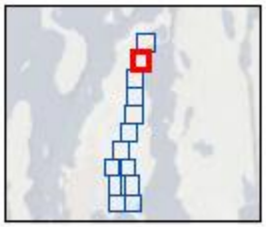
N

0 500 1,000 Feet
1:8,000

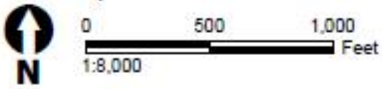
Alternative C-1 Onshore Export Cable Route
Map 11 of 13

Alternative C-1 - Onshore Export Cable Route

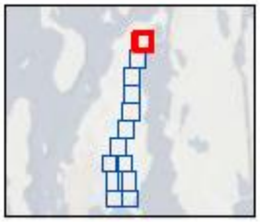
Offshore Export Cable Corridor



Source: Mayflower Wind 2022.



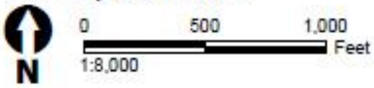
Alternative C-1 Onshore Export Cable Route
Map 12 of 13



— Alternative C-1 - Onshore Export Cable Route

Offshore Export Cable Corridor

Source: Mayflower Wind 2022.



Alternative C-1 Onshore Export Cable Route
Map 13 of 13

B.7.5 Alternative C-2 Onshore Cable Routes (Little Compton and Tiverton, Rhode Island)

Alternative C-2 - Onshore Export Cable Route

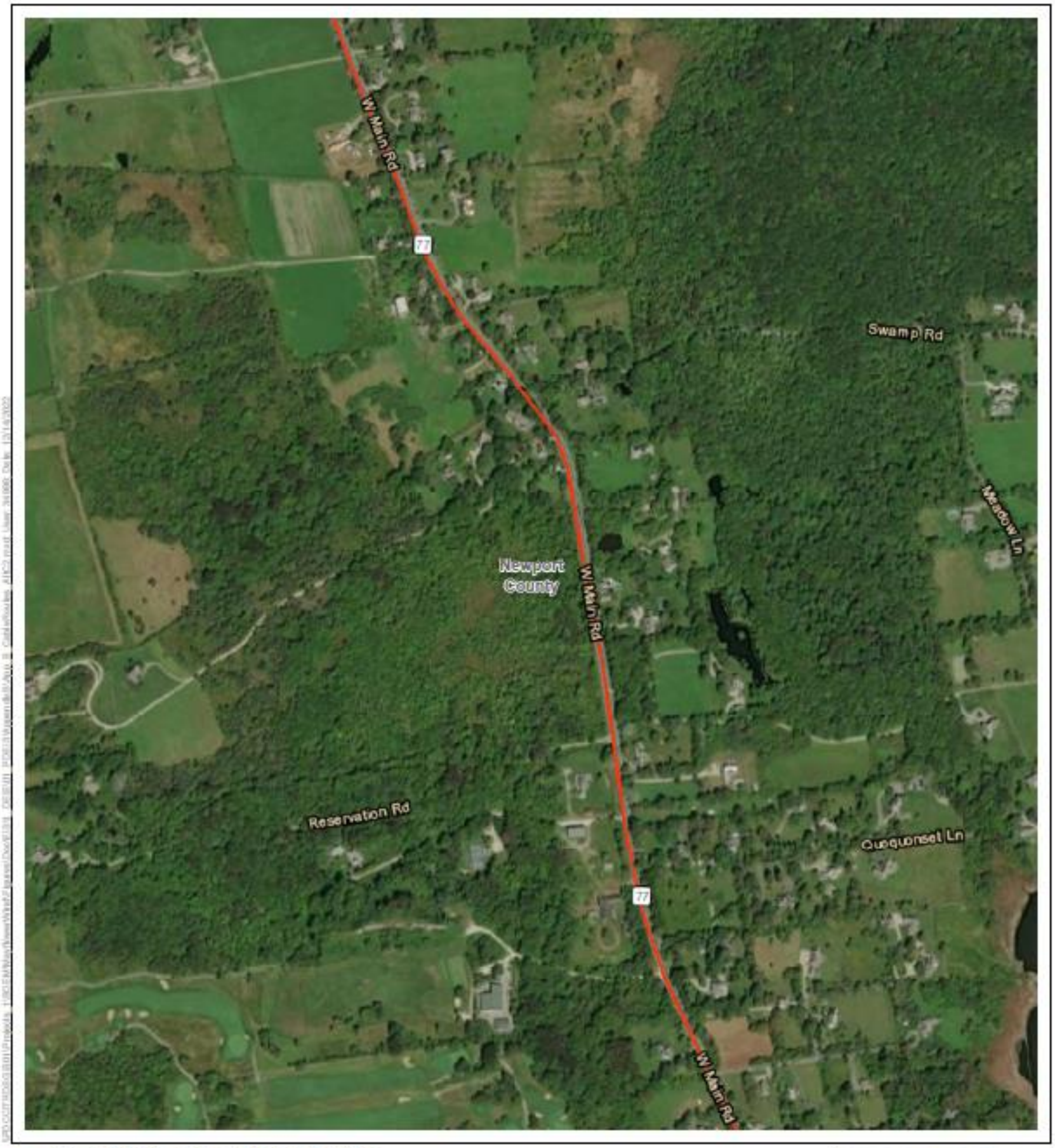
Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Alternative C-2 Cable Route
Map 2 of 15

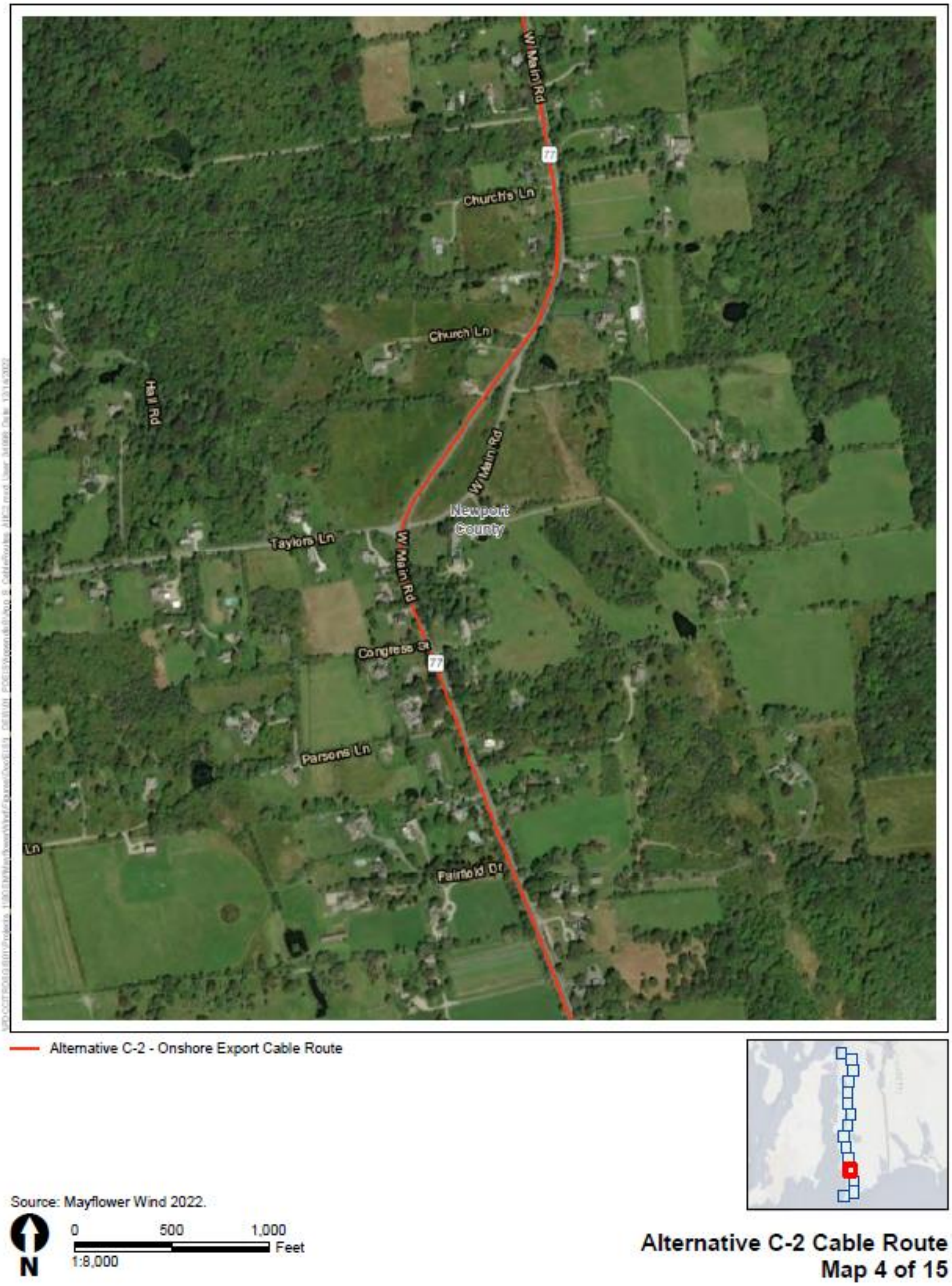


Alternative C-2 - Onshore Export Cable Route

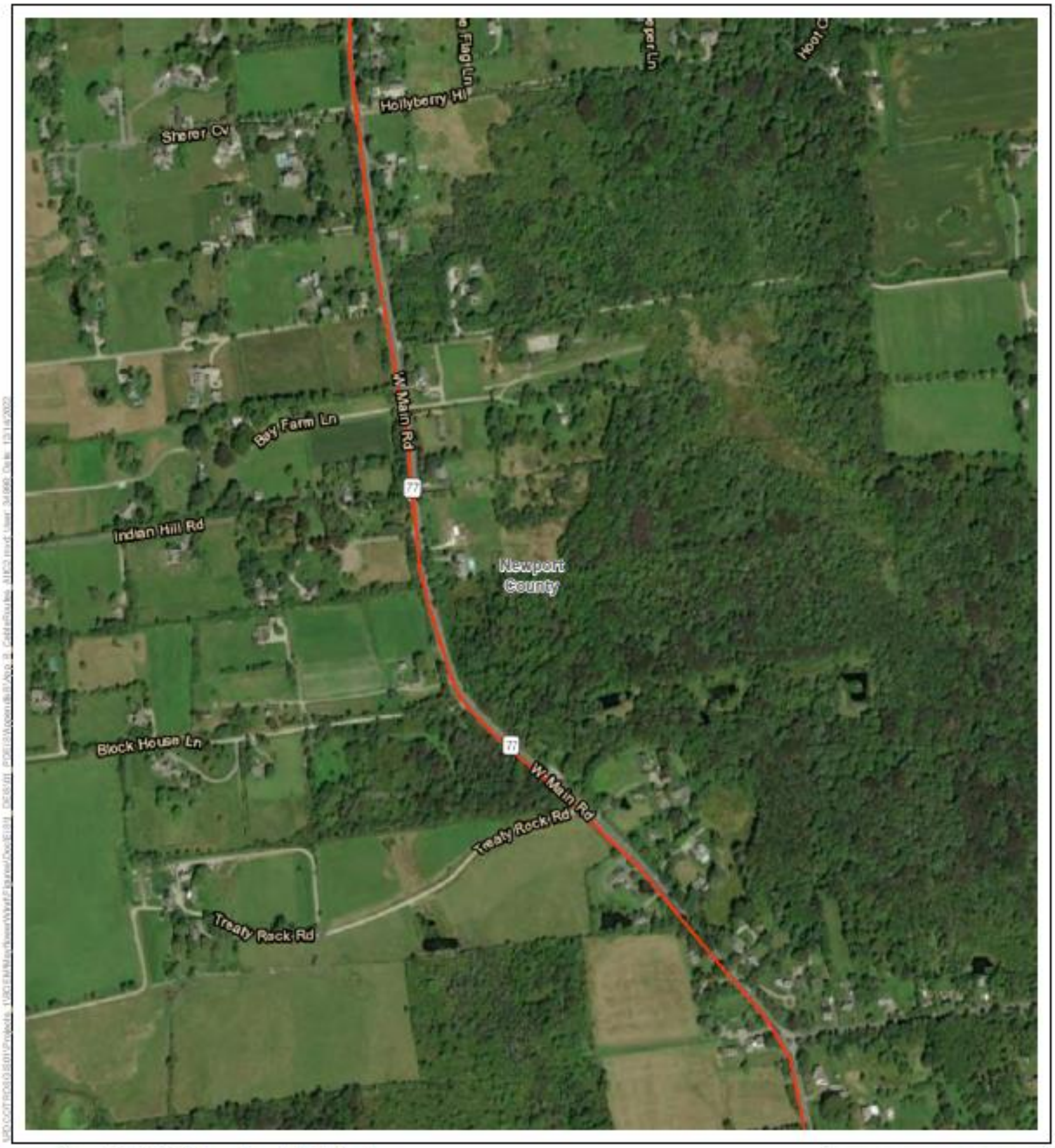
Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-2 Cable Route
Map 3 of 15

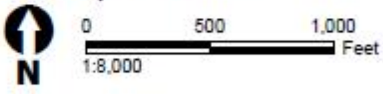


Alternative C-2 Cable Route
Map 4 of 15

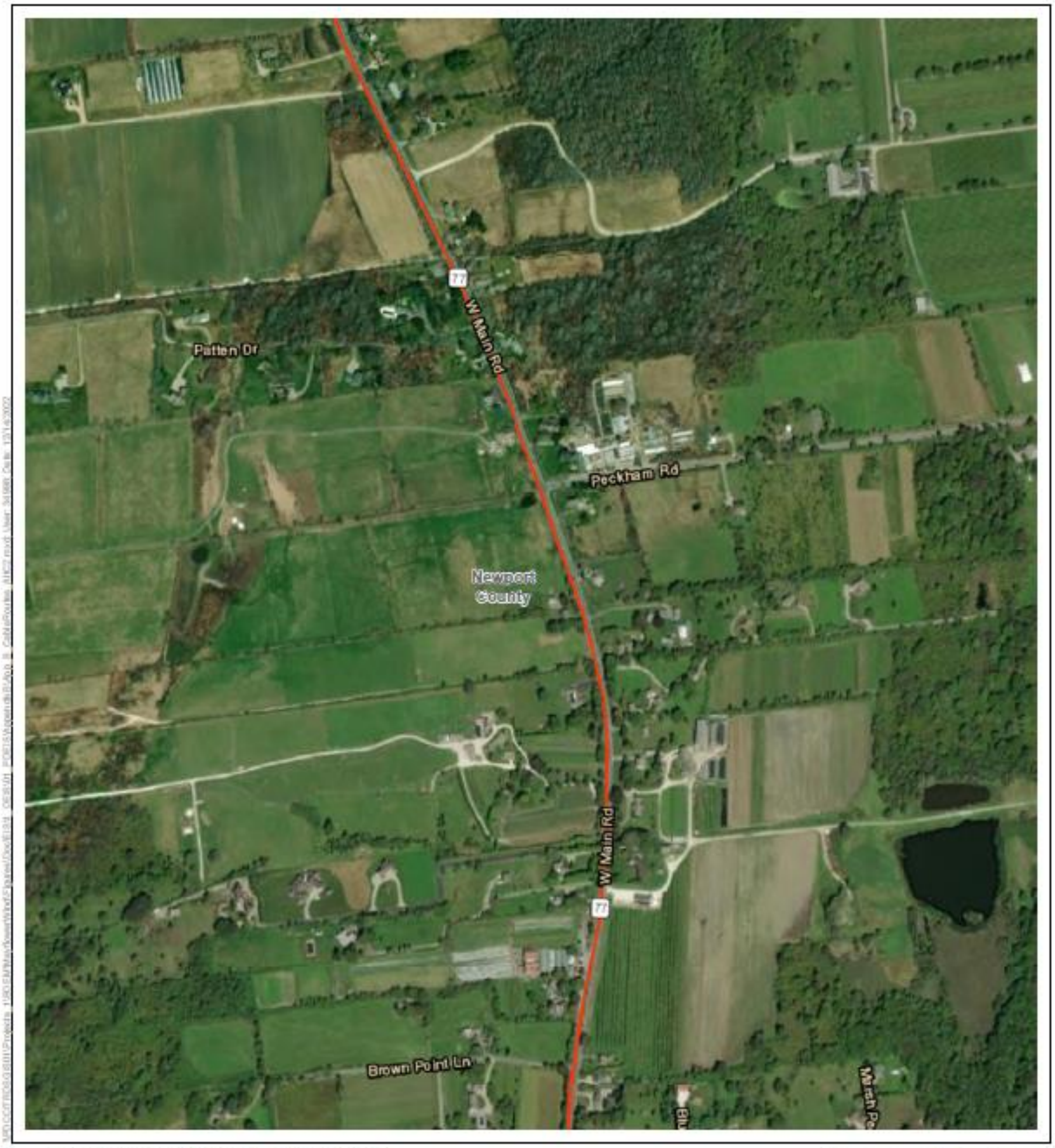


Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.



Alternative C-2 Cable Route
Map 5 of 15



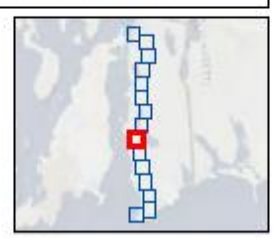
Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-2 Cable Route
Map 6 of 15

— Alternative C-2 - Onshore Export Cable Route



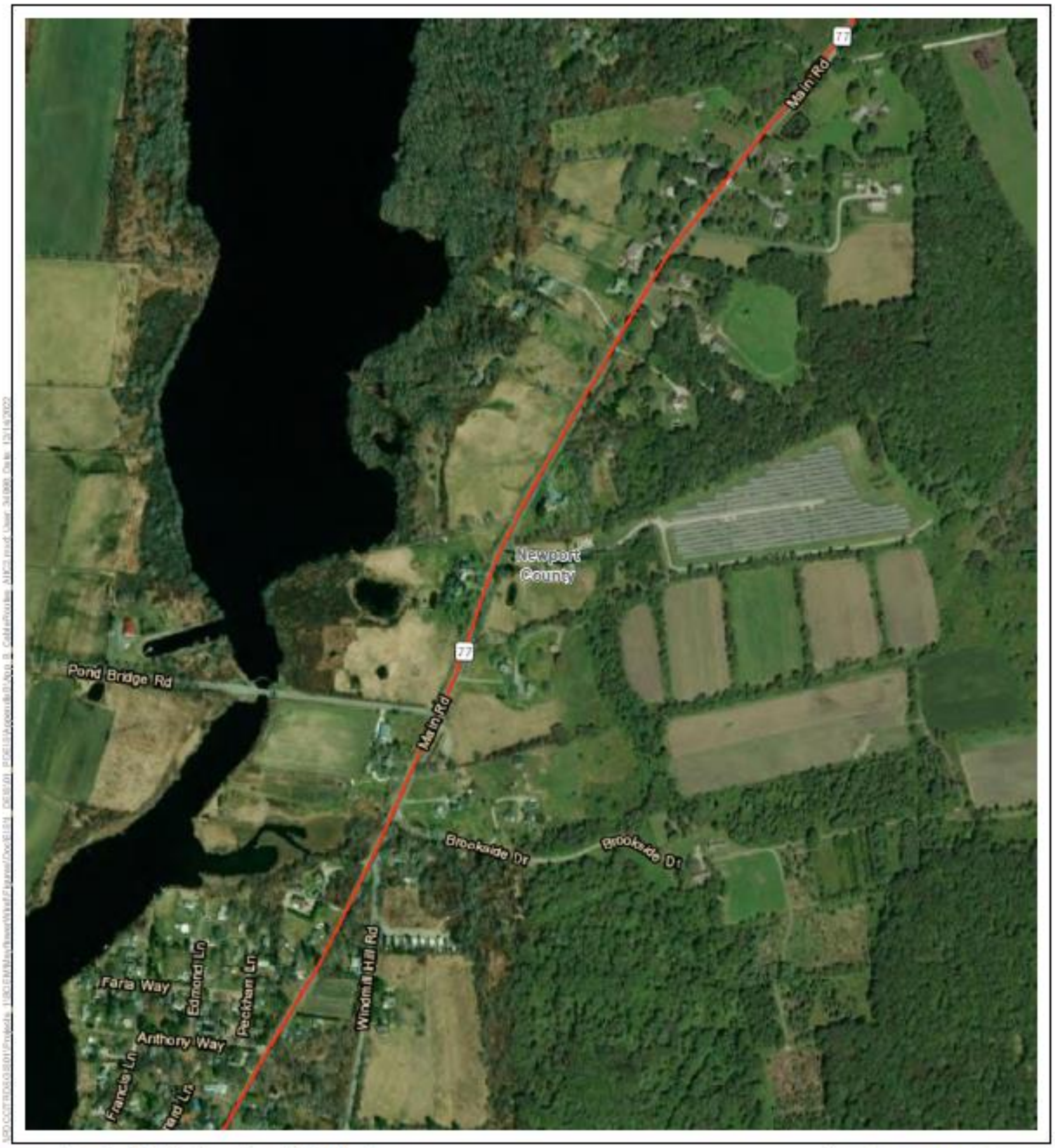
Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Alternative C-2 Cable Route
Map 7 of 15



Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Alternative C-2 Cable Route
Map 8 of 15

Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Alternative C-2 Cable Route
Map 9 of 15

Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

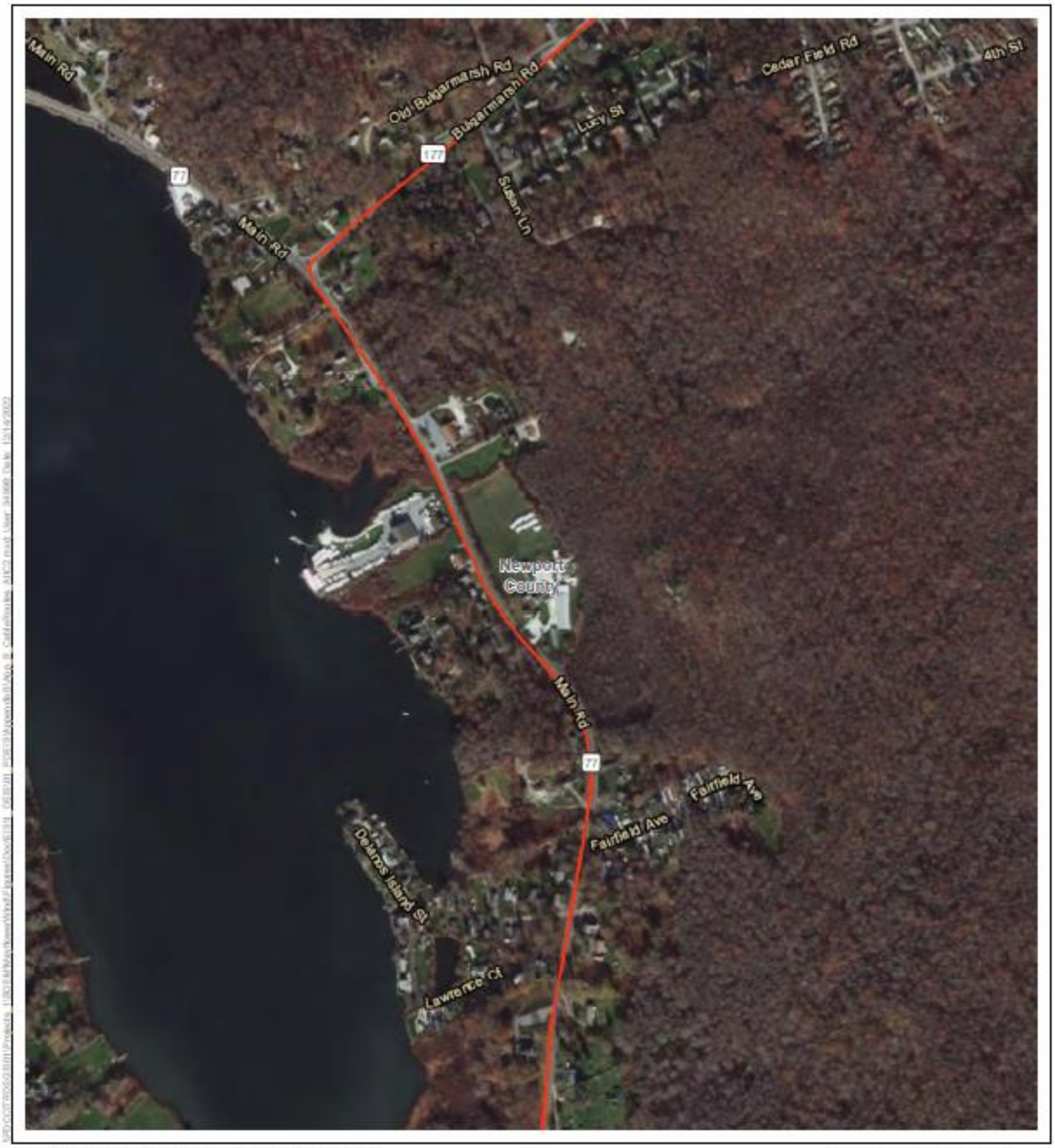
Alternative C-2 Cable Route
Map 10 of 15

Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-2 Cable Route
Map 11 of 15

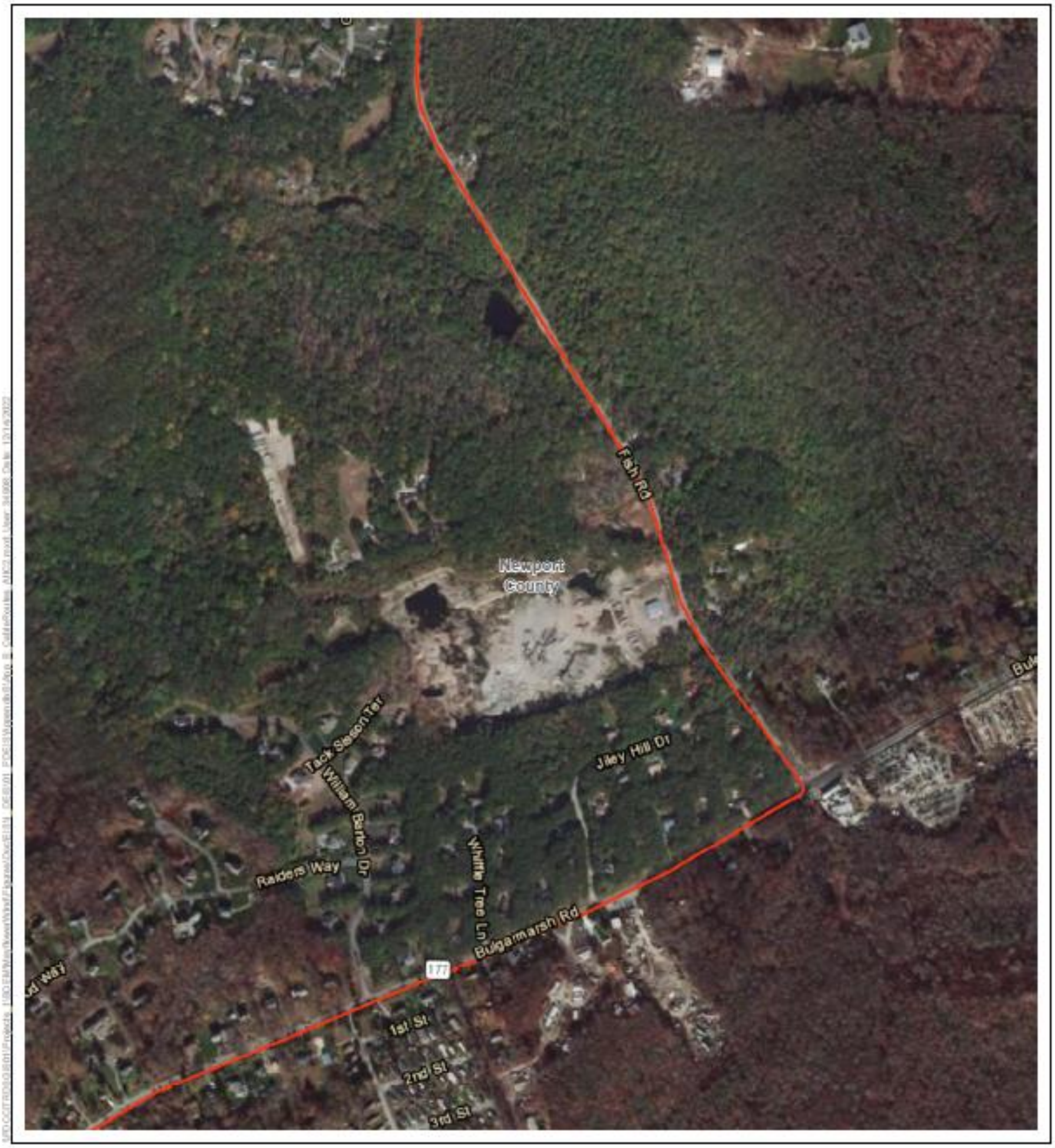


Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N 0 500 1,000 Feet 1:8,000

Alternative C-2 Cable Route
Map 12 of 15



Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N

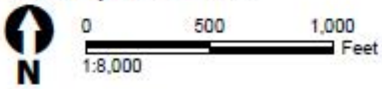
0 500 1,000 Feet

1:8,000

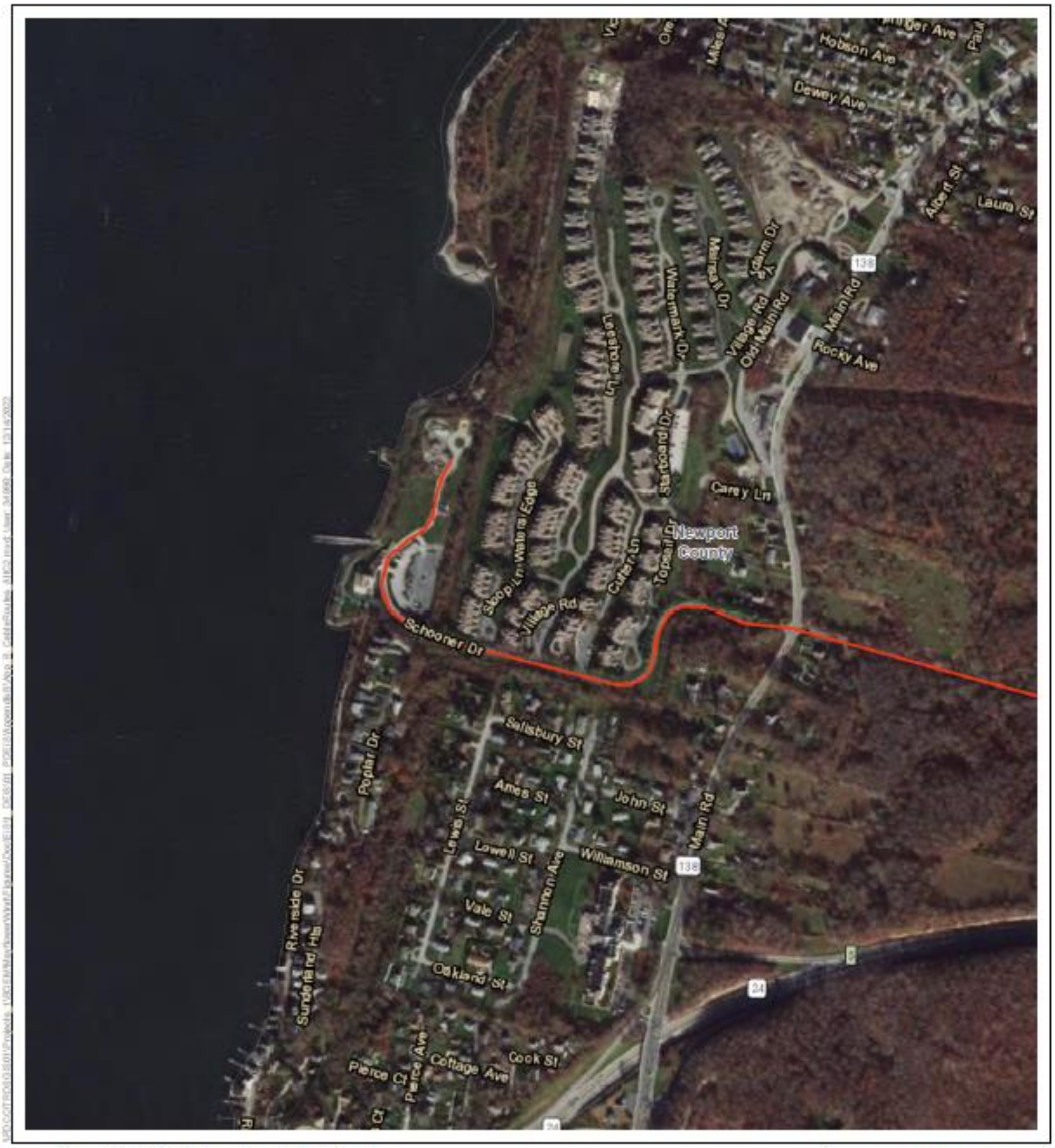
Alternative C-2 Cable Route
Map 13 of 15

— Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.



Alternative C-2 Cable Route
Map 14 of 15



Alternative C-2 - Onshore Export Cable Route

Source: Mayflower Wind 2022.

N

0 500 1,000 Feet

1:8,000

Alternative C-2 Cable Route
Map 15 of 15

B.8 References Cited

B.8.1 Wetlands

SouthCoast Wind Energy, LLC (SouthCoast Wind). 2024. *SouthCoast Wind Construction and Operations Plan*. Available: https://www.boem.gov/renewable-energy/state-activities/southcoast-wind.

U.S. Fish and Wildlife Service (USFWS). 2021. National Wetland Inventory GIS data. Available: https://www.fws.gov/wetlands/Data/State-Downloads.html. Accessed: December 1, 2021.

B.8.2 Climate and Meteorology

Christiansen, M. B., and C. Hasager. 2005. Wake Effects of Large Offshore Wind Farms Identified from Satellite SAR. *Remote Sensing of Environment* 98:251–268. doi: 10.1016/j.rse.2005.07.009. Available: https://www.sciencedirect.com/science/article/abs/pii/S0034425705002476. Accessed: October 20, 2020.

Holzworth, George C. 1972. *Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States*. U.S. Environmental Protection Agency, Office of Air Programs, Research Triangle Park, North Carolina. January 1972. Available: https://www.nrc.gov/docs/ML1408/ML14084A177.pdf. Accessed: November 8, 2021.

SouthCoast Wind Energy, LLC (SouthCoast Wind). 2024. *SouthCoast Wind Construction and Operations Plan*. Available: https://www.boem.gov/renewable-energy/state-activities/southcoast-wind.

Merrill, John. 2010. *Fog and Icing Occurrence, and Air Quality Factors for the Rhode Island Ocean Special Area Management Plan 2010*. University of Rhode Island. Available: http://seagrant.gso.uri.edu/oceansamp/pdf/appendix/07-Merrill_fogiceoz.pdf. Accessed: October 30, 2018.

National Oceanic and Atmospheric Administration (NOAA). 2018. *Historical Hurricane Mapper.* Available: https://coast.noaa.gov/hurricanes/.

National Oceanic and Atmospheric Administration (NOAA). 2019a. National Centers for Environmental Information. Available: https://www.ncdc.noaa.gov/. Accessed: June 24, 2020.

National Oceanic and Atmospheric Administration (NOAA). 2019b. *National Data Buoy Center.* Available: https://www.ndbc.noaa.gov/. Accessed: September 24, 2020.

National Oceanic and Atmospheric Administration (NOAA). 2019c. *The Saffir-Simpson Hurricane Wind Scale.* Available: https://www.nhc.noaa.gov/pdf/sshws.pdf. Accessed: October 23, 2020.

National Oceanic and Atmospheric Administration (NOAA). 2021. *Location of US Climate Divisions*. Physical Sciences Laboratory. Available: https://psl.noaa.gov/data/usclimate/data/map.html#New%20York. Accessed: September 2021.

Ramaswamy, V., J. W. Hurrell, and G. A. Meehl. 2006. Why Do Temperatures Vary Vertically (from the surface to the stratosphere) and What Do We Understand About Why They Might Vary and Change Over Time? In T. R. Karl, S. J. Hassol, C. D. Miller, and W. L. Murray (eds.), *Temperature Trends in the Lower Atmosphere: Steps for Understanding and Reconciling Differences*. A Report by the Climate Change Science Program and the Subcommittee on Global Change Research, Washington, DC. Available: https://downloads.globalchange.gov/sap/sap1-1/sap1-1-final-all.pdf. Accessed: November 8, 2021.

Siedersleben, S. K., J. K. Lundquist, A. Platis, J. Bange, K. Bärfuss, A. Lampert, B. Cañadillas, T. Neumann, and S. Emeis. 2018. Micrometeorological Impacts of Offshore Wind Farms as Seen in Observations and Simulations. *Environ. Res. Lett.* 13 (2018) 124012. Available: https://iopscience.iop.org/article/10.1088/1748-9326/aaea0b. Accessed: November 8, 2021.

U.S. Environmental Protection Agency (USEPA). 2021. SCRAM Mixing Height Data. Index page available: https://www.epa.gov/scram/scram-mixing-height-data. Data file available: https://gaftp.epa.gov/Air/aqmg/SCRAM/met_files/mixing_hghts/njmix.zip. Accessed: September 14, 2021.

B.8.3 Marine Mammals

Bureau of Ocean Energy Management (BOEM). 2014. *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts: Revised Environmental Assessment*. Office of Renewable Energy Programs. OCS EIS/EA BOEM 2014-603. Available: https://www.boem.gov/sites/default/files/renewable-energy-program/State-Activities/MA/Revised-MA-EA-2014.pdf.

Hayes, S. A., E. Josephson, K. Maze-Foley, and P. E. Rosel. 2020. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments* – 2019. NOAA Tech Memo NMFS-NE 264.

Hayes, S. A., E. Josephson, K. Maze-Foley, P. E. Rosel, and J. Turek. 2021. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2020*. NOAA Tech Memo NMFS-NE 271.

Hayes, S. A., E. Josephson, K. Maze-Foley, P. E. Rosel, and J. Wallace. 2023. Draft *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2022*.

SouthCoast Wind Energy, LLC (SouthCoast Wind). 2024. *SouthCoast Wind Construction and Operations Plan*. Available: https://www.boem.gov/renewable-energy/state-activities/southcoast-wind.

Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel. 2015. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments*-2014. NOAA Tech Memo NMFS-NE 231.

B.8.4 Finfish

SouthCoast Wind Energy, LLC (SouthCoast Wind). 2024. *SouthCoast Wind Construction and Operations Plan*. Available: https://www.boem.gov/renewable-energy/state-activities/southcoast-wind.

B.8.5 Environmental Justice

Massachusetts Executive Office of Energy and Environmental Affairs (MAEEA). 2022. MassGIS Data: 2020 Environmental Justice Populations, November 2022. Available: https://www.mass.gov/info-details/massgis-data-2020-environmental-justice-populations. Accessed: May 11, 2023.

United States Environmental Protection Agency (USEPA). 2022. EJScreen: Environmental Justice Screening and Mapping Tool.

B.8.6 Water Quality

TetraTech and Normandeau Associates, Inc. 2023. *SouthCoast Wind – National Pollutant Discharge Elimination System (NPDES) Permit Application.* Prepared for SouthCoast Wind Energy LLC. August 2023.