



Record of Decision

Revolution Wind Farm and Revolution Wind Export Cable Project Construction and Operations Plan

August 21, 2023

**U.S. Department of the Interior
Bureau of Ocean Energy Management**

**U.S. Department of Defense
U.S. Army Corps of Engineers**

**U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service**

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1. Introduction

This document constitutes the Bureau of Ocean Energy Management’s (BOEM), the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service’s (NMFS)¹, and the U.S. Army Corps of Engineers’ (USACE) joint record of decision (ROD) for the final environmental impact statement (FEIS) prepared for the Revolution Wind Farm (RWF) and the Revolution Wind Export Cable Project (the Project) Construction and Operations Plan (COP). The ROD addresses BOEM’s action to approve the COP under subsection 8(p)(4) of the Outer Continental Shelf Lands Act (OCSLA; 43 U.S.C. § 1337(p)), NMFS’ action to issue a Letter of Authorization (LOA) to Revolution Wind, LLC (Revolution Wind) (the Lessee) under section 101(a)(5)(A) of the Marine Mammal Protection Act, as amended (MMPA; 16 U.S.C. § 1371(a)(5)(A)), and USACE’s action to issue a permit under section 10 of the Rivers and Harbors Act of 1899 (RHA; 33 U.S.C. § 403) and section 404 of the Clean Water Act (CWA; 33 U.S.C. § 1344). This ROD was prepared following the requirements of the National Environmental Policy Act (NEPA; 42 U.S.C. §§ 4321 *et seq.*) and 40 CFR §§ 1500–1508.²

BOEM prepared the RWF FEIS with the assistance of a third-party contractor, SWCA. NMFS, USACE, U.S. Coast Guard (USCG), Bureau of Safety and Environmental Enforcement (BSEE), and U.S. Environmental Protection Agency (USEPA) were cooperating agencies during the development and review of the document. Cooperating state agencies included the Commonwealth of Massachusetts, Massachusetts Office of Coastal Zone Management, and the State of Rhode Island’s Rhode Island Department of Environmental Management, and Rhode Island Coastal Resources Management Council.

NMFS received a request for authorization to take marine mammals incidental to construction activities related to the Project, which NMFS may authorize under the MMPA. NMFS’s issuance of an MMPA incidental take authorization in the form of a LOA for Incidental Take Regulations (ITRs) is a major Federal action and, in relation to BOEM’s action, is considered a connected action (40 CFR § 1501.9(e)(1)). The purpose of the NMFS action—which is a direct outcome of Revolution Wind’s request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving)—is to evaluate Revolution Wind’s request pursuant to specific requirements of the MMPA and its implementing regulations administered by NMFS, considering impacts of the applicant’s activities on relevant resources, and if appropriate, issue the permit or authorization. NMFS needs to render a decision regarding the request for authorization due to NMFS’s responsibilities under the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations.

In addition to analyzing the potential impacts resulting from BOEM’s approval of the COP pursuant to subsection 8(p)(4) of OCSLA, the FEIS also analyzed impacts resulting from the Proposed Action that are relevant to USACE permitting actions under section 10 of the RHA and section 404 of the CWA, and NMFS’ action of issuing a LOA for the harassment of small

¹ For purposes of this ROD, NMFS, as an action agency, has been delegated authority to issue marine mammal incidental take authorizations.

² The associated FEIS was prepared using the 2020 Council on Environmental Quality (CEQ) NEPA regulations; therefore, this ROD follows those regulations.

numbers of marine mammals incidental to the Project under the MMPA (16 U.S.C. § 1371(a)(5)(A); see also 40 CFR § 1501.9(e)(1)).

1.1. Background

In 2009, the U.S. Department of the Interior (DOI) announced final regulations for the Outer Continental Shelf (OCS) Renewable Energy Program, which was authorized by the Energy Policy Act of 2005. The Energy Policy Act provisions implemented by BOEM provide a framework for issuing renewable energy leases, easements, and rights-of-way for OCS activities (see FEIS Section 1.3). BOEM’s renewable energy program occurs in four distinct phases: (1) regional planning and analysis, (2) lease issuance, (3) site assessment, and (4) construction and operations. Table 1.1 summarizes the history of BOEM’s planning and leasing activities offshore Rhode Island and Massachusetts.

Table 1.1 History of BOEM Planning and Leasing Offshore Rhode Island and Massachusetts Related to Lease OCS-A 0486

Year	Milestone
2009	BOEM established the BOEM Rhode Island Intergovernmental Renewable Energy Task Force (Task Force) and the BOEM Massachusetts Task Force at the request of the Governors of Rhode Island and Massachusetts, respectively, to facilitate coordination among affected Federal agencies and tribal, state and local governments throughout the entire leasing process. BOEM convened the BOEM Rhode Island and Massachusetts Task Forces for its first meetings in November 2009.
2010	BOEM began to work on and intended to issue a Request for Interest with the Rhode Island Task Force for an area offshore Rhode Island. However, the States of Rhode Island and Massachusetts developed a partnership that resulted in a Memorandum of Understanding (MOU) in July 2010, signed by the Governors of Rhode Island and Massachusetts. The MOU identified an Area of Mutual Interest for BOEM to consider for leasing and set a framework for the two states to collaborate on issues concerning offshore wind development on the OCS. In December 2010, BOEM held a joint BOEM Rhode Island and Massachusetts Task Force meeting to continue discussion on potential wind farm development offshore Rhode Island and Massachusetts with Call for Information and Nominations (Call).
2011	In May and June 2011, BOEM convened joint BOEM Rhode Island and Massachusetts Task Force meetings to present a draft Call and to discuss comments received from Task Force members resulting in BOEM’s proposed changes to the draft Call, respectively. On August 18, 2011, BOEM published a Call for commercial leasing for wind power on the OCS offshore Rhode Island and Massachusetts (76 Fed. Reg. 51,383). The public comment period for the Call closed on October 3, 2011. In conjunction with the Call, BOEM published a notice of intent (NOI) to prepare an environmental assessment (EA) on the proposed leasing and on-site characterization and assessment activities in the offshore area under consideration in the Call. BOEM received eight indications of interest to obtain a commercial lease for a wind energy project, 81 comments on the Call, and 24 comments in response to the NOI.

Year	Milestone
2012	On February 24, 2012, BOEM announced the Rhode Island/Massachusetts (RI/MA) Wind Energy Area (WEA), ³ which comprises approximately 164,750 acres within an area of mutual interest identified by Rhode Island and Massachusetts in a memorandum of understanding (MOU) between the two states in 2010 (State of Rhode Island and the Commonwealth of Massachusetts 2010). In August 2012, BOEM convened a joint Rhode Island and Massachusetts Task Force meeting to discuss the next steps in the commercial wind leasing process. BOEM published a proposed sale notice in the <i>Federal Register</i> on December 3, 2012, for a 60-day public comment period (77 Fed. Reg. 71,612).
2013	On June 4, 2013, BOEM made available a revised EA for the RI/MA WEA. As a result of the analysis in the revised EA, BOEM issued a finding of no significant impact (FONSI), which concluded that reasonably foreseeable environmental effects associated with the commercial wind lease issuance and related activities would not significantly affect the environment. On June 5, 2013, BOEM published a final sale notice to auction two leases in the RI/MA WEA for commercial wind energy development (78 Fed. Reg. 33,898). On July 31, 2013, BOEM auctioned the two lease areas announcing Deepwater Wind New England LLC as the winner of both. BOEM issued Renewable Energy Lease Area OCS-A 0486 (Lease Area) to the applicant on October 1, 2013, containing 97,498 acres offshore Rhode Island (BOEM 2013).
2016	A site assessment plan (SAP) for Lease Area OCS-A 0486 was filed on April 1, 2016, with revisions filed in July, September, and November 2016. BOEM determined the SAP was complete on October 7, 2016.
2017	On October 12, 2017, BOEM approved the SAP for Lease Area OCS-A 0486.
2020	On January 10, 2020, a request was made to BOEM to segregate Lease Area OCS-A 0486 to accommodate both the RWF and RWEC Project, and the South Fork Wind Farm (SFWF) and South Fork Export Cable (SFEC) Project. BOEM approved a lease segregation on March 23, 2020, and 83,798 acres were retained with Lease OCS-A 0486. The RWF and RWEC Project retained lease number OCS-A 0486, whereas a new lease number was assigned for the SFWF and SFEC Project (OCS-A 0517) for 13,700 acres. Revolution Wind submitted its initial COP to BOEM on March 13, 2020.
2021	Revolution Wind submitted its updated COP on April 29, 2021. On April 30, 2021, BOEM published in the <i>Federal Register</i> an NOI to prepare an Environmental Impact Statement (EIS) for Revolution Wind’s proposed wind energy facility offshore Rhode Island (86 Fed. Reg. 22,972). On June 4, 2021, BOEM issued a correction to the NOI with a reopening of the public scoping period (86 Fed. Reg. 30,068). The correction addressed and clarified two statements in the NOI regarding the energy capacity of the proposed wind farm and its distance from shore. In addition, the NOI correction reopened the comment period, allowing for comments to be received by June 11, 2021. An updated version of the COP was submitted on December 15, 2021.
2022	Revolution Wind submitted an updated version of the COP on July 21, 2022. On September 2, 2022, BOEM published a notice of availability (NOA) in the <i>Federal Register</i> for the Draft EIS for public review and comment (87 Fed. Reg. 54,248). See Figure 1.1 for an overview of the proposed project area. The NOA included times and locations for public hearings and a comment period end date of October 17, 2022.

³ BOEM works with its Federal, state, local, and Tribal partners to identify WEAs of the OCS that appear most suitable for commercial wind energy activities, while presenting the fewest apparent environmental and user conflicts (BOEM 2022). After WEAs are identified, BOEM prepares an Environmental Assessment (EA) under NEPA to determine potential impacts associated with activities reasonably expected to follow the issuance of one or more leases within a WEA. BOEM may then move forward with steps to hold a competitive lease sale for commercial wind development within the WEAs. The Project is located in BOEM Lease Area OCS-A 0486, which is located in the RI/MA WEA. The RI/MA WEA is adjacent to and west of the MA WEA. More information on BOEM WEAs, including maps, are found at <https://www.boem.gov/renewable-energy/state-activities>.

Year	Milestone
2023	Revolution Wind submitted an updated version of the COP on March 1, 2023. On May 30, 2023, the U.S. Fish and Wildlife Service issued a letter of concurrence and a Biological Opinion for Endangered Species Act (ESA)-listed species within their jurisdiction. On July 21, 2023, NMFS issued a Biological Opinion considering all effects of the proposed actions on ESA-listed species and designated critical habitat. On July 21, 2023, BOEM published a Notice of Availability of a FEIS in the Federal Register (88 Fed. Reg. 41,171) initiating a minimum 30-day mandatory waiting period, during which BOEM is required to pause before issuing a ROD. On August 15, 2023, BOEM published an errata on its website that included certain edits to the summary of impacts by alternative tables in the Executive Summary and Chapter 2 of the FEIS to include species-specific impact determinations for North Atlantic Right Whale at the request of NOAA. The errata also provides numbering corrections, and text and footnotes and table note clarifications in Chapter 3, Appendix E-2, and Appendix F. None of these edits or corrections are substantive or affect the analysis or conclusions in the FEIS.

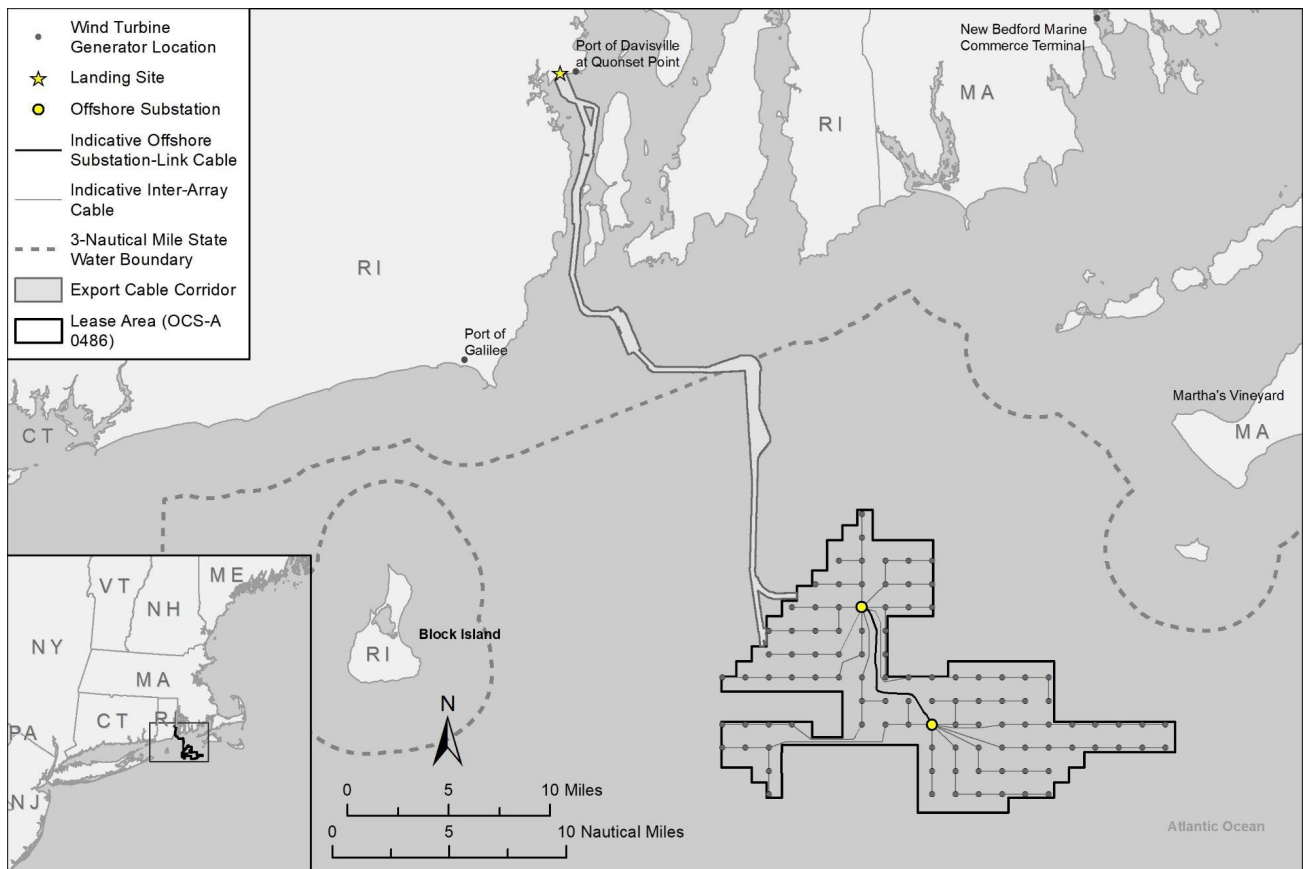


Figure 1.1 Proposed Project Area and Facilities

1.2. Authorities

The following summarizes BOEM’s authority regarding the approval of the proposed Project, NMFS’s authority to authorize the take by harassment, of marine mammals incidental to the proposed Project, and USACE’s authority under section 10 of the RHA, prohibiting the

obstruction or alteration of navigable waters of the United States and the OCS⁴ without a permit from USACE, and to issue a permit under section 404 of the CWA authorizing the discharge of dredged or fill material into waters of the United States. The FEIS includes a description of consultations, authorizations, and permits related to the Project in Appendix A, Table A-1. The agencies adopting the FEIS are those agencies that have defined authorizations and permitting responsibilities for the Project itself or for effects related to the Project. The NMFS MMPA LOA is briefly discussed here; its decision and supporting rationale are discussed in Section 5.2. NMFS is serving as a cooperating agency pursuant to 40 CFR § 1501.8 because the scope of the Proposed Action and alternatives involves activities that could affect marine resources and due to its jurisdiction by law and special expertise. Issuance of an LOA under the MMPA triggers independent NEPA compliance obligations, which may be satisfied by adopting the FEIS prepared by BOEM. The USACE is serving as a cooperating agency pursuant to 40 CFR § 1501.8 because the scope of the Proposed Action and alternatives involves activities that could affect resources under its jurisdiction by law and special expertise pursuant to section 10 of the RHA and section 404 of the CWA. Issuance of section 10 or section 404 permits requires NEPA compliance, which will be met via adoption of BOEM's FEIS and issuance of the ROD. The USACE permitting action is briefly discussed here; its decision and supporting rationale are discussed in Section 5.3. Other agencies either are not required to authorize the Project or have completed any authorizations that are required of them; or their actions are exempt from NEPA (e.g., USEPA's Clean Air Act permitting) and are, therefore, reviewed separately.

1.2.1. BOEM Authority

The Energy Policy Act of 2005, Pub. L. No. 109-58, amended OCSLA (43 U.S.C. §§ 1331 *et seq.*) by adding a new subsection 8(p) to authorize the Secretary of the Interior (Secretary) to issue leases, easements, and rights-of-way in the OCS for renewable energy development, including wind energy projects.

The Secretary delegated to BOEM the authority to decide whether to approve COPs. Final regulations implementing this authority were promulgated by BOEM's predecessor agency, the Minerals Management Service, on April 29, 2009 (74 Fed. Reg. 19,637). These regulations prescribe BOEM's responsibility for determining whether to approve, approve with modifications, or disapprove Revolution Wind's COP. In accordance with CEQ NEPA regulations (40 CFR part 1501), BOEM served as the lead Federal agency for the preparation of the EIS.

The Secretary's authorization must comply with OCSLA subsection 8(p)(4) (43 U.S.C. § 1337(p)(4)), which "imposes a general duty on the Secretary to act in a manner providing for the subsection's [various policy] goals."⁵ According to M-Opinion 37067, "[t]he subsection does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains

⁴ Section 4(f) of the OCSLA of 1953, as amended, extended USACE's authority to prevent obstructions to navigation in navigable waters of the United States to artificial islands, installations, and other devices located on the seabed to the seaward limit of the OCS. *See* 43 U.S.C. § 1333(e).

⁵ Sol. Op. M-37067, "Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf" (Apr. 9, 2021).

wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension” (Sol. Op. M-37067).

1.2.2. NMFS Authority

Sections 101(a)(5)(A) and (D) of the MMPA allow NMFS to authorize, upon request, the incidental (but not intentional) take of small numbers of marine mammals, including incidental take by harassment, provided certain determinations are made and statutory and regulatory procedures are met (16 U.S.C. § 1371(a)(5)(A), (D)). To authorize the incidental take of marine mammals, NMFS evaluates the best available scientific information to determine whether the take would have a negligible impact on affected species or stocks and whether the activity would have an unmitigable adverse impact on the availability of the species or stocks for subsistence use (if applicable). NMFS cannot issue an authorization if NMFS finds the taking would result in more than a negligible impact on marine mammal species or stocks, or would result in an unmitigable adverse impact on the species or stocks for subsistence uses. NMFS also must prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations include additional requirements pertaining to monitoring and reporting.

Pursuant to the Endangered Species Act (ESA) Section 7(a)(2), NMFS also must ensure that issuing the marine mammal incidental take authorization is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat (16 U.S.C. § 1536(a)(2)). For those marine mammal species that are listed under the ESA, NMFS Office of Protected Resources (OPR) must also consult with NMFS Greater Atlantic Regional Fisheries Office (GARFO) Protected Resources Division to receive an exemption for the take of those species and adhere to the requirements listed under Section 7 of the ESA to ensure that the MMPA-authorized incidental take is not likely to jeopardize the continued existence of those species. The ESA Section 7 consultation for this action resulted in issuance of a Biological Opinion (BiOp) that concluded the proposed Federal actions are not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification of any critical habitat. The BiOp includes an Incidental Take Statement (ITS), which exempts that incidental take from ESA prohibitions subject to specified reasonable and prudent measures and implementing terms and conditions considered necessary and appropriate for NMFS OPR to minimize the effects of take on ESA-listed marine mammals. The BiOp and ITS also identify measures, which may be specific to the regulatory authorities of each action agency, to ensure compliance with the MMPA ITA with respect to the incidental take of ESA-listed marine mammals (i.e., measures in the Proposed Action and those identified as reasonable and prudent measures and terms and conditions, respectively).

NMFS promulgated regulations to implement the MMPA (50 CFR part 216), including application instructions for incidental take authorizations. Applicants must comply with these regulations, the application instructions, and the MMPA. The decision being made by NMFS, including its decision to adopt BOEM’s FEIS, is discussed in Section 5.2 of this ROD.

1.2.3. USACE Authority

This permit action is being undertaken through authority delegated to the District Engineer by 33 CFR § 325.8 pursuant to section 10 of the RHA and section 404 of the CWA. Section 10 of the RHA prohibits the obstruction or alteration of navigable waters of the United States without a permit from USACE. The navigable waters of the United States include all coastal waters within a zone 3 nautical miles seaward of the baseline of the territorial seas. Jurisdiction extends shoreward to the line on the shore reached by the plane of the mean high water. Section 4(f) of the OCSLA of 1953, as amended, extended USACE's authority under section 10 to artificial islands, installations, and other devices located on the seabed, to the seaward limit of the OCS. USACE also issues permits under section 404 of the CWA authorizing the discharge of dredged or fill material into waters of the United States. The limit of section 404 jurisdiction is measured from the baseline of the territorial seas in a seaward direction, a distance of 3 nautical miles. The landward limits of jurisdiction extend to the high tide line. The term high tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The applicant proposes to discharge fill below the high tide line of waters of the United States out to the 3-mile limit and to perform work and place structures below the mean high-water mark of navigable waters of the United States and on the OCS. These activities require authorization from USACE under section 10 of the RHA and section 404 of the CWA.

USACE participated in development of the Revolution Wind EIS as a cooperating agency under the CEQ NEPA regulations. USACE reviewed and evaluated the information in the FEIS in accordance with 40 CFR § 1506.3 and 33 CFR part 325, Appendix B. USACE finds the actions covered by the Revolution Wind FEIS and those regulated by USACE under section 10 of the RHA and section 404 of the CWA are substantially the same, and that USACE's cooperating agency comments and suggestions have been satisfied by BOEM. Therefore, USACE adopts the FEIS as appropriate for the purposes of NEPA and public interest review required by 33 CFR § 320.4, and the alternatives analysis required by 40 CFR part 230. Issuance of section 10 or section 404 permits requires NEPA compliance, which USACE will meet via adoption of BOEM's FEIS and issuance of the ROD. The permit decision being made by USACE is discussed in Section 5.3 of this ROD.

2. Proposed Project

2.1. Project Description

The Proposed Action will construct and install, operate, maintain, and include the eventual decommissioning of a wind energy facility within the Project Design Envelope (PDE) and implementation of applicable environmental protection measures (EPM) as described in the RWF COP (Revolution Wind 2023). The Proposed Action includes up to 100 wind turbine generators (WTGs) ranging in nameplate capacity of 8 to 12 megawatts (MW) sufficient to fulfill, at a minimum, the three existing power purchase agreements (PPAs) (totaling a nameplate capacity of 704 MW) with a potential nameplate capacity of up to 880 MW, the maximum capacity identified in the PDE.

The WTGs would be connected by a network of inter-array cables; up to two offshore substations,⁶ an offshore cable linking the two substations; up to two submarine export cables co-located within a single corridor; up to two underground transmission circuits located onshore; one onshore interconnection facility (ICF); and one onshore substation (OnSS) inclusive of up to two interconnection circuits connecting to the existing Davisville Substation in North Kingstown, Rhode Island, which connects to the New England transmission system managed by ISO New England. The Proposed Action includes the burial of offshore export cables below the seafloor in both the OCS and Rhode Island state waters and a uniform east-west and north-south grid of 1 × 1-nm spacing between WTGs.⁷ The COP contains additional details on the Project and is located on the BOEM webpage at <https://www.boem.gov/renewable-energy/state-activities/revolution-wind>. The Proposed Action in the FEIS (Alternative B) is to approve the proposed Project as described in the COP.

2.2. Purpose and Need for the Proposed Action

Through a competitive leasing process under 30 CFR § 585.211, Deepwater Wind New England, LLC was awarded commercial Renewable Energy Lease OCS-A 0486 (Lease) covering an area offshore Rhode Island. Subsequent to the award of the Lease, BOEM approved an application to assign a portion of the Lease to Deepwater Wind South Fork, LLC, which resulted in the segregation of the Lease and a new lease number, OCS-A 0517, for that portion. Deepwater Wind South Fork, LLC changed its name to South Fork Wind, LLC. The remaining portion of Lease OCS-A 0486 was assigned to DWW Rev I, LLC. DWW Rev I, LLC changed its name to Revolution Wind, LLC (Revolution Wind). Under the terms of the Lease, Revolution Wind has the exclusive right to submit a COP for activities within the Lease Area, and it has submitted a COP to BOEM proposing the construction and installation, operations and maintenance (O&M), and conceptual decommissioning of an offshore wind energy facility in the Lease Area (the RWF) in accordance with BOEM's COP regulations under 30 CFR §§ 585.626 *et seq.* Revolution Wind's goal is to develop a commercial-scale offshore wind energy facility in the Lease Area with WTGs; a network of inter-array cables (IACs); up to two offshore substations

⁶ Each OSS has a maximum nominal capacity of 440 MW; therefore, two OSSs are required to achieve the PPA obligations of 704 MW.

⁷ In accordance with 30 CFR § 585.634(c)(6), micro-siting of WTG foundations may occur within 500 feet from each proposed WTG location. WTG micro-siting would be performed on a case-by-case basis to avoid significant seafloor hazards such as surface and subsurface boulders (see COP Section 2.2.1.1).

(OSSs) (OSS1 and OSS2); up to two export cables making landfall in North Kingstown, Rhode Island; one OnSS; and one ICF.

The Project would contribute to Connecticut’s mandate of 2,000 MW of offshore wind energy by 2030, as outlined in Connecticut Public Act 19-71, and to Rhode Island’s 100% renewable energy goal by 2030, as outlined in Rhode Island Governor’s EO 20-01 of January 2020. The Project would have the capacity to deliver up to 880 MW of power to the New England energy grid, satisfying the current PPA total of 704 MW. Specifically, Revolution Wind’s goal to construct and operate a commercial-scale offshore wind energy facility in the Lease Area is intended to fulfill the following three PPAs: a 200-MW contract with the State of Connecticut approved in January 2019, a 400-MW contract with the State of Rhode Island approved in June 2019, and a 104-MW contract with the State of Connecticut approved in December 2019.

The purpose of BOEM’s action is to determine whether to approve, approve with modifications, or disapprove Revolution Wind’s COP based on BOEM’s authority under the OCSLA to authorize renewable energy activities on the OCS; Executive Order 14008; the Administration’s goal to deploy 30 gigawatts (GW) of offshore wind energy capacity in the United States by 2030 while protecting biodiversity and promoting ocean co-use;⁸ and in consideration of Revolution Wind’s goals. BOEM is making this determination after weighing the factors in subsection 8(p)(4) of the OCSLA that are applicable to plan decisions and in consideration of the above goals. BOEM’s action is needed to fulfill its duties under the Lease, which require BOEM to make a decision on the Lessee’s plans to construct and operate a commercial-scale offshore wind energy facility within the Lease Area.

NMFS, which has MMPA authorization decision responsibilities in addition to serving as a cooperating agency, has reviewed BOEM’s purpose and need statement above and has determined that it aligns with NMFS’ purpose and need (more specific statements of the purpose and need for the actions by NMFS are found in Section 5.2). Section 5.3 describes the purpose and need in relation to USACE’s permit action.

3. Alternatives

The FEIS considered a reasonable range of alternatives to the Proposed Action.⁹ BOEM considered a total of 18 action alternatives during the preparation of the draft EIS (DEIS), then included 3 additional alternatives based on public comments received on the DEIS, and carried forward 7 alternatives for further analysis in the FEIS. These 7 alternatives include detailed analysis (including potential beneficial and adverse impacts) for 6 action alternatives and the No Action Alternative. Fourteen action alternatives were not further analyzed because they did not

⁸ Fact Sheet: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs | The White House: <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>.

⁹ DOI’s implementing NEPA regulations state that the term “reasonable alternatives” “includes alternatives that are technically and economically practical or feasible and meet the purpose and need of the proposed action.” 43 CFR § 46.420(b).

meet the purpose and need, or did not meet other screening criteria (see FEIS, Section 2.1.8, *Alternatives Considered but Dismissed from Detailed Analysis*, and Appendix K, *Supplemental Information on Alternatives Development*). All action alternatives for the Revolution Wind project would have impacts to visual, cultural, and fishery resources. As part of the scoping process, and during the preparation of the EIS, BOEM received input from Tribes regarding their concerns over visual impacts to culturally significant resources. This input was used to develop Alternative E, which reduces visual impacts to culturally significant resources. BOEM and cooperating agencies developed Alternatives C and D to address navigation and commercial fisheries concerns, and Alternative F was also developed to compare and analyze impacts of a reduced number of WTGs. After analysis of public comments received on the DEIS and technical feasibility information provided by the Lessee, BOEM developed Alternative G. Alternative G reduces impacts to benthic habitat, visual impacts to the sunset view from the Aquinnah Overlook on the northwest side of the Lease Area, and visual impacts near the shore of Martha’s Vineyard on the northeast side of the Lease Area.

3.1 Alternatives Carried Forward for Detailed Analysis

Table 3.1 Description of Alternatives

Alternative	Description
<p>A: No Action Alternative</p>	<p>Under the No Action Alternative, BOEM would not approve the COP; USACE would not issue a permit for the proposed work under section 10 of the RHA and section 404 of the CWA; the Project construction and installation, O&M, and decommissioning would not occur; and no additional permits or authorizations for the Project would be required. However, all other past and ongoing impact-producing activities, including approved offshore wind projects (SFWF and Vineyard Wind) would continue. Under the No Action Alternative, impacts to marine mammals incidental to construction activities would not occur. Therefore, NMFS would not issue the requested authorization under the MMPA to the applicant. The current resource condition, trends, and impacts from ongoing activities under the No Action Alternative serve as the baseline against which all action alternatives are evaluated.</p> <p>Over the life of the Project, other reasonably foreseeable future impact-producing offshore wind and non-offshore wind activities would be implemented, which would cause changes to the affected environment even in the absence of the Proposed Action. The continuation of all other existing and reasonably foreseeable future activities described in Appendix E of the FEIS without the Proposed Action or the Preferred Alternative serves as the baseline against which the cumulative impacts of all alternatives are evaluated.</p>

Alternative	Description
<p>B: Proposed Action Alternative (Proposed Action)</p>	<p>Under Alternative B, the construction and installation, O&M, and eventual decommissioning of a wind energy facility within the PDE described in the COP would be developed in the Lease Area and applicable EPMs would be implemented. The Proposed Action would include up to 100 WTGs ranging in nameplate capacity of 8 to 12 MW sufficient to fulfill at a minimum the existing PPAs (total of 704 MW) up to 880 MW, the maximum capacity identified in the PDE. The WTGs would be connected by a network of IACs; up to two OSSs¹⁰ connected by one OSS-link cable; up to two submarine export cables co-located within a single corridor; up to two underground transmission circuits located onshore; one onshore ICF; and one OnSS inclusive of up to two interconnection circuits connecting to the existing Davisville Substation in North Kingstown, Rhode Island. The Proposed Action includes the burial of offshore export cables below the seafloor in both the OCS and Rhode Island state waters and a uniform east-west and north-south grid of 1 × 1-nm spacing between WTGs.¹¹</p>
<p>C: Habitat Impact Minimization Alternative</p>	<p>Under Alternative C, the construction and installation, O&M, and eventual decommissioning of a wind energy facility within the PDE described in the COP would be developed in the Lease Area, subject to applicable EPMs. To reduce impacts to complex fisheries habitats most vulnerable to permanent and long-term impacts from the Proposed Action, however, certain WTG positions would be eliminated while maintaining a uniform east-west and north-south grid of 1 × 1-nm spacing between WTGs. The placement of WTGs would be supported by location-specific benthic and habitat characterizations conducted in close coordination with NMFS. Under Alternative C, fewer WTG locations (and potentially fewer miles of IACs) than the Proposed Action would be approved by BOEM. Under this alternative, there would be five “spare” WTGs:</p> <ul style="list-style-type: none"> • Alternative C1: This alternative allows for the fulfillment of the existing three PPAs, which total 704 MW, while omitting WTGs in locations to maintain a uniform east-west and north-south grid of 1 × 1-nm spacing between WTGs. Under this alternative, up to 35 WTGs and associated IACs would be removed from consideration, resulting in up to 65 WTGs and associated IACs being approved. • Alternative C2: This alternative allows for the fulfillment of the existing three PPAs, which total 704 MW, while omitting WTGs in locations to maintain a uniform east-west and north-south grid of 1 × 1-nm spacing between WTGs. Under this alternative, up to 36 WTGs and associated IACs would be removed from consideration, resulting in up to 64 WTGs and associated IACs being approved. <p>Refer to Appendix K of the FEIS for background information on the development of the Alternative C1 and C2 layouts.</p>

¹⁰ Each OSS has a maximum nominal capacity of 440 MW; therefore, two OSSs are required to achieve the PPA obligations of 704 MW.

¹¹ In accordance with 30 CFR § 585.634(c)(6), micrositing of WTG foundations may occur within 500 feet from each proposed WTG location. WTG micrositing would be performed on a case-by-case basis to avoid significant seafloor hazards such as surface and subsurface boulders (see COP Section 2.2.1.1).

Alternative	Description
<p>D: No Surface Occupancy in One or More Outermost Portions of the Project Area Alternative</p>	<p>Under Alternative D, the construction and installation, O&M, and eventual decommissioning of a wind energy facility within the PDE described in the COP would be developed in the Lease Area, subject to applicable EPMS. However, to reduce conflicts with other competing space-use vessels, WTGs adjacent to or overlapping transit lanes proposed by stakeholders or the Buzzard’s Bay Traffic Separation Scheme Inbound Lane would be eliminated while maintaining the uniform east-west and north-south 1 × 1-nm grid spacing between WTGs. Under Alternative D, BOEM could select one, all, or a combination of the following three alternatives, while still allowing for the fulfillment of existing PPAs and up to the maximum capacity identified in the PDE (i.e., 880 MW). Under this alternative, fewer WTG locations (and potentially fewer miles of IACs) than the Proposed Action would be approved by BOEM. Under this alternative, there would be up to six “spare” WTGs:</p> <ul style="list-style-type: none"> • Alternative D1: Removal of the southernmost row of WTGs that overlap the 4-nm east-west transit lane proposed by the Responsible Offshore Development Alliance (RODA), as well as portions of Cox Ledge. Under this alternative, up to seven WTGs and associated IACs would be removed from consideration, resulting in up to 93 WTGs and associated IACs being approved. • Alternative D2: Removal of the eight easternmost WTGs that overlap the 4-nm north-south transit lane proposed by RODA. Under this alternative, up to eight WTGs and associated IACs would be removed from consideration, resulting in up to 92 WTGs and associated IACs being approved. • Alternative D3: Removal of the northwest row of WTGs adjacent to the Inbound Buzzards Bay Traffic Lane. Under this alternative, up to seven WTGs and associated IACs would be removed from consideration, resulting in up to 93 WTGs and associated IACs being approved. <p>The selection of all three alternatives (i.e., D1, D2, and D3) would eliminate up to 22 WTG locations and associated IACs, resulting in up to 78 WTGs and associated IACs being approved while maintaining the 1 × 1-nm grid spacing proposed in the COP and as described in Alternative B. Based on the design parameters outlined in the COP, allowing for the placement of 78 to 93 WTGs and two OSSs would still allow for the fulfillment of up to the maximum capacity identified in the PDE (e.g., 880 MW = 74 WTGs needed if 12 MW WTGs are used).</p>
<p>E: Reduction of Surface Occupancy to Reduce Impacts to Culturally Significant Resources Alternative</p>	<p>Under Alternative E, the construction and installation, O&M, and eventual decommissioning of a wind energy facility within the PDE described in the COP would be developed in the Lease Area, subject to applicable EPMS. However, to reduce the visual impacts on culturally important resources on Martha’s Vineyard and in Rhode Island, certain WTG positions would be eliminated while maintaining the uniform east-west and north-south 1 × 1-nm grid spacing between WTGs. Under Alternative E, fewer WTG locations (and potentially fewer miles of IACs) than the Proposed Action would be approved by BOEM. Under this alternative, there would be up to five “spare” WTGs:</p> <ul style="list-style-type: none"> • Alternative E1: Allows for the fulfillment of the existing three PPAs totaling 704 MW, while eliminating WTG locations to reduce visual impacts on these culturally important resources. Under this alternative, up to 36 WTGs and associated IACs would be removed from consideration, resulting in up to 64 WTGs and associated IACs being approved. • Alternative E2: Allows for a power output delivery identified in the PDE of up to 880 MW while eliminating WTG locations to reduce visual impacts on these culturally important resources. Under this alternative, up to 19 WTGs and associated IACs would be removed from consideration, resulting in up to 81 WTGs and associated IACs being approved. <p>Refer to Appendix K of the FEIS for background information on the development of the Alternative E1 and E2 layouts.</p>

Alternative	Description
<p>F: Selection of a Higher Capacity Wind Turbine Generator</p>	<p>Under Alternative F, the construction and installation, O&M, and eventual decommissioning of a wind energy facility would be developed in the Lease Area implementing a higher nameplate capacity WTG (up to 14 MW) than what is proposed in the COP. This higher capacity WTG must fall within the physical design parameters of the PDE and be commercially available to the Project proponent within the time frame for the construction and installation schedule proposed in the COP. The number of WTG locations under Alternative F would be sufficient to fulfill the minimum existing PPAs (total of 704 MW and 56 WTGs, including up to five “spare” WTG locations). Using a higher capacity WTG would potentially reduce the number of foundations constructed to meet the purpose and need and thereby potentially reduce impacts to marine habitats and culturally significant resources and potentially reduce navigation risks.</p>
<p>G: Preferred Alternative</p>	<p>Under Alternative G, the construction and installation, O&M, and eventual decommissioning of a wind energy facility within the PDE described in the COP would be developed in the Lease Area, subject to applicable EPMs. Alternative G (the Preferred Alternative) was designed to reduce impacts to visual resources and benthic habitat. This alternative would include up to 79 possible positions for the installation of 65 WTGs, which would range in nameplate capacity of 8 to 12 MW sufficient to fulfill at a minimum the existing PPAs (total of 704 MW) while maintaining the uniform east-west and north-south 1 × 1-nm grid spacing between WTGs. Under this alternative, there would be up to 14 “spare” WTG positions available for use if unforeseen siting conditions occur necessitating relocation of any of the 65 WTGs from the possible positions. Two of the 65 WTGs could be located in three different spots within the 79 WTG possible positions. As a result, Alternative G includes the analysis of three alternatives for installation of the 65 WTGs, G1–G3. This flexibility in design could allow for further refinement for visual resources impact reduction on Martha’s Vineyard and Rhode Island, or for habitat impact reduction in the NMFS Priority 1 area.</p> <ul style="list-style-type: none"> • Alternative G1: Allows for the fulfillment of the existing three PPAs totaling 704 MW, while relocating two WTG locations from a NMFS Priority 1 area to reduce fishery and Essential Fish Habitat (EFH) impacts. Under this alternative, 35 WTGs and associated IACs would be removed from consideration, resulting in 65 WTGs and associated IACs being installed in the positions identified under this alternative. • Alternative G2: Allows for the fulfillment of the existing three PPAs totaling 704 MW, while relocating two WTG locations to reduce visual impacts on the horizon from the Aquinnah Overlook, a culturally important resource. Under this alternative, 35 WTGs and associated IACs would be removed from consideration, resulting in 65 WTGs and associated IACs being installed in the positions identified under this alternative. • Alternative G3: Allows for the fulfillment of the existing three PPAs totaling 704 MW, while relocating two WTG locations closest to the shore of Martha’s Vineyard to reduce visual impacts to this culturally important resource. Under this alternative, 35 WTGs and associated IACs would be removed from consideration, resulting in 65 WTGs and associated IACs being installed in the positions identified under this alternative. <p>All other components of Alternative G are the same as the Proposed Action: two OSSs connected by an OSS-link cable; up to two submarine export cables co-located within a single corridor; up to two underground transmission circuits located onshore within a single corridor; and an OnSS, inclusive of up to two interconnection circuits within a single corridor connecting to the existing Davisville Substation in North Kingstown, Rhode Island.</p> <p>Refer to Appendix K of the FEIS for background information on the development of Alternative G: G1, G2 and G3.</p>

3.2. Environmental Consequences of Alternatives

Table 3.2 summarizes and compares the potential impacts under the No Action Alternative and the impacts of each action alternative assessed in Chapter 3 of the FEIS. Under the No Action Alternative, BOEM would not approve the COP. Therefore, any potential environmental and socioeconomic impacts, including benefits, associated with the Project would not occur; however, impacts could occur from other ongoing and planned activities.

The impacts of each action alternative exclusive of baseline conditions and ongoing activities are summarized in Table 3.2. This table also provides a summary of the overall cumulative impacts by environmental resource and alternative. Each resource has two rows: one for the comparison of impacts and one for the overall cumulative impacts. The overall cumulative impacts for each resource include the alternative impacts combined with all planned activities (including other offshore wind activities). Each resource section in Chapter 3 of the FEIS includes descriptions and details for impact-producing factors (IPF); specific impact determinations differ because they could be less or more than the overall impact determination summary shown in Table 3.2.

In Table 3.2, green cell color represents negligible to minor adverse overall impact. Yellow cell color represents moderate adverse overall impact. Orange cell color represents major adverse overall impact. Resources with beneficial incremental impacts are denoted by an asterisk (*), and alternatives within those resource rows with beneficial incremental impacts are denoted by a bolded blue outline and an asterisk (*). More detailed comparisons of impacts by environmental resource and alternative, as well as evaluation of impacts across alternatives, are provided in Chapter 3 of the FEIS.

Table 3.2 Comparison of Alternatives and Overall Cumulative Impacts by Alternative¹²

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)	Alternative G (Preferred Alternative)
Air quality – Alternative impacts*	Continuation of current air quality trends and sources of air pollution would be moderate adverse.	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*
Air quality: – Cumulative impacts*	Minor to moderate adverse; minor to moderate beneficial*	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
Bats: Alternative impacts	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be negligible adverse.	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse
Bats: Cumulative impacts	Negligible adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Benthic habitat and invertebrates: Alternative impacts*	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be minor to moderate adverse.	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*
Benthic habitat and invertebrates: Cumulative impacts*	Minor to moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*
Birds: Alternative impacts	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be minor adverse.	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Birds: Cumulative impacts	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Coastal habitats and fauna: Alternative impacts	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be negligible adverse.	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse
Coastal habitats and fauna: Cumulative impacts	Negligible to minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse

¹² Alternative impacts conclusions summarized in Table 3.2 for the No Action Alternative are inclusive of the current resource condition, trends, and impacts from ongoing activities, except where noted. Alternative impacts conclusions summarized in Table 3.2 for each action alternative are exclusive of the current resource condition, trends, and impacts from ongoing activities. Cumulative impact conclusions summarized in Table 3.2 for each action alternative are inclusive of the current resource condition, trends, and impacts from ongoing and future activities.

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)	Alternative G (Preferred Alternative)
Commercial fisheries and for-hire recreational fishing: Alternative impacts*	Continuation of current trends would be moderate to major adverse for commercial fisheries and minor to moderate adverse and minor beneficial for for-hire recreational fishing.*	Negligible to major adverse; minor beneficial*	Negligible to major adverse; minor beneficial*	Negligible to major adverse; minor beneficial*	Negligible to major adverse; minor beneficial*	Negligible to major adverse; minor beneficial*	Negligible to major adverse; minor beneficial*
Commercial fisheries and for-hire recreational fishing: Cumulative impacts*	Moderate to major adverse for commercial fisheries; minor to moderate adverse and minor beneficial for for-hire recreational fishing*	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse
Cultural resources: Alternative impacts	Continuation of individual IPF impacts to cultural resources from past and current activities would be negligible to major negative. [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]
Cultural resources: Cumulative impacts	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]	Negligible to major negative [†]
Demographics, employment, and economics: Alternative impacts*	Continuation of current trends would be moderate to major adverse and minor to moderate beneficial.*	Negligible to moderate adverse; minor beneficial*	Minor beneficial*	Minor beneficial*	Minor beneficial*	Minor beneficial*	Minor beneficial*
Demographics, employment, and economics: Cumulative impacts*	Major adverse; minor to moderate beneficial*	Major adverse; moderate beneficial*	Major adverse; moderate beneficial*	Major adverse; moderate beneficial*	Major adverse; moderate beneficial*	Major adverse; moderate beneficial*	Major adverse; moderate beneficial*
Environmental justice: Alternative impacts*	Continuation of current trends would be negligible to major adverse and negligible to moderate beneficial.*	Minor to moderate adverse; negligible to moderate beneficial*	Minor to moderate adverse; negligible to moderate beneficial*	Minor to moderate adverse; negligible to moderate beneficial*	Minor to moderate adverse; negligible to moderate beneficial*	Minor to moderate adverse; negligible to moderate beneficial*	Minor to moderate adverse; negligible to moderate beneficial*
Environmental justice: Cumulative impacts	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse
Finfish and essential fish habitat: Alternative impacts*	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be moderate adverse.	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*
Finfish and essential fish habitat: Cumulative impacts*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*	Moderate adverse; moderate beneficial*

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)	Alternative G (Preferred Alternative)
Land use and coastal infrastructure: Alternative impacts*	Continuation of current trends would be minor adverse.	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*
Land use and coastal infrastructure: Cumulative impacts	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Marine mammals: Alternative impacts*	Not approving the COP would have no additional incremental effect on marine mammals (i.e., no effect) ¹³ . Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be moderate adverse for all marine mammals except for the North Atlantic right whale (NARW). Continuation of population trends and human-caused stressors would be major for NARW.	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*	Moderate adverse for NARWs, and minor to moderate adverse for other mysticetes, odontocetes, and pinnipeds; minor beneficial*
Marine mammals: Cumulative impacts*	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)	Moderate adverse; minor beneficial* (Major adverse for NARW)
Navigation and vessel traffic: Alternative impacts	Continuation of current trends would be minor to moderate adverse.	Moderate adverse	Moderate adverse	Moderate adverse	Minor to moderate adverse	Moderate adverse	Minor to moderate adverse
Navigation and vessel traffic: Cumulative impacts	Minor to moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
Other marine uses: aviation and air traffic: Alternative impacts	Continuation of current trends would be negligible adverse.	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse
Other marine uses: aviation and air traffic: Cumulative impacts	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Other marine uses: land-based radar: Alternative impacts	Continuation of current trends would be negligible adverse.	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Other marine uses: land-based radar: Cumulative impacts	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
Other marine uses: military and national security: Alternative impacts	Continuation of current trends would be negligible adverse.	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse

¹³ Species specific incremental impacts of the No Action Alternative are provided for marine mammals in Table 3.2 to support NMFS' decision in this ROD.

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)	Alternative G (Preferred Alternative)
Other marine uses: military and national security: Cumulative impacts	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
Other marine uses: scientific research and surveys: Alternative impacts	Continuation of current trends would be moderate adverse.	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse
Other marine uses: scientific research and surveys: Cumulative impacts	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse	Major adverse
Other marine uses: undersea cables: Alternative impacts	Continuation of current trends would be negligible adverse.	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse
Other marine uses: undersea cables: Cumulative impacts	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse	Negligible adverse
Recreation and tourism: Alternative impacts	Continuation of current trends would be minor adverse.	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Recreation and tourism – Cumulative impacts*	Minor adverse	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*
Sea turtles: Alternative impacts*	Continuation of population trends and continuation of effects to species from natural and human-caused stressors would be minor adverse.	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*	Minor adverse; minor beneficial*
Sea turtles: Cumulative impacts*	Minor adverse; minor beneficial*	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Visual resources: Alternative impacts	Continuation of impacts to viewsheds from past and current activities would be negligible to moderate adverse.	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse
Visual resources: Cumulative impacts	Moderate adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse	Negligible to major adverse
Water quality – Alternative impacts	Continuation of current water quality trends and sources of pollution would be minor adverse.	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse
Water quality – Cumulative impacts	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse

Resource	Alternative A (No Action Alternative)	Alternative B (Proposed Action)	Alternative C (Habitat Alternative)	Alternative D (Transit Alternative)	Alternative E (Viewshed Alternative)	Alternative F (Higher Capacity Turbine Alternative)	Alternative G (Preferred Alternative)
Wetlands and non-tidal waters: Alternative impacts	Continuation of current wetland resources trends and sources of pollution would be negligible adverse.	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse	Negligible to minor adverse
Wetlands and non-tidal waters: Cumulative impacts	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse	Minor adverse

* Resources with beneficial impacts are denoted by an asterisk, and alternatives within those resource rows with beneficial impacts are denoted by a bolded blue outline and an asterisk.

† The term “adverse” has a specific meaning under the National Historic Preservation Act (NHPA) Section 106 regulations (in 36 CFR § 800.5) and, therefore, to remove confusion in the Cultural Resources section, the terms “negative” and “beneficial” are used in the identification of impacts under NEPA.

^ The impacts considered do not involve activities regulated by USACE under section 404 of the CWA.

3.3. Environmentally Preferable Alternatives

BOEM is required by CEQ regulations to identify in the ROD the *environmentally preferable alternative(s)* (40 CFR § 1505.2). Upon considering and weighing the long- and short-term impacts to and protection of these resources (43 CFR § 46.30), the DOI's responsible official, who is approving this ROD, has determined that the environmentally preferable alternatives are Alternative A (No Action), Alternative C (Habitat Impact Minimization), and Alternative G (Preferred Alternative).

Adverse environmental impacts in the Project area would generally be less under Alternative A (No Action) because construction and installation, O&M, and decommissioning activities and disturbances related to the proposed Project would not occur and, hence, impacts on physical, biological, or cultural resources from the Proposed Action would be avoided. Nonetheless, the No Action Alternative would probably result in moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet the energy demands that would have otherwise been satisfied by the Project. These facilities might be fueled with natural gas, oil, or coal, all of which would emit more pollutants than wind turbines and would have more adverse impacts on air quality and contribute greenhouse gases that cause climatic change. Adverse impacts on air quality also tend to disproportionately impact environmental justice communities, which often include low-income and minority populations. These air quality impacts might be compounded by other impacts because selection of the No Action Alternative could negatively impact future investment in U.S. offshore wind energy facilities, potentially resulting in the loss of beneficial cumulative impacts such as increased employment, improvements in air quality, and reductions in greenhouse gas emissions. Comments received on the DEIS from representatives of the offshore wind industry have noted that public and private investors have committed substantial amounts of new funding to offshore wind development, including commitments to develop manufacturing facilities, and that advancement of the Project is critical to continue to attract investment in the U.S. offshore wind market.¹⁴

Alternative C (Habitat Impact Minimization) and Alternative G (Preferred Alternative) would reduce impacts to complex habitat on Cox Ledge as described in Sections 3.6 and 3.13 of the FEIS. Complex habitat is more vulnerable to long-term and permanent impacts and has been identified by NOAA as essential fish habitat for a number of federally managed species, including Atlantic cod.

The difference between Alternative C (Habitat Impact Minimization) and Alternative G (Preferred Alternative) is that Alternative G is a hybrid alternative combining elements of Alternatives C (Habitat Impact Minimization), Alternative D (Transit), and Alternative E (Viewshed). Alternative G (Preferred Alternative), in comparison to Alternative B (Proposed Action), would reduce benthic habitat impacts in areas deemed critical by NOAA NMFS (Alternative C), reduce transit and access impacts in areas of active marine use (Alternative D), reduce visual impacts to culturally important resources (Alternative E), and address design concerns voiced by the applicant, striking a reasonable balance between these varied resources.

¹⁴ See, e.g., Business Network for Offshore Wind, Comments on Revolution Wind Draft Environmental Impact Statement, October 17, 2022, available at <https://www.regulations.gov/comment/BOEM-2022-0045-0092>.

Alternative G1 maximizes the avoidance of complex benthic habitat and cod spawning areas within NMFS priority areas. Alternative G2 provides the greatest reduction of impacts to the sunset viewshed from key observation points on Martha's Vineyard, as well as to points along the Rhode Island coastline. Alternative G3 provides the greatest reduction of impacts to the proximate to shore viewshed from Martha's Vineyard, as well as to points along the Rhode Island coastline. All three configurations of Alternative G (G1, G2, G3) include the same reduction in WTGs to minimize navigation risks and conflicts with other competing space uses.

Offshore wind has been identified as a key factor for Atlantic states to reach their greenhouse gas emission reduction goals. It is presently an irreplaceable component in state, Federal, and international strategies to reduce and reverse global climate change over the coming decades. In comparison to the No Action Alternative, Alternative C (Habitat Impact Minimization) and Alternative G (Preferred Alternative) allow for the generation of electricity from sources that do not adversely affect the air quality in the region. Also, in contrast to the No Action Alternative, selection of Alternative C (Habitat Impact Minimization) and Alternative G (Preferred Alternative) could encourage investment in U.S. offshore wind energy facilities, which could in turn result in beneficial cumulative impacts such as increased employment, improvements in air quality, and reductions in greenhouse gas emissions.

4. Mitigation, Monitoring, and Reporting

Appendix F of the FEIS¹⁵ identifies measures to avoid, minimize, and mitigate adverse environmental impacts that could result from the proposed activities as well as the anticipated enforcing agency. BOEM is adopting all the measures identified in Tables F-1, F-2, and F-3 of Appendix F of the FEIS, except for those that are identified as outside of BOEM's or BSEE's authority to enforce and one measure in Table F-3 related to a visual impacts monitoring plan. Adoption of the visual impacts monitoring plan measure would not provide a means to minimize adverse environmental impacts resulting from Alternative G because while the monitoring would document differences between photo simulations and as-built conditions, monitoring would not reduce visual impacts. Visual impact monitoring may be addressed by BOEM after ROD issuance and/or programmatically across multiple leases. The mitigation, monitoring, and reporting measures that BOEM intends to include as conditions of approval are identified in this ROD in Appendix A. BOEM has modified some measures identified in the FEIS as an outcome of consultation under Section 106 of NHPA documented in the final Memorandum of Agreement (MOA), which concluded after publication of the FEIS. This appendix clarifies the language of certain measures that were identified in the FEIS to ensure that they are enforceable. This appendix also reflects other updates to and additions of measures resulting from the completion of the EFH consultation under the Magnuson-Stevens Fishery Conservation and Management Act with NMFS (completed August 7, 2023), those required by the BiOp issued by NMFS under Section 7 of the ESA (issued July 21, 2023), and those being considered by NMFS for the final ITR and associated LOA.

¹⁵ Appendix F of the FEIS separately identifies measures proposed by the Lessee as a part of its COP. The Lessee is required as a condition of BOEM's approval to conduct activities as proposed in its approved COP, which BOEM considers to include all applicant-proposed mitigation measures identified in Appendix F.

5. Final Agency Decisions

5.1 The Department of the Interior Decision

After carefully considering the FEIS alternatives, including comments on the DEIS from Tribal Nations, the public, cooperating agencies, key stakeholder groups (commercial fishermen), and the applicant, DOI has decided to approve, with modifications, the COP for Revolution Wind adopting the Preferred Alternative (Alternative G - Habitat and Viewshed Minimization Hybrid). Alternative G is a hybrid alternative combining elements of Alternatives C, D, and E and will minimize impacts to visual resources and benthic habitat. By selecting Alternative G, hereinafter referred to as the “selected alternative,” DOI will allow for up to 79 possible positions for the installation of 65 WTGs and two OSS on the OCS offshore Rhode Island within Lease Area OCS-A 0486, with export cables making landfall in North Kingstown, Rhode Island. The selected alternative will maintain the uniform east-west and north-south 1 × 1-nm grid spacing between WTGs, which is designed to minimize impacts to navigation and vessel traffic and commercial and recreational fishing. There will be up to 14 “spare” WTG positions available for use if unforeseen siting conditions occur necessitating relocation of any of the 65 WTGs from the possible positions.

BOEM received additional information from Revolution Wind (1) regarding geotechnical feasibility for Alternatives C1, C2, D1+D2, D1+D2+D3, E1, and E2; and (2) that the larger capacity WTG model (12 MW) for Alternative F is not commercially available. In response, BOEM conducted an independent review of the information, including engagements with National Renewable Energy Laboratory, BOEM’s Engineering and Technical Review Branch, and BOEM’s Economics Division. Revolution Wind also provided geotechnical feasibility and electrical engineering information and analysis regarding 21 of the 100 WTG positions included in the Proposed Action. BOEM’s independent review confirmed that the 21 WTG positions identified by Revolution Wind as infeasible are technically and economically infeasible for use in the RWF:

- Alternatives C1 and C2 relied on the use of 11 WTG positions that are infeasible for use in the RWF. Without those 11 WTG positions, the RWF would not have enough WTGs to meet its PPAs. Alternative C1 would have only 54 WTGs, and Alternative C2 would have only 53 WTGs when 65 are needed for the PPAs. Alternatives D1 through D3 are still feasible *if selected individually*. However, Alternatives D1+D2 together would be infeasible because the RWF would not have enough WTGs to meet its PPAs. Alternatives D1+D2 together would only have 64 WTGs when 65 are needed for the PPAs.
- Similarly, Alternatives D2+D3 together would be infeasible because the RWF would not have enough WTGs to meet its PPAs. Alternatives D2+D3 together would only have 64 WTGs when 65 are needed for the PPAs.
- Alternatives D1+D2+D3 together would be infeasible because the RWF would not have enough WTGs to meet its PPAs. Alternatives D1+D2+D3 together would only have 59 WTGs when 65 are needed for the PPAs.

- Alternative E1 relied on the use of 16 WTG positions that are infeasible for use in the RWF. Without those 16 WTG positions, the RWF would not have enough WTGs to meet its PPAs. Alternative E1 would only have 48 WTGs when 65 are needed for the PPAs.
- Alternative E2 relied on the use of 19 WTG positions that are infeasible for use in the RWF. Without those 19 WTG positions, the RWF would not have enough WTGs to meet its PPAs. Alternative E2 would only have 62 WTGs when 65 are needed for the PPAs.
- Alternative F would require the use of WTGs larger than 11 MW. Revolution Wind selected Siemens Gamesa as their WTG manufacturer. Siemens Gamesa verified in a signed letter that no WTG models with a nameplate capacity larger than 11 MW were available for use in the RWF (Revolution Wind 2022). Specifically, "...after evaluating the anticipated installation schedules and required certification timelines; as well as a lack of production capacity available from Siemens Gamesa, the change in platform was, and is still not a possibility" (Revolution Wind 2022). While preparing the FEIS, BOEM conducted its own market research regarding other potentially available WTG models for the RWF and found that there are no models available with a larger capacity than the 11-MW model selected by Revolution Wind.¹⁶ Therefore, Alternative F was not an economically or technically feasible or practicable alternative for DOI to select.

For the reasons described above, BOEM has not selected Alternatives B, C, D, E, and F in this ROD.

Under Alternative A (the No Action Alternative), DOI would not approve the Revolution Wind project. In addition, no other permits or authorizations for this proposed Project would be issued. The No Action Alternative is one of the three environmentally preferable alternatives identified in this ROD because adverse environmental impacts across resources would generally be less under the No Action Alternative (i.e., no construction, installation, operation, or decommissioning activities will occur on the OCS) than under other action alternatives. Hence, impacts on physical, biological, or cultural resources from the selected alternative would be avoided. However, the No Action Alternative would still be expected to result in moderate, long-term, adverse impacts on regional air quality because other energy generation facilities would be needed to meet future power demands. These facilities might be fueled with natural gas, oil, or coal, which would emit more pollutants than wind turbines and would have more adverse impacts on air quality and contribute greenhouse gases that cause climate change. The No Action Alternative was not selected in this ROD because it would not allow for the development of DOI-managed resources and would not meet the purpose and need. Like the other action

¹⁶ The U.S. Department of Energy's *Offshore Wind Market Report: 2022 Edition* identifies General Electric (GE), Siemens Gamesa, and Vestas as the three manufacturers of WTGs that could theoretically be available for the Project under Alternative F (U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy 2022). However, GE's Haliade-X WTG was unavailable during the planning for the project because it has been "subject to a permanent injunction, issued Sept. 7, 2022, which bars the U.S. firm from selling the 12-MW to 14-MW turbine in the American market, except for exemptions granted for the Vineyard Wind 1 project off Massachusetts and the Ocean Wind project off southern New Jersey" (Powers 2022). Given the uncertainty regarding the future availability of the GE model at the time of FEIS development and the length of time needed to order WTGs and prepare WTG-specific engineering, BOEM determined the Haliade-X was not economically feasible for consideration under Alternative F. Finally, the Vestas WTG has a rotor diameter that is larger (236 m) than the PDE for the RWF (220 m), rendering it inconsistent with the parameters for the alternative established in the DEIS (Vestas 2023).

alternatives analyzed in the EIS, Alternative G would occur within the range of design parameters outlined in the COP and is subject to applicant-committed EPMs as well as possible additional agency-proposed mitigation measures to avoid or reduce impacts, including those listed in Appendix A to the ROD.

In summary, DOI considered which of the action alternatives would result in fewer environmental impacts and use conflicts. Alternative G as defined by BOEM would include the construction, O&M, and eventual decommissioning of 65 WTGs at a capacity of 11 MW within 79 possible WTGs positions (including Alternatives G1, G2, and G3) and up to two offshore substations on the OCS offshore Rhode Island within Lease Area OCS-A 0468. Alternative G, with export cables, would extend from Lease Area OCS-A 0468 to the mainland, making landfall in North Kingstown, Rhode Island. The FEIS found that the selected Alternative G would result in fewer impacts than other action alternatives considered and is consistent with the purpose and need. Accordingly, DOI has selected Alternative G in this ROD.

DOI coordinated with NMFS and USACE and weighed all concerns in making decisions regarding this Project and has determined that all practicable means within its authority have been adopted to avoid or minimize environmental and socioeconomic harm associated with the selected alternative and the approval of the COP. Appendix A of this ROD identifies the mitigation, monitoring, and reporting requirements that will be adopted as terms and conditions of COP approval. The mitigation and monitoring measures identified in Appendix A are the anticipated terms and conditions of BOEM's approval of the COP and representative of those included in Appendix F of the FEIS. BOEM conducted a thorough NHPA Section 106 review of the Project with federally recognized Tribes, the Connecticut State Historic Preservation Office, the Rhode Island State Historic Preservation Officer, the New York State Historic Preservation Officer, the Massachusetts State Historic Preservation Officer, the Advisory Council on Historic Preservation, and consulting parties concurrent with the NEPA process and, through the Section 106 review, identified historic properties and assessed potential effects to historic properties, and identified measures to resolve adverse effects. Draft measures to resolve adverse effects were described and analyzed in the DEIS and FEIS. After the FEIS was made available to the public, BOEM addressed consulting party comments on the MOA and distributed the MOA for signature by the consulting parties. The Section 106 review concluded with the execution and implementation of the MOA, which was signed by BOEM, the Connecticut State Historic Preservation Officer, the Rhode Island State Historic Preservation Officer, the New York State Historic Preservation Officer, the Massachusetts State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Lessee on August 18, 2023. The MOA memorializes measures that will resolve the selected alternative's adverse effects to historic properties including avoidance, minimization, and mitigation measures.

As set forth in the FEIS, Alternative G is anticipated to have major adverse impacts to NMFS Northeast Fisheries Science Center (NEFSC) scientific surveys (hereinafter "NMFS surveys"). NMFS and BOEM have developed the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy – Northeast U.S. Region* (Hare et al. 2022) to address the adverse impacts. BOEM and NMFS are of the view that the solution is a collaborative effort between both agencies and the offshore wind industry to establish project-specific monitoring programs following specific guidelines that would allow the information to be combined regionally into a programmatic approach and to implement regional programmatic survey mitigation actions to

address the cumulative impacts from offshore wind development in the region (see FEIS Section 3.17.1.4). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region, and nine of these surveys overlap with the Project. BOEM is including term and condition 6.3 (see ROD Appendix A) to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM and NMFS.

Additional engineering and technical terms and conditions that will be required with COP approval are included in Appendix B of this ROD.¹⁷ The Lessee will be required to certify annually that the Lessee is in compliance with the terms and conditions of its approved COP (30 CFR § 285.633(b)). The Lessee must also comply with all other applicable requirements of 30 CFR parts 285 and 585, including, but not limited to, the submission of a Facility Design Report and a Fabrication and Installation Report, before beginning construction activities.

Today's decision balances the orderly development of OCS renewable energy with the prevention of interference with other uses of the OCS and the protection of the human, marine, and coastal environments. A decision that balances these goals where they conflict and does not hold one as controlling over all others is consistent with the duties required under subsection 8(p)(4) of OCSLA, which requires the Secretary to ensure that approved activity is carried out in a manner that provides for Congress's enumerated goals.

My approval of this decision constitutes the final decision of the DOI. The action taken herein is pursuant to an existing delegation of authority.

**LAURA
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8/21/23

Laura Daniel-Davis
Principal Deputy Assistant Secretary
Land and Minerals Management

Date

¹⁷ All mitigation measures and terms and conditions adopted by BOEM as part of this ROD will be included in the COP authorization letter to be issued to Revolution Wind, LLC.

5.2. National Marine Fisheries Service Decision

This section documents NMFS' planned determination to issue an ITR and an incidental take authorization in the form of an LOA to Revolution Wind pursuant to its authorities under the MMPA. It also references NMFS' decision to adopt the BOEM FEIS to support NMFS' anticipated decision to issue the ITR and associated LOA. NMFS prepared and signed a separate memorandum independently evaluating the sufficiency and adequacy of the BOEM FEIS. That memorandum provides NMFS' rationale to adopt the FEIS to satisfy its independent NEPA obligations related to the ITR and LOA. In that memorandum, NMFS concluded the following: (1) the action analyzed in the FEIS covers NMFS's proposed decision to issue an LOA to Revolution Wind and meets all NEPA requirements under 40 CFR § 1506.3 (adopting an EIS); (2) the analysis includes the appropriate scope and level of environmental impact evaluation for NMFS' proposed action and alternatives; and (3) NMFS' comments and suggestions related to primary environmental effects of concern from the proposed action (i.e., effects to marine mammals), submitted in its role as a cooperating agency, have been satisfied.

On October 8, 2021, NMFS received an application from Revolution Wind pursuant to MMPA section 101(a)(5)(A) for an authorization to take small numbers of marine mammals, by harassment, incidental to the construction of an offshore wind energy project on the OCS off of Rhode Island and Massachusetts in OCS-A 0486, for a period of 5 years. NMFS reviews applications and, if appropriate, issues incidental take authorizations pursuant to the MMPA. Incidental take authorizations may be issued as either (1) regulations and associated LOAs under section 101(a)(5)(A) of the MMPA or (2) Incidental Harassment Authorizations under section 101(a)(5)(D) of the MMPA. In addition, 40 CFR parts 1500–1508 and NOAA policy and procedures require all proposals for major Federal actions to be reviewed with respect to their effects on the human environment. Issuance of an incidental take authorization to Revolution Wind is a major Federal action, triggering NMFS' independent NEPA compliance obligation as represented by NMFS in this instance. When serving as a cooperating agency, NMFS may satisfy its independent NEPA obligations by either preparing a separate NEPA analysis for its issuance of an incidental take authorization or, if appropriate, by adopting the NEPA analysis prepared by the lead agency. After NMFS determined the application was adequate and complete, it had a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities described in the application in accordance with standards and determinations set forth in the statute and its implementing regulations. Thus, the purpose of NMFS' action—which was a direct outcome of Revolution Wind's request for authorization to take marine mammals incidental to specified activities associated with the Project (e.g., pile driving and acoustic surveys)—was to evaluate Revolution Wind's request under requirements of the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations (50 CFR part 216) administered by NMFS and to decide whether to issue the authorization. NMFS needs to render a decision regarding the request for authorization due to NMFS' responsibilities under the MMPA (16 U.S.C. § 1371(a)(5)(A)) and its implementing regulations. In addition to its opportunity to comment on the DEIS, the public was also involved in the MMPA decision-making process through its opportunity to comment on NMFS' proposed rulemaking, which was published in the *Federal Register* (87 Fed. Reg. 79,072 [Dec. 23, 2022]). NMFS' final action takes into account those comments, as well as the corresponding formal consultation process under Section 7 of the ESA for issuance of the final ITR and LOA.

5.2.1. NMFS Decision (40 CFR § 1505.2(a)(1))

Pending completion of all statutory processes, NMFS plans to issue the final ITR and an LOA to Revolution Wind authorizing take of marine mammals incidental to construction activities associated with the proposed Project, specifically pile driving, unexploded ordnances/munitions of concern (UXOs/MECs) detonation, and marine site assessment surveys, for 5 years. NMFS' final decision to issue the requested ITR and LOA will be documented in a separate Decision Memorandum prepared in accordance with internal NMFS policy and procedures. The LOA will authorize the incidental take of marine mammals while prescribing the amount and means of incidental take, as well as mitigation, monitoring, and reporting requirements, including those mandated by the BiOp, which completes the formal Section 7 consultation process under the ESA. NMFS will publish a final ITR in the *Federal Register*. Subsequently, a Notice of Issuance of the LOA will be published in the *Federal Register* within 30 days of issuance of the LOA. The *Federal Register* notice will describe how NMFS concluded the requirements set forth in the MMPA and its implementing regulations were met and issuance of the LOA was warranted.

5.2.2. Alternatives NMFS Considered (40 CFR § 1505.2(a)(2))

NMFS is required to consider a reasonable range of alternatives to a proposed action in accordance with NEPA and 40 CFR § 1502.10(a)(5) and § 1502.14. NMFS considered two alternatives, the No Action Alternative, in which NMFS would deny Revolution Wind's request for an authorization, and an action alternative, in which it would issue an LOA to Revolution Wind with mitigation, monitoring, and reporting requirements.

Consistent with BOEM's No Action Alternative, NMFS would not issue the requested authorization to Revolution Wind, in which case NMFS assumes Revolution Wind would not proceed with their proposed Project as described in the application because it would be likely to cause harassment of marine mammals in contravention of the MMPA (unless modification to the Project was undertaken that would negate the need for the authorization). Since NMFS is also required by 40 CFR § 1505.2(a)(2) to identify an environmentally preferable alternative, NMFS considers the No Action Alternative to be the environmentally preferable alternative as the incidental take of marine mammals would be avoided since no construction activities resulting in harassment would occur.

The other alternative NMFS considered was its Proposed Action, the issuance of the LOA to Revolution Wind, which would authorize take of marine mammals incidental to 5 years of construction activities as noted above, subject to specified mitigation, monitoring, and reporting measures. As part of that alternative, and through the public and agency review process, NMFS considered a range of mitigation measures to carry out its duty to identify other means of effecting the least practicable adverse impact on the species or stocks. These measures were initially identified in the proposed LOA (87 Fed. Reg. 79,072) and may be modified in the final LOA in response to public comment, agency review, and ESA Section 7 consultation. The Proposed Action alternative evaluated by NMFS (i.e., the issuance of the LOA to Revolution Wind) will provide the incidental take authorization necessary to undertake the activities identified in the Preferred Alternative that BOEM evaluated in the FEIS and selected in this ROD.

5.2.3. Primary Factors NMFS Considers Favoring Selection of the Proposed Action (40 CFR § 1505.2(a)(2))

As noted earlier, NMFS intends to issue an LOA to Revolution Wind in response to their request for an LOA, after completing all required statutory and regulatory processes. NMFS' Proposed Action to issue an LOA for BOEM's Preferred Alternative effectively meets NMFS' stated purpose and need for acting. NMFS has an obligation to issue a requested LOA if certain statutory and regulatory determinations are made after providing for proper public review and comment. Denying issuance of the requested LOA, as described under NMFS' No Action Alternative, would be contrary to NMFS' responsibilities, given the results of the analysis conducted under the MMPA demonstrates the authorized take would meet statutory and regulatory requirements and would thus not support NMFS' ability to meet the purpose and need for acting.

5.2.4 Mitigation, Monitoring and Reporting Considered by NMFS (40 CFR § 1505.2(a)(3))

NMFS has a statutory and regulatory process to prescribe the permissible methods of take and other means of effecting the least practicable adverse impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. All incidental take authorizations must also include requirements pertaining to monitoring and reporting. Mitigation, monitoring, and reporting requirements related to marine mammals were preliminarily identified in the proposed ITR and LOA (87 Fed. Reg. 79,072). Those measures may be modified in the final ITR and LOA in consideration of public comments, additional analysis, and based on the outcome of the formal ESA Section 7 consultation. When it issues the LOA to the applicant, NMFS will include the necessary mitigation to effect the least practicable adverse impact on marine mammals, as well as monitoring and reporting requirements to be implemented by Revolution Wind. In summary, the mitigation, monitoring, and reporting measures include the following: vessel strike avoidance measures; seasonal moratorium on impact pile driving and detonations of UXOs/MECs; usage of Protected Species Observers (PSOs) and Passive Acoustic Monitoring (PAM) operators; establishment of clearance and shutdown zones; soft-start and ramp-up procedures for impact pile driving and acoustic source use during high-resolution geophysical surveys, respectively; use of sound attenuation measures and PAM during impact pile driving and UXO/MEC detonations; requirements to conduct sound field verification (SFV) during impact pile driving and UXO/MEC detonations; fishery survey mitigation to avoid interactions and entanglements; and various situational and incremental (i.e., weekly, monthly, annual) reporting requirements. Appendix A includes a listing of mitigation, monitoring, and reporting measures that have been considered by BOEM in formulating its NEPA analysis. Many of these measures align with those to be included in the final ITR and LOA; however, the final LOA may contain additional, more protective measures than those listed in Appendix A.

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Samuel D. Rauch, III
Deputy Assistant Administrator for Regulatory Programs

Date

5.3. U.S. Army Corps of Engineers Decision

In accordance with 40 CFR § 1505.2, this section constitutes the Record of Decision (ROD) of the United States Army Corps of Engineers (USACE) New England District to issue a Department of the Army (DA) permit pursuant to section 10 of the Rivers and Harbors Act of 1899 (RHA; 33 U.S.C. § 403) and section 404 of the Clean Water Act (CWA; 33 U.S.C. § 1344) for the construction and maintenance of the Revolution Wind, LLC Offshore Wind Energy Facility proposed by Revolution Wind, LLC. This document is prepared in accordance with the Council on Environmental Quality's (CEQ) regulations implementing the National Environmental Policy Act (NEPA) (40 CFR Parts 1500-1508).¹⁸ This section also constitutes the USACE's CWA Section 404(b)(1) Guidelines Evaluation (40 CFR Part 230), and the Public Interest Review (33 CFR § 320.4) under the authority delegated to the District Engineer by 33 CFR § 325.8.

This ROD incorporates by reference the U.S. Department of Interior, Bureau of Ocean Energy Management (BOEM) 2021 Draft Environmental Impact Statement (DEIS), and the 2023 Final Environmental Impact Statement (FEIS) for the "Revolution Wind Farm and Revolution Wind Export Cable Project." USACE has been a cooperating agency under 40 CFR § 1501.8, with BOEM as lead agency under 40 CFR § 1501.7, for purposes of complying with NEPA. Additionally, BOEM has been the lead agency the purposes of complying with Section 7 of the Endangered Species Act (ESA), Section 106 of the National Historic Preservation Act (NHPA), and Section 305 of the Magnuson-Stevens Fishery Conservation and Management Act.

USACE concurs with BOEM that this project constitutes a major federal action significantly affecting the quality of the human environment, and that therefore an environmental impact statement (EIS) was required. As a cooperating agency in accordance with NEPA, USACE provided appropriate input and review comments during the EIS process. USACE has independently reviewed the EIS and concludes that its comments and suggestions have been satisfied. USACE has reviewed and evaluated the information in the FEIS in accordance with 40 CFR § 1506.3, and 33 CFR Part 325, Appendix B, and finds that the actions covered by the FEIS and those regulated by USACE under section 10 of the RHA and section 404 of the CWA are substantially the same. The FEIS and associated NEPA documents prepared by BOEM, with referenced materials, and comments received in response to them, are hereby adopted in full and in accordance with 40 CFR § 1506.3, for purposes of NEPA, the public interest review required by 33 CFR § 320.4, and the 404(b)(1) Guidelines analysis required by 40 CFR Part 230.

This section documents the decision of USACE to issue a DA permit pursuant to Section 404 of the CWA and Section 10 of the RHA to Kellan Ingalls representing Orsted/Revolution Wind, LLC. The DA permit will authorize the construction and maintenance of an offshore wind energy facility within BOEM's Renewable Energy Lease Area OCS-A 0486 in the Atlantic Ocean that would provide up to 704 megawatts (MW) of clean energy to the states of Connecticut and Rhode Island. The project to be permitted includes up to 65 wind turbine generators (WTGs) connected by inter-array cables (IACs), up to two offshore substations (OSSs) connected by an OSS-link cable and up to two export cables within a single 42-mile long cable corridor extending from the lease area up through the West Passage of Narragansett Bay to

¹⁸ As noted in Footnote 2, above, this ROD follows the 2020 CEQ Regulations.

a landfall site at Quonset Point in North Kingstown, RI. The WTGs and OSSs will require scour protection and the cables will require secondary cable protection in areas where burial cannot occur, where burial is not achieved to a sufficient depth, or where the cables cross existing submarine assets such as cables or pipelines. Scour and cable protection could take the form of rock berms, concrete mattresses, fronded mattresses, and/or rock bags.

5.3.1 USACE Authorities and Jurisdictional Activities

5.3.1.1 USACE Authority and Jurisdiction under Section 404 of the CWA

Under section 404 of the CWA, USACE regulates the discharge of dredged or fill material into the waters of the United States. The USACE's section 404 jurisdiction in tidal waters extends from the high tide line to the seaward limits of the territorial seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles (see 33 CFR § 328.4(a) & (b)). The baseline from which the three-mile limit of the territorial seas is measured is generally the line on the shore reached by the ordinary low tides but may also lie across the mouth of bays or elsewhere when the coast is not in direct contact with the open sea. For this project the USACE's seaward limit of section 404 jurisdiction in tidal waters coincides with the limits of Rhode Island state waters.

The limit of section 404 jurisdiction in non-tidal waters (33 CFR § 328.4(c)) is as follows: (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands. When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

Up to 23 miles of the offshore export cable corridor would be located in waters of the United States regulated by USACE under Section 404 of the CWA. Within Section 404 waters, the applicant is proposing to install up to two export cables within this corridor using simultaneous lay and burial technology. In terms of seabed preparation, the applicant is not proposing to perform sand wave dredging or to use a boulder plow within the limits of Section 404 waters.

Therefore for this project USACE has determined that the discharges of dredged or fill material subject to Section 404 jurisdiction and their associated impacts include the following:

Placement of secondary cable protection over approximately 5% of the export cables as well as in seven locations with existing cables or pipelines. Cable protection will consist of a rock berm, concrete mattresses, fronded mattresses, and/or rock bags. This will result in 32.9 acres of subtidal impacts.

The refilling of the two horizontal directional drilling (HDD) exit pits to be excavated for the work associated with the shore to landfall transition resulting in up to 0.95 acre of temporary subtidal impacts.

None of these impacts will involve conversion of aquatic habitat to uplands nor will they involve impacts to wetlands.

USACE has determined that the onshore work, which includes the installation of onshore cables, and construction of a new onshore substation and a new interconnection facility adjacent to the

existing Davisville substation, does not involve a discharge of dredged or fill material into waters of the United States. Therefore, the onshore work does not require a permit under Section 404 of the CWA. The up to 4,370 sf of proposed tree cutting activities in wetlands at the Davisville substation are not regulated under Section 404 of the CWA because they do not involve a discharge of dredged or fill material. As described in USACE's February 11, 2022 "No Permit Required" letter, the proposed tree cutting will involve removal of trees within wetlands via handheld chainsaws used by workers on the ground, handheld chainsaws used by workers in bucket trucks staged in uplands, or tree shears used by workers in the uplands.

5.3.1.2 USACE Authority and Jurisdiction under Section 10 of the RHA

5.3.1.2.1 USACE Section 10 Jurisdiction in Navigable Waters of the U.S.

Under Section 10 of the RHA, USACE regulates construction of any structures and work that are located in or that affect "navigable waters of the U.S." In tidal waters, the shoreward limit of navigable waters extends to the mean high water line while the seaward limit coincides with the limit of the territorial seas.

For this project USACE has determined that the proposed structures and work within navigable waters subject to Section 10 jurisdiction will occur within a 23 mile section of the export cable corridor located within navigable waters of the U.S. Work and structures within navigable waters and their associated impacts include the following:

Excavation and refilling of the HDD pits for the landfall cable transition resulting in up to 0.95 acre of subtidal waters impacts.

Boulder relocation, cable lay and burial trials, the pre-lay grapnel run, the installation of the two cables and cable joints, and the placement of secondary cable protection as needed. This work will occur within a general disturbance corridor that is 131 feet wide for each of the two cables and would be estimated to result in a disturbance area involving up to 603 acres of subtidal waters. The applicant is planning to avoid any unexploded ordinances (UXOs), but should any unexpected UXOs be found and need to be dealt with, this work would also be regulated under Section 10 of the RHA.

5.3.1.2.2 USACE Section 10 Jurisdiction on the Outer Continental Shelf

The USACE's authority to prevent obstructions to navigation in navigable waters of the United States was extended to artificial islands, installations, and other devices located on the seabed, to the seaward limit of the outer continental shelf (OCS), by section 4(f) of the Outer Continental Shelf Lands Act of 1953 as amended (43 U.S.C. § 1333(e) and 33 CFR § 320.2). Structures that would be located on the seabed of the OCS and therefore regulated under Section 10 of the RHA and their estimated impacts include the following:

65 WTGs, two OSSs, and associated scour protection resulting in 55 acres of subtidal seabed impacts;

inter-array cables and the OSS link cable resulting in 155 miles of cables attached to the seabed.

secondary cable protection over the inter-array cables and the onshore substation link resulting in 74.1 acres of subtidal seabed impacts.

up to two export cables within the 19 mile long corridor on the OCS resulting in 38 miles of cables attached to the seabed; and

secondary cable protection over the two export cables on the OCS, resulting in 17.8 acres of subtidal seabed impacts.

5.3.2 USACE Public Notice and Comments

USACE published a 45-day public notice for this project on September 22, 2022 and the comment period ended on October 17, 2022. The public notice was posted on the New England district website. The public notice was also sent out electronically and/or mailed to all interested parties/stakeholders listed in the New England Public Notice Worksheet, including adjacent property owners. In addition, USACE sent an email to the recipients on the public notice mailing list notifying them that USACE posted the public notice on the New England District website.

USACE received requests for an extension of the comment period from the U.S. Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) and granted the extensions. USACE received four comment letters and one of these commenters requested a public hearing. However, USACE determined that a public hearing was not required.

Comments received in response to the USACE public notice:

Comment 1: Cultural Heritage Partners (CHP) is a law firm representing the Town of New Shoreham, the City of Newport, the Southeast Lighthouse Foundation, the Newport Restoration Foundation, the Preservation Society of Newport County, and Salve Regina University. CHP submitted comments on their behalf on October 17, 2022, asserting that the project as proposed in the DEIS was contrary to the public interest. CHP also requested that USACE conduct a public hearing. The commenter's concerns with the proposed project related to the potential impacts to cultural and historic resources. CHP sent USACE a copy of the detailed comment letter submitted to BOEM as the lead federal agency for NEPA. This comment letter contained three main assertions: 1) The DEIS was inadequate because it failed to take a hard look at impacts to historic and cultural resources. 2) The DEIS failed to consider adequately the cumulative effects of Revolution Wind, South Fork Wind, Sunrise Wind, and other reasonably foreseeable wind farms; and 3) BOEM inappropriately classified key technical reports and other documents associated with the review process and is therefore thwarting public understanding of the project's true impacts.

USACE Response: CHP also submitted the same comments to BOEM in response to the DEIS, which were addressed in Appendix L of the FEIS and were considered in the preparation of the FEIS and in the Section 106 process. Regarding the request for a USACE public hearing, BOEM held five public meetings on the proposed project- three in-person and two virtually. Written comments were solicited throughout the comment period by mail or by utilizing the regulations.gov website. In addition, the groups represented by CHP all participated as consulting parties to the Section 106 process which resulted in a Memorandum of Agreement (MOA) to resolve adverse effects to historic properties. USACE therefore determined that holding a public hearing would not provide any new or substantive information beyond what was already in the record, nor would it aid in USACE's understanding of the relevant facts and

issues. Therefore USACE denied the public hearing request. Additionally, USACE has adopted the FEIS' evaluation of the project, assessed the impacts—including cumulative impacts—of the proposed project and its intended use on the public interest, and determined that granting a permit is not contrary to the public interest.

Comment 2: The United States Coast Guard (USCG) emailed USACE a copy of the comment letter it had submitted to BOEM on October 14, 2022, in response to the publication of the DEIS. In the comment letter USCG stated that the DEIS sufficiently evaluated the impacts to navigation and that the project would result in minor to moderate adverse impacts. The USCG voiced support for the proposed action in the draft EIS (Alternative B) which would maintain an east-west and north-south 1 nautical mile by 1 nautical mile spacing and layout for the WTGs and the OSSs in the lease area. USCG also voiced support for Alternative D3 which would remove the northwest row of positions for WTGs adjacent to the inbound Buzzards Bay traffic lane. USCG said they supported that alternative because those WTG positions would be less than 2 nautical miles from the Buzzards Bay approach lane. USCG also stated that it was imperative that the navigation mitigation measures in Appendix F of the DEIS be made mandatory. USCG also suggested consideration of the following additional measures: 1) periodic review of wind farm operations by USCG and participation in emergency response exercises 2) not counting safety zones as a key mitigating factor when considering navigation risks 3) timely receipt by USCG of construction plans for activities that could impact USCG missions 4) opportunity for USCG to suggest amendments to mitigation measures as needed and 5) USCG ability to re-evaluate any analysis submitted by the applicant or to require additional analysis after project installation.

USACE Response: As the lead federal agency, BOEM considered this comment letter in the preparation of the FEIS. Section 3.16 of the FEIS provides an in-depth analysis of the impacts of the project on navigation and Table 3.16-5 lists mitigation and monitoring measures resulting from consultations on navigation. BOEM also addressed this comment letter in Appendix L of the FEIS.

Comment 3: NMFS submitted a comment letter to USACE on November 21, 2022. NMFS recognized BOEM as the lead agency for NEPA review, Section 7 ESA consultation and essential fish habitat (EFH) consultation under section 305 of the Magnuson-Stevens Fishery Conservation and Management Act but stated they were offering this letter for technical assistance in the permitting process. These comments were addressed later during the EFH consultation and primarily involved the following topics: 1) avoiding impacts in Narragansett Bay and in habitat areas of particular concern (HAPCs) 2) siting cables and structures to avoid complex and sensitive habitats 3) limiting impacts to Atlantic Cod spawning on the OCS via siting and time-of-year restrictions 4) avoiding submerged aquatic vegetation impacts 5) utilizing time of year restrictions to protect sensitive life stages of winter flounder, diadromous fish, horseshoe crabs, and shellfish resources and 6) mitigating for unavoidable impacts to aquatic habitats. As these comments were addressed during the EFH consultation, they are not addressed here.

Comment 4: EPA requested and received an extension on the commenting deadline. On November 30, 2022, EPA emailed USACE a copy of the comment letter sent to BOEM relative to the DEIS. In this letter, EPA provided a critique of various analyses in the DEIS, voiced support for Alternative F, commented on environmental justice, air quality, and the climate

change risk analysis, and voiced support for additional research. As the lead federal agency, BOEM considered this comment letter in the preparation of the FEIS. In addition, BOEM specifically addressed the comments in this letter in Appendix L of the FEIS. USACE finds that BOEM's responses and subsequent analysis in the FEIS sufficiently address these issues.

EPA did provide one USACE-specific comment in the email containing the letter to BOEM. EPA indicated it was interested in USACE's position regarding alternate onshore export cable routes (e.g., along road rights of way (ROWs)) in order to avoid and minimize aquatic impacts to Narragansett Bay, similar to the onshore cable route alternatives that were being considered for a nearby proposed offshore wind project.

USACE Response: This comment was appropriate for USACE to address as it dealt specifically with work within Narragansett Bay, which is not on the OCS and is therefore out of BOEM's geographical jurisdiction. The proposed export cable route- Davisville Alternative 2- would extend from the lease area north into the West Passage of Narragansett Bay and make landfall at Quonset Point in North Kingstown, RI. USACE requested that the applicant evaluate an export cable corridor route that would make landfall further south to limit impacts to Narragansett Bay. As the applicant had already obtained easements to tie in with the existing Davisville Substation, the applicant submitted an analysis of two more overland cable routes, Davisville Overland Alternate 1 and Davisville Overland Alternate 2. The location, aquatic impacts, and analysis of practicability of these two routes can be found in section 5.3.4 below. USACE determined that these two alternate routes were not practicable.

5.3.3 Alternatives Considered by USACE Under the National Environmental Policy Act (NEPA)

5.3.3.1 Determination of USACE scope of analysis for NEPA

The scope of analysis for USACE's NEPA review is described in 33 CFR Part 325 Appendix B § 7.b. For this action, USACE's NEPA scope includes the specific activity requiring a DA permit. The scope of analysis also includes other aspects of the overall project because USACE and BOEM have sufficient control and responsibility to warrant federal review. Accordingly, the USACE scope of analysis under NEPA includes the areas within the 83,798-acre lease area (OCS-A 0486) that will be impacted by turbine and transmission cable installation, the 42-mile offshore export cable corridor, the onshore transmission cable route, the new onshore substation, and the new interconnection facility which will deliver the generated electricity to the existing Davisville substation. In addition, under NEPA reasonably foreseeable activities within the larger overall wind energy area were considered to account for potential cumulative effects.

5.3.3.2 Determination of Purpose and Need for USACE NEPA Review

For purposes of USACE NEPA review, the project purpose is to construct and maintain a commercially viable offshore wind energy project within Lease Area OCS-A 0486 to provide clean electrical energy to the Connecticut and Rhode Island power grids. For purposes of USACE NEPA review, the project need is to help Connecticut meet its mandate of 2,000 MW of offshore wind energy by 2030, as outlined in Connecticut Public Act 19-71, and to help Rhode Island meet its goal of 100% renewable energy by 2030, as outlined in Rhode Island Governor's Executive Order 20-01 by providing at least 704 MW of clean energy in accordance with the applicant's existing power purchase agreements.

5.3.3.3 USACE Identification of Alternatives Under NEPA

USACE has determined that the below criteria apply to any proposed NEPA alternative.

1. Any proposed alternative must provide renewable energy via the use of offshore wind turbines as BOEM designated the lease areas specifically for renewable wind energy.
2. Any alternative must tie in with the Connecticut and Rhode Island power grids and deliver a minimum of 704 MW of electrical energy to meet contractual obligations.
3. All NEPA alternatives other than the no action alternative propose the same export cable route, landing, and onshore work. Other cable routes, landings, and onshore work were considered by the applicant in the COP and analyzed by USACE in the 404(b)(1) Guidelines alternatives analysis below. However USACE determined that they were not the least environmentally damaging practicable alternative. Therefore only the proposed cable route was carried forward for NEPA analysis.

One no action alternative (Alternative A) and five action alternatives (Alternatives B, C, D, E, F, and G) were analyzed in-depth in the FEIS. For a full description of each alternative, see Table 3-1.

Alternative A is the no action alternative. Under this alternative, USACE would not issue a permit under Section 10 of the RHA and Section 404 of the CWA.

Alternative B is the applicant's originally proposed action which would include the installation of up to 100 WTGs within the lease area connected by inter-array cables, up to two offshore substations connected by an offshore substation link cable, up to two export cables within a 42-mile offshore export cable corridor with a landing at Quonset Point in North Kingstown, RI, onshore cables, an onshore substation and an interconnection facility.

Alternative C is the habitat minimization alternative which would remove between 35 and 36 WTGs from 100 proposed WTGs to reduce impacts to complex fisheries habitats associated with Cox Ledge. Alternative C would include the same export cable corridor, landing, and onshore work as Alternative B.

Alternative D is the transit alternative which would remove between seven and 22 WTGs from the 100 proposed WTGs in Alternative B to reduce navigation risks. Alternative D would include the same export cable corridor, landing, and onshore work as Alternative B.

Alternative E was the viewshed alternative, which would remove between 19 and 36 WTGs from the 100 proposed WTGs in Alternative B to reduce the visual impacts to culturally important resources on Martha's Vineyard and in Rhode Island. Alternative E would include the same export cable corridor, landing, and onshore work as Alternative B.

Alternative F was the higher capacity turbine alternative that would remove up to 44 turbines from the 100 proposed WTGs in Alternative B in the lease area. Alternative F would include the same export cable corridor, landing, and onshore work as Alternative B.

Alternative G was the preferred alternative and would allow for the installation of 65 turbines within 79 possible positions. Two of the 65 turbines could be located in three different configurations. In addition, the other 14 positions would be spare locations that could be utilized if unforeseen siting issues made any of the 65 turbine positions infeasible. Alternative G was a hybrid alternative that would reduce impacts to both visual resources and benthic habitat. Alternative G would include the same export cable corridor, landing, and onshore work as Alternative B.

5.3.3.4 USACE Specification of Environmentally Preferable Alternatives

USACE is required by CEQ regulations, 40 CFR § 1505.2(a)(2), to specify the alternative or alternatives considered environmentally preferable. USACE may discuss preferences among alternatives based on relevant factors including economic and technical considerations. USACE shall identify and discuss all such factors that it balanced in making its decision and state how those considerations entered into its decision.

USACE identified three environmentally preferable alternatives: (1) Alternative A, the no action alternative; (2) Alternative C, the habitat minimization alternative; and 3) Alternative G, which is the preferred alternative in the FEIS.

Under the No Action Alternative, USACE would not issue any permits under Section 404 of the CWA or Section 10 of the RHA regarding the proposed project. Therefore, no WTGs, offshore substations, or inter-array cables would be installed out in Lease Area OCS- A 0486. No export cables would be installed within the Atlantic Ocean and Narragansett Bay to carry electricity from the lease area to a grid interconnection point onshore. There would be no aquatic impacts from the proposed work. However, this alternative would not meet the project purpose of providing clean offshore wind energy to the CT and RI power grids. As the very nature of an offshore wind project involves siting in a waterbody, there is no way for the applicant to shift the project location to get outside of USACE jurisdiction. In addition, even in the absence of the proposed action, other reasonably foreseeable future impact-producing offshore wind and non-offshore wind activities would be implemented, which would cause changes to the affected environment. Therefore, USACE did not choose the no action alternative.

Alternative C is an environmentally preferable alternative because it would reduce impacts to complex habitats on Cox ledge by reducing the number of turbine positions in priority areas. Complex habitat is more vulnerable to long-term and permanent impacts and has been identified by NOAA as EFH for a number of federally managed species, including Atlantic cod. During geotechnical survey work in support of the project, the applicant determined that 21 of the 100 turbine positions were no longer technically feasible. The applicant stated that a minimum of 65 turbines were needed for a viable project, to meet the power purchase agreements. If the turbine positions proposed for removal in Alternatives C1 or C2 were removed and the turbine positions that were no longer technically feasible were removed there would not be enough turbine positions left to support a viable project. Therefore USACE did not choose Alternative C.

Alternative G is an environmentally preferable alternative as it would also reduce the number of turbines within complex habitats on Cox ledge. However this alternative balances concerns regarding fisheries habitat, navigation, and visual impacts while also allowing for the minimum number of turbines to meet the project purpose of providing 704 MW of clean renewable energy

to the CT and RI power grids. As noted by BOEM in Section 3.3, offshore wind has been identified as a key factor for Atlantic states to reach their greenhouse gas emission reduction goals. Therefore USACE has chosen Alternative G, which is the preferred alternative in the FEIS.

5.3.3.5 Mitigation, Monitoring, and Reporting (40 CFR § 1505.2(a)(3))

USACE is required by CEQ regulations to state whether it has adopted all practicable means to avoid or minimize environmental harm from the alternative selected, and if not, why the agency did not. The agency shall adopt and summarize, where applicable, a monitoring and enforcement program for any enforceable mitigation requirements or commitments.

USACE has adopted all practicable means to avoid or minimize environmental harm from Alternative G, including the following:

- Appendix F of the FEIS identifies environmental protection measures (EPMs) committed to by the applicant to avoid and minimize environmental impacts that could result from the proposed activities. USACE has adopted these measures as part of the proposed action that would be subject to the USACE permit authorization.
- USACE has adopted certain conservation recommendations (CRs) resulting from the essential fish habitat (EFH) consultation under the Magnuson-Stevens Act (see 5.3.7.2).
- Under Section 7 of the ESA, USACE has adopted the reasonable and prudent measures and the terms and conditions found in the biological opinion issued by USFWS for terrestrial species in the action area and in the biological opinion issued by NMFS for marine species within the action area (see 5.3.7.1).
- USACE has adopted certain conservation recommendations received from NMFS in accordance with the Fish and Wildlife Coordination Act (FWCA) (see 5.3.6.1 under Fish and Wildlife Values).
- USACE has adopted all mitigation measures identified in the MOA resulting from the Section 106 consultation process under the NHPA (see 5.3.7.3).

5.3.4 Alternatives Evaluation Under the Section 404(b)(1) Guidelines:

Any discharge of dredged or fill material into waters of the United States authorized under Section 404 of the CWA must comply with guidelines established by the Administrator of the US EPA under Section 404(b)(1) of the CWA (the 404(b)(1) Guidelines) in 40 CFR Part 230. For the proposed project, USACE has determined that the activities in waters of the United States regulated under Section 404 of the CWA include the following: 1) the discharge of fill material for secondary cable protection over the two export cables along the 23 mile export cable corridor located within the 3 nautical mile limit of the territorial seas, and 2) the discharge of dredged material to refill the two HDD exit pits associated with the cable landing work at Quonset Point in North Kingstown, Rhode Island.

Except as provided under section 404(b)(2) of the CWA, no discharge of dredged or fill material

shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

For the Revolution Wind project, USACE has determined that the overall project purpose is the construction of a commercial-scale offshore wind energy project, including all associated export cables, for renewable energy generation and distribution to the Connecticut and Rhode Island energy grids.

According to the 404(b)(1) Guidelines, when the activity associated with a discharge which is proposed for a special aquatic site (as defined in 40 CFR Part 230 subpart E) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not “water dependent”), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise. For the Revolution Wind project, USACE has determined that the basic project purpose is offshore wind energy generation. However, as the applicant’s proposed activity does not involve a discharge into a special aquatic site, this part of the Guidelines is not applicable to the USACE evaluation of the applicant’s proposed discharge of dredged or fill material into waters of the United States.

This 404(b)(1) Guidelines alternatives analysis is not identical to the NEPA alternatives analysis discussed elsewhere in this ROD. The 404(b)(1) Guidelines only look at alternatives to a discharge of dredged or fill material in waters of the United States regulated by USACE under Section 404 of the CWA. Alternative placements of turbines on the OCS analyzed under NEPA are not subject to the 404(b)(1) Guidelines analysis because activities on the OCS necessarily do not involve a discharge of dredged or fill material into waters of the United States, which, as described in Section 5.3.1.1 above, only extend to the 3 nautical mile limit of the territorial seas.

5.3.4.1 Site Selection/Screening Criteria

The proposed discharges of dredged and fill material are directly related to the export cable route as the route would determine how much of the cables would require the discharge of fill for secondary cable protection and the location of the HDD pits. Depending on the alternative, there could also be non-tidal waters or wetland impacts associated with the onshore work. USACE has determined that any alternative regarding the cable route and associated onshore work must meet the following criteria:

- Within tidal waters, any alternative must have geological substrate characteristics that would allow for adequate burial of the cable below the substrate. However, it is expected that there would be a small percentage of the route that might not allow for adequate burial.
- Any alternative must allow the transmission cables coming from the lease area to tie into

the CT and RI power grids and to deliver 704 MW of electricity.

5.3.4.2 Description of Section 404 Alternatives And Their Impacts

This alternatives analysis considered nine export cable corridor routes and associated onshore work as well as a “no action alternative.” Seven of the export cable corridor routes were considered when the applicant was developing the Construction and Operations Plan for submittal to BOEM. During the EIS process, USACE requested that the applicant also evaluate an export cable corridor route that would involve less subtidal impacts in Narragansett Bay. The applicant submitted information on two additional routes using the Davisville substation as the proposed grid connection. The nine export cable corridor routes plus the “no action alternative” are analyzed below. Additional information can be found in Appendix K of the FEIS, including figures of the proposed routes and a table comparing alternatives.

This alternatives analysis assumes the following of the nine proposed cable corridor routes and associated onshore work within Section 404 waters.

- 1) Up to two cables, each approximately 11.8 inches in diameter, would be installed in the offshore export cable corridor. Within Section 404 waters, the applicant is proposing to use simultaneous cable lay and burial technology to a target depth of 4 to 6 feet below the substrate. USACE has determined that this cable installation method does not involve a discharge of dredged or fill material regulated under Section 404 of the CWA (see 33 CFR § 323.2(d)(3)(i)).
- 2) Fill impacts regulated under Section 404 of the CWA are associated with secondary cable protection. In areas where burial could not occur or where sufficient burial depth could not be achieved due to seabed conditions, cable protection in the form of hard armoring would be installed. This armoring would consist of rock berms, concrete mattresses, fronded mattresses, or rock bags. It is estimated that 5% to 10% of each export cable would require cable protection based on issues with burial. In addition, secondary cable protection would be installed where the export cables crossed another cable or pipeline. As the applicant is planning to install the cable in soft sediments and to avoid complex habitat to the extent practicable, it is assumed that the subtidal impacts from secondary cable protection would be similar in nature across all alternatives.
- 3) At the landfall site, the cables would be installed using HDD technology to limit impacts to the nearshore environment. This work would require excavation of two HDD pits in subtidal waters. The excavated material would be stored on a barge and then backfilled into the pits once the HDD cable installation was completed. This would result in a maximum of 0.95 acre of subtidal fill impacts. As this impact would occur across all alternatives except the no action alternative and would involve the same acreage of regulated impact, this impact will not be addressed in the alternatives analysis below.
- 4) For some of the alternatives, the onshore work would also involve impacts to waters of the United States regulated under Section 404 of the CWA. If so, those impacts are referenced below.

No Action Alternative: Under this alternative, USACE would not issue a permit under Section 404 of the CWA and the applicant would not discharge any dredged or fill material into waters

of the United States. Therefore, no secondary cable protection would be placed over the offshore export cables in waters of the United States and no HDD work would occur that would require refilling of the HDD pits. Without secondary cable protection, 5% to 10% of the cables within waters of the United States would either lie directly on the substrate or would be buried to an insufficient depth. This would subject the cables to damage by tidal forces and scour. The cables would also be subject to damage by fishing gear and boat anchors. Without the discharge of dredged material associated with the HDD work, the export cables would have to lie directly on the substrate in the nearshore environment and in the intertidal zone. The cables would be subject to damage by tidal forces, people, and animals and could pose a safety hazard to people walking along the shoreline. Therefore, it is infeasible to install the export cables without the addition of secondary cable protection and the HDD work. Because the export cable work could not be performed without any discharge of dredged or fill material into waters of the United States, the no action alternative is not practicable under the 404(b)(1) Guidelines because it is inconsistent with the overall project purpose.

Offsite Alternative 1- Brayton Point Route 1 (BPR1): This export cable route would run from the lease area north into Narragansett Bay. The route would then pass through the upper East Passage into Mount Hope Bay and terminate on the west side of Brayton Point in Somerset, Massachusetts. The BPR1 export cable route would run approximately 35.9 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Brayton Point. See FEIS Appendix K for further details on the BPR1 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 61.1 acres of fill in subtidal waters for cable protection. This alternative involved the longest cable lengths and greatest amount of fill in waters of the United States. Under this alternative there would be no impacts to wetlands or other special aquatic sites.

This alternative is practicable.

Offsite Alternative 2- Brayton Point Route 2 (BPR2): This export cable route would run from the lease area north into Narragansett Bay through the lower East Passage. The route would then pass through the upper East Passage into Mount Hope Bay and terminate on the west side of Brayton Point in Somerset, Massachusetts. The BPR2 export cable route would run approximately 29.1 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Brayton Point. See FEIS Appendix K for further details on the BPR2 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 54.1 acres of fill in subtidal waters for cable protection. There would be no impacts to wetlands or other special aquatic sites such as mudflat or eelgrass.

An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. This alternative is not practicable because it is not available. This alternative involves Department of Defense (DOD) use conflicts. The lower East Passage of Narragansett Bay contains three restricted areas designated by USACE under 33 CFR Part 334. A restricted area is a defined

water area for the purpose of prohibiting or limiting public access to the area. Restricted areas generally provide security for Government property and/or protection to the public from the risks of damage or injury arising from the Government's use of that area. Any cable route through the lower East Passage of Narragansett Bay would cross the Narragansett Bay, RI, restricted area established in 33 CFR § 334.80. Per 33 CFR § 334.80(b)(1), anchoring, fishing, or towing a drag of any kind is prohibited in the restricted area because of the extensive cable system located therein. The three restricted areas are enforced by the United States Navy, Commanding Officer Naval Station Newport. In previous meetings with the applicant the Navy requested that the cable route avoid the lower East Passage of Narragansett Bay.

Offsite Alternative 3- Riverside Avenue Route (RAR): This export cable would run from the lease area north into Narragansett Bay through the Sakonnet River. The cable would continue north through Mount Hope Bay into the Taunton River and terminate near the former Montaup Power Plant on the east side of Somerset. The RAR export cable route would run approximately 25.8 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Montaup. See FEIS Appendix K for further details on the RAR alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 47.9 acres of fill in subtidal waters for cable protection. There would be no impacts to wetlands or other special aquatic sites such as mudflat or eelgrass.

This alternative is practicable.

Offsite Alternative 4- Kent County Route 1 (KCR1): This export cable route would run from the lease area north into Narragansett Bay through the Lower East Passage. The route would then pass through the Upper West Passage and terminate near Chipewanoxet Point in Warwick, Rhode Island. The KCR1 export cable route would run approximately 28.9 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Chipewanoxet Point. See FEIS Appendix K for further details on the KCR1 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 53.7 acres of subtidal waters for cable protection and 0.7 acre of non-tidal wetland impacts for construction of the onshore substation. No impacts to other special aquatic sites are anticipated.

This alternative is not practicable because it is not available due to the same DOD use conflicts as described in BPR2.

Offsite Alternative 5- Kent County Route 2 (KCR2): This export cable route would run from the lease area north into Narragansett Bay through the lower West Passage. The route would then pass through the upper West Passage and terminate near Chipewanoxet Point in Warwick, Rhode Island. The KCR2 export cable route would run approximately 30 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Chipewanoxet Point. See FEIS Appendix K for further details on the KCR2 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 50.2 acres of subtidal waters for cable protection and 0.7 acre of non-tidal wetland impacts for construction of the onshore substation. No impacts to other special aquatic sites are anticipated.

This alternative is practicable.

Offsite Alternative 6- Davisville Route 1 (DR1): This export cable route would run from the lease area north into Narragansett Bay through the Lower East Passage between the Towns of Jamestown, and Newport and Middletown, Rhode Island on Aquidneck Island and terminate at the south side of Quonset Point in North Kingstown, Rhode Island. The DR1 export cable route would run approximately 21 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Quonset Point. See FEIS Appendix K for further details on the DR1 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 39.0 acres of fill in subtidal waters for cable protection.

There would be no impacts to wetlands or other special aquatic sites regulated under Section 404 of the CWA with this alternative. The applicant is proposing up to 0.1 acre of tree cutting in non-tidal wetlands at the Davisville substation. As described in USACE's February 11, 2022 "No Permit Required" letter, the proposed tree cutting would involve removal of trees within wetlands via handheld chainsaws used by workers on the ground, handheld chainsaws used by workers in bucket trucks staged in uplands, or tree shears used by workers from the uplands. Per 33 CFR § 323.2(d)(2)(ii), this activity does not constitute a discharge of dredged or fill material into waters of the United States.

This alternative is not practicable because it is not available due to the same DOD use conflicts as described in BPR2.

Onsite Alternative 1- the applicant's proposed alternative- Davisville Route 2 (DR2): This export cable route would run from the lease area north into Narragansett Bay through the lower West Passage between the Towns of Jamestown, Narragansett and North Kingstown, Rhode Island and terminate at the south side of Quonset Point in North Kingstown, Rhode Island. The DR2 export cable route would run approximately 23 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Quonset Point. See FEIS Appendix K for further details on the DR2 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA consist of 32.9 acres of fill in subtidal waters for cable protection. Approximately 11 acres of the subtidal waters impacts would be associated with secondary cable protection due to burial issues. The other 21.9 acres of subtidal impacts would be from secondary cable protection related to the crossing of existing cables or pipelines. These areas would already have been impacted previously when the original cable or pipeline was installed.

There would be no impacts to wetlands or other special aquatic sites regulated under Section 404 of the CWA with this alternative. The applicant is proposing up to 0.1 acre of tree cutting in non-tidal wetlands at the Davisville substation. As described in USACE's February 11, 2022 "No Permit Required" letter, the proposed tree cutting would involve removal of trees within wetlands via handheld chainsaws used by workers on the ground, handheld chainsaws used by workers in bucket trucks staged in uplands, or tree shears used by workers from the uplands. Per

33 CFR 323.2(d)(2)(ii), this activity does not constitute a discharge of dredged or fill material into waters of the United States.

This alternative is practicable.

Offsite Alternative 7- Davisville Overland Alternate 1 (DOA1): This export cable route would run from the lease area north into Narragansett Bay and terminate at Scarborough State Beach in Narragansett, Rhode Island. The DOA1 export cable route would run approximately 11.5 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Narragansett. Onshore, the cables would be installed in an underground duct bank that would follow existing paved roadways including Burnside Road, State Route 108 and US Route 1 in the towns of Narragansett, South Kingstown and North Kingstown. It would then join the Narragansett Electric Company (TNEC) 115 kV Davisville Tap Right-Of-Way (ROW) and follow it to the Davisville Substation for an overall onshore distance of approximately 17 miles. Between the Davisville Substation and the Onshore Substation, the underground duct bank would be collocated in the overhead ROW. See FEIS Appendix K for further details on the DOA1 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA include 5.4 acres of fill in subtidal waters for secondary cable protection due to burial challenges. It is uncertain how much secondary cable protection would be needed due to the crossing of existing cables or pipelines as the applicant did not perform geotechnical survey work on this route. Therefore, there may be additional impacts from cable or pipeline crossings that are not accounted for in the estimated 5.4 acres of subtidal impacts.

There would also be approximately 0.3 acre of non-tidal wetlands impacts for installation of the onshore cable route. There are no anticipated impacts to other special aquatic sites.

In addition, per 33 CFR §167.103, there is a restricted area, two miles wide, extending from the southern limit of the Narragansett Bay Approach separation zone - the separation zone between the inbound and outbound lanes of the USCG traffic separation scheme- to a latitude of 41°24.70' N. This restricted area is utilized as a DOD torpedo range during certain periods of daylight and optimal weather conditions, when it may be closed to ship traffic by the Naval Underwater System Center. The applicant indicated that the DOA1 cable route would also have to cross this restricted area and torpedo range and they do not have permission to do so. The over land part of this cable route would also require numerous authorizations and/or easements- which the applicant does not possess- from the Rhode Island State Properties Commission, the Rhode Island Department of Transportation, the Town of Narragansett, and other private property owners. Accordingly, this alternative is not practicable because it is not available.

Offsite Alternative 8- Davisville Overland Alternate 2 (DOA2): This export cable route would run from the lease area north into Narragansett Bay and terminate at Scarborough State Beach in Narragansett, Rhode Island. The DOA2 export cable route would run approximately 11.5 miles through waters of the United States from the 3 nautical mile seaward limit to the landfall at Narragansett. Onshore, the cables would be installed in an underground duct bank that would follow existing paved roadways (Burnside Road, State Route 108 and US Route 1) in the towns

of Narragansett, South Kingstown and North Kingstown before joining a TNEC 34.5 kV distribution ROW. The cables would run through the TNEC distribution ROW to the Davisville Tap ROW and eventually terminate at the Davisville Substation for an overall onshore distance of approximately 18.8 miles. Between the Davisville Substation and the Onshore Substation, the underground duct bank would be collocated in the Overhead ROW. See FEIS Appendix K for further details on the DOA2 alternative.

Impacts associated with this alternative regulated under Section 404 of the CWA include 5.4 acres of fill in subtidal waters for secondary cable protection due to burial challenges. It is uncertain how much secondary cable protection would be needed due to the crossing of existing cables or pipelines as the applicant did not perform geotechnical survey work on this route. Therefore, there may be additional impacts from cable or pipeline crossings that are not accounted for in the estimated 5.4 acres of subtidal impacts.

There would be approximately 3.2 acres of wetland fill impacts (1.25 acres of non-tidal wetlands and 1.9 acres of tidal wetlands) regulated under Section 404 of the CWA associated with this alternative. No impacts to other special aquatic sites such as mudflat or eelgrass are anticipated.

This alternative is not practicable because it is not available for the same reasons as described for DOA1 above.

5.3.4.3 Determination of the Least Environmentally Damaging Practicable Alternative under the 404(b)(1) Guidelines:

Of the alternatives considered above, the no action alternative as well as alternatives BPR2, KCR1, DR1, DOA1, and DOA2 are not practicable. Therefore, they will not be considered further.

Of the four practicable alternatives BPR1 would result in 61.1 acres of subtidal impacts. KCR2 would result in 50.2 acres of subtidal impacts and 0.7 acre of non-tidal wetland impacts. RAR would result in 47.9 acres of subtidal impacts. DR2 would result in 32.9 acres of subtidal impacts. Of these alternatives, DR2 would result in the least aquatic impacts and has no other significant adverse environmental consequences. The subtidal areas where cable protection would be placed consist primarily of soft substrates, limiting potential impacts to complex habitats. In addition, there would be no permanent loss of waters of the United States from the fill placement. Therefore, DR2 was determined to be the least environmentally damaging practicable alternative (LEDPA). All environmental impacts of alternative DR2 were addressed in the NEPA process by BOEM in the FEIS, which USACE has adopted. The other cable route alternatives were not carried forward for analysis under NEPA. They were not permissible by USACE under Section 404 of the CWA because they were not the LEDPA.

5.3.5 Evaluation of the Discharge of Dredged and Fill Material Under the 404(B)(1) Guidelines (40 CFR Part 230, Subparts B through H)

The following sequence of evaluation is consistent with 40 CFR § 230.5. The impact assessment below may differ from the impact assessment in the FEIS in that the NEPA analysis assessed impacts from the Project as a whole, whereas this analysis considers only a subset of the Project, specifically the impacts from the discharge of dredged and fill material into waters of the United

States. As noted above in Section 5.3.1.1, waters of the United States subject to the CWA only extend to the three-mile limit of the territorial seas. It has been determined that there are no practicable alternatives to the proposed discharge (Alternative DR2) that would be less environmentally damaging (40 CFR § 230.10(a)). There is no practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, and the proposed discharge does not have other significant environmental consequences. Therefore, this section evaluates the discharge proposed in Alternative DR2.

5.3.5.1 Candidate disposal site delineation (Subpart B, 40 CFR § 230.11(f))

Each disposal site shall be specified through the application of these Guidelines. The general disposal site is within Narragansett Bay, which is a temperate, well-mixed estuary covering 147 square miles. Geologically, the bay is a drowned river valley consisting of the Sakonnet valley, the East Passage, and the West Passage with water up to 100 feet deep at the mouth of the bay near the seaward limits of section 404 waters. Salinity within the bay ranges from 27 parts per thousand (ppt) in the Providence River to 32 ppt at the mouth of the bay. The disposal site is contained within the 23-mile-long section of the offshore export cable corridor that extends from the 3 nautical mile seaward limit of waters of the United States up through the West Passage of Narragansett Bay to the landfall site at Quonset Point in North Kingstown, Rhode Island. There are no special aquatic sites as defined in 40 CFR Part 230 Subpart E (wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, or riffle and pool complexes) located within the export cable corridor, and there is no proposed discharge of dredged or fill material into a special aquatic site.

5.3.5.2 Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C 40 CFR § 230.20-230.25)

Substrate: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor long-term effect on the substrate. A maximum of 32.9 acres of substrate in waters of the United States would be modified due to the installation of secondary cable protection within Narragansett Bay. The majority of the substrate to be impacted is soft bottom sediment consisting of sand and mud. This substrate would be converted to hard bottom by the placement of the rock or concrete mattresses. Although there would be a conversion of habitat type, this fill placement will not result in a loss of waters of the United States. As the overall size of Narragansett Bay is approximately 95,000 acres in size, the fill impact area of 32.9 acres represents only 0.03% of the total Narragansett Bay area, which is a minor impact overall. In addition, 21.9 acres of the proposed secondary cable protection is necessary due to the proposed cables crossing existing cables or pipelines. Therefore, these areas have been previously disturbed by other cable or pipeline installations. Up to 0.95 acre of substrate would be impacted by the refilling of the two HDD pits once the landfall work has been completed. However, as this work would be limited to the refilling of the pits with the excavated material, no habitat conversion would occur, and impacts are expected to be temporary.

Suspended particulates/turbidity: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor short-term effect on suspended particulates and turbidity. The placement of secondary cable protection over the export cables in the form of rock or concrete mattresses could cause localized, short-term turbidity. The refilling of the HDD pits when the landfall work has been completed would also cause localized, short-term turbidity.

Water: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no effect on the surrounding water as there would be no addition of contaminants that would cause changes to the water that would reduce its suitability for populations of aquatic organisms, recreation, or aesthetics.

Current patterns and water circulation: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no effect on current patterns or water circulation. The fill to be discharged for secondary cable protection would be the minimum required to protect the cables and would not be of an amount or height to cause changes in current patterns or water circulation within Narragansett Bay.

Normal water fluctuations: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no effect on tidal fluctuations in the project area as the fill to be discharged for secondary cable protection would be the minimum required to protect the cables.

Salinity gradients: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit would have no effect on salinity gradients. The fill to be discharged for secondary cable protection would be the minimum required to protect the cables and should not impact salinity gradients.

5.3.5.3 Potential Impacts on the Biological Characteristics of the Aquatic Ecosystem (Subpart D 40 CFR § 230.30-230.32)

Threatened and endangered species: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would result in minor impacts to threatened and endangered species. Threatened and endangered terrestrial species that could occur in the vicinity of the proposed discharges of dredged and fill material include the northern long-eared bat (NLEB) and the roseate tern. USACE anticipates that there would be negligible impacts to these species resulting from the proposed discharges. Threatened and endangered marine species that could occur in Narragansett Bay include Atlantic sturgeon, shortnose sturgeon, Kemp's ridley sea turtles, loggerhead sea turtles, green sea turtles, and leatherback sea turtles. USACE does not anticipate that the discharge of fill material for the secondary cable placement or the refilling of the HDD pits would bury or kill sturgeon or sea turtles. However the modification of bottom habitat through the discharge of fill for secondary cable protection and the subsequent habitat conversion could displace some foraging habitat. It is anticipated that a maximum of 32.9 acres of primarily soft bottom would be converted to hard bottom habitat as a result of the secondary cable protection placement. When considering the overall size of Narragansett Bay (95,000 acres) this habitat conversion represents impacts to only 0.03% of the total Narragansett Bay area. In addition, 21.9 acres of the proposed secondary cable protection would be necessary due to crossings of existing cables or pipelines. Therefore, these foraging areas have been previously impacted. Consultation with the USFWS and NMFS on the overall project was performed under Section 7 of the ESA and is referenced below. See Sections 3.13, 3.15, and 3.19 of the FEIS for an analysis of impacts to threatened and endangered species from the overall project.

Fish, crustaceans, mollusks, and other aquatic organisms: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would

result in moderate impacts to mollusks, fish, and crustaceans in the project area. The discharge of fill in the form of rock, concrete mattresses, fronded mattresses, or rock bags for secondary cable protection would result in the smothering of any sessile species present on the substrate. The placement of fill material has the potential to have adverse effects on egg and larval stages of fish and crustaceans that may be present in the area but are unable to avoid smothering due to their inability to relocate. However, the USACE authorization would include seasonal restrictions on the discharges of dredged and fill material within the western passage of Narragansett Bay. These include overlapping restrictions on in-water work from February 1 to June 30 to protect winter flounder eggs and larvae, from February 15 to June 30 to protect anadromous fish spawning and from April 1 to June 30 to protect horseshoe crab spawning.

Regarding shellfish, the USACE authorization would include measures to limit impacts to these species: There would be a partial seasonal restriction from April 1 to August 31 on the secondary cable protection placement and from April 1 to July 31 on the HDD work to limit impacts to shellfish spawning. In addition USACE would require the applicant to perform a shellfish survey in the location of the proposed HDD pits prior to excavation. The Rhode Island Department of Environmental Management (RIDEM) will review the survey to determine whether the applicant will be required to relocate shellfish resources prior to the HDD work. USACE anticipates there would be some benefits to fish and crustacean species from the placement of secondary cable protection in the form of rock, as rocky habitats can create structure that some species prefer as opposed to soft substrates. See Sections 3.6 and 3.13 of the FEIS for analysis of impacts to fish, crustaceans, mollusks, and other aquatic organisms from the overall project.

Other wildlife: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have minor long-term impacts to other wildlife that have not been considered above. The placement of cable protection could have minor secondary effects on seals and sea birds, as direct impacts to fish, crustaceans, and mollusks from the secondary cable protection could result in an impact to available forage for these species.

5.3.5.4 Potential impacts on special aquatic sites (Subpart E 40 CFR § 230.40-230.45)

Sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, riffle and pool complexes: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no direct effect on sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs or riffle and pool complexes as the proposed discharges would not occur within any of these special aquatic sites. The distance of the proposed HDD pits in relation to identified eelgrass beds along the shoreline should minimize the likelihood of any indirect impacts from turbidity.

5.3.5.5 Potential impacts on human use characteristics (Subpart F 40 CFR § 230.50-230.54)

Municipal and private water supplies: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no effect on municipal or private water supplies as they will occur in Narragansett Bay, a tidal waterbody. No water supply is being sourced from the Narragansett Bay.

Recreational and commercial fisheries: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have moderate

adverse impacts on recreational and commercial fisheries. Fish may be negatively affected by the discharge of fill, as non-mobile larvae and eggs cannot disperse to avoid smothering. However, there will be permit conditions requiring seasonal restrictions on the proposed discharges of dredged and fill material in Narragansett Bay to lessen impacts to fisheries. The proposed discharge of fill to protect the cable could ensnare or damage fishing gear. To offset potential losses, the applicant has committed to establishing a direct compensation program for impacted fisherman. It is anticipated that the cable protection may be minorly beneficial to recreational fisheries, as additional structure on featureless bottom tends to serve as an artificial reef that attracts higher concentrations of fish. See Section 3.9 of the FEIS for an in-depth analysis of impacts to commercial fisheries and for-hire recreational fishing from the proposed cable protection.

The applicant's proposed activities in the Lease Area would occur on the OCS and are thus outside of the waters of the United States regulated by USACE under section 404 of the CWA. USACE-regulated waters of the United States only extend seaward to the three-nautical-mile limit of the territorial seas. As a result, although regulated by USACE under section 10 of the RHA, the applicant's proposed activities in the Lease Area do not involve any discharge of dredged or fill material into waters of the United States and are not subject to the requirements of the 404(b)(1) Guidelines. This 404(b)(1) Guidelines Subpart F analysis of potential impacts to recreational and commercial fisheries thus only considers the potential impacts of the discharge of dredged or fill material regulated under section 404 of the CWA, i.e., the 32.9 acres of secondary cable protection along the 23-mile section of export cable corridor within the waters of the United States and the 0.95 acres of dredged material used to backfill the HDD pits.

Water-related recreation: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have negligible impacts on water-related recreation. USACE estimates that water-related recreation within the 3 nautical mile limit would consist of recreational fishing and boating. The placement of fill over the cables for secondary cable protection would only have a short-term effect on the navigation of recreational boaters while the work vessel was performing the fill. There would be no change in the ability of vessels to utilize the waters above the fill once it has been placed over the cable. Also the proposed discharge of fill could provide structure to the substrate in areas currently consisting of soft sediments which could have a minor, positive effect on recreational fishing.

Aesthetics: USACE anticipates that the proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have minimal effects on aesthetics. Any turbidity impacts are anticipated to be minor and short in duration. A barge would be visible from the shore while the HDD pit material was temporarily stored prior to refilling the pits but that would be a short-term minor impact. Once the secondary cable protection is discharged, it would be located at sufficient depths such that it would not be visible from the water surface.

Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves: No effect. The proposed discharge of dredged and fill material should have no effect on parks, national and historical monuments, national seashores, wilderness areas, research sites, or similar preserves as no proposed discharges will occur within or directly adjacent to these areas.

5.3.5.6 Evaluation and Testing (Subpart G, 40 CFR § 230.60-230.61)

The discharges being evaluated in this section consist of the refilling of the two HDD exit pits after the cable landfall work is complete and the placement of secondary cable protection over sections of the cable that do not achieve burial or adequate burial or that cross existing submarine assets such as cables or pipelines. The applicant performed sediment sampling in the vicinity of the proposed HDD exit pits approximately 800 feet off the landing site at Quonset Point, and the physical characteristics of the dredged material were evaluated. The habitats within the Western Passage of Narragansett Bay—including near the Quonset Point cable landing where the HDD pits would be excavated—were determined to primarily consist of depositional muds and sandy muds. These materials would be excavated, placed temporarily on a barge, and then backfilled into the exit pits once the HDD work was complete. Testing is not required for the HDD pit material because it is going back into its original location. Although the discharge material could be a carrier of contaminants, it is not likely to degrade the disposal site. The secondary cable protection would consist primarily of rock berms and/or concrete mattresses. It has been determined that testing is not required for these materials because they will be comprised of clean inert material.

5.3.5.7 Actions to Minimize Adverse Effects (Subpart H, 40 CFR §§ 230.70 – 230.77)

- Actions concerning the location of the discharge: The applicant has sited the cable, and therefore cable protection, in soft sediments to the degree practicable to limit impacts to complex habitat. The applicant has also sited the HDD pits and cables to avoid special aquatic sites.
- Actions concerning the material to be discharged: The cable protection materials would consist of clean rock and concrete mattresses. The dredged material used to refill the HDD pits would consist of the same material excavated from the pits.
- Actions controlling the material after discharge: N/A
- Actions affecting the method of dispersion: Instead of being temporarily sidecast, the dredged material from the HDD pits would be stored on a barge prior to being used to refill the pits. This should limit temporary benthic impacts.
- Actions related to technology: HDD technology will be used at the landfall transition rather than open trenching and backfill. This will limit nearshore impacts as eelgrass has been identified east and west of the landfall site.
- Actions affecting plant and animal populations: The applicant has sited the cable to avoid special aquatic sites. There will be seasonal restrictions on the discharges to limit impacts to spawning for winter flounder, anadromous fish, and horseshoe crabs. The applicant will perform a shellfish survey prior to the HDD work to determine if shellfish resources are present. If RIDEM deems it necessary, the shellfish will be moved prior to commencement of the work.
- Actions affecting human use: N/A
- Other actions: N/A

5.3.5.8 Factual Determinations (Subpart B, 40 CFR § 230.11)

- Physical substrate determination: Based on the evaluation in 5.3.5.2, USACE anticipates that the discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor long-term effect on the physical substrate.
- Water circulation, fluctuation, and salinity determination: Based on the evaluation in 5.3.5.2, USACE anticipates that the discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have no effect on water circulation, fluctuation, and salinity.
- Suspended particulate/turbidity determination: Based on the evaluation in 5.3.5.2, USACE anticipates that the discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor short-term effect on suspended particulates and turbidity.
- Contaminant determination: The proposed discharge of dredged material consists of refilling HDD pits with the same materials that were excavated to create the pits. The proposed discharge of fill consists of the placement of rock and concrete mattresses. Neither of these discharges should introduce contaminants. Therefore, USACE anticipates that the proposed discharges will have no effect on contaminants.
- Aquatic ecosystem and organism determination: Based on the evaluation in 5.3.5.3, USACE anticipates that the discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor long-term effect on the aquatic ecosystem and organisms.
- Proposed disposal site determination: Based on the evaluations in 5.3.5.2 through 5.3.5.6 USACE anticipates that the discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction would have a minor long-term effect on the disposal site.

Determination of cumulative effects on the aquatic ecosystem: USACE has authorized numerous permits for discharges associated with cable installation, such as secondary cable protection and HDD work. In fact, the proposed cable route for this project requires the crossing of seven existing cables or pipelines in Narragansett Bay. Typically, cables have been sited within soft sediments for ease of burial and to limit the amount of needed cable protection. This would be anticipated to occur on future cable projects as well. This siting in soft sediments limits impacts to complex habitats preferred by many fish species. Typically, cables have not been sited within special aquatic sites as the 404(b)(1) Guidelines would require evaluating alternative routes that do not include special aquatic sites when choosing the LEDPA. This would be anticipated to occur on future cable projects as well. Most cables require at least a small percentage of cable protection due to burial challenges. When cable protection is necessary it typically consists of clean materials such as rock or concrete mattresses as these are the industry standard. It is anticipated that this would be the case on future cable projects. The impacts from cable protection, while long-term, do not cause a loss of waters of the United States. Due to state

coastal management plans, future development within the three nautical mile limit of jurisdiction involving loss of waters of the United States would be extremely limited. Therefore, USACE anticipates that cumulatively there would be long-term minor impacts to the aquatic ecosystem.

- Determination of secondary effects on the aquatic ecosystem: Secondary effects from refilling of the HDD pits would consist of short-term elevated turbidity levels in the nearby water column. Secondary effects from the placement of rock and concrete mattresses for secondary cable protection would include a change in the aquatic organisms that would utilize the substrate. USACE anticipates there would be minor long-term secondary effects on the aquatic ecosystem.

5.3.5.9 Findings of Compliance or Non-compliance with the Restrictions on Discharges (40 CFR § 230.10(a-d) and 230.12)

Based on the information above, including the factual determinations, the proposed discharges of dredged and fill material have been evaluated to determine whether any restrictions on discharge would occur:

Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)

No, as evaluated above, there is no practicable alternative that would be less damaging to the environment.

Will the discharge cause or contribute to violations of any applicable water quality standards?

No. The proposed discharge will not cause or contribute to violations of any applicable water quality standards. RIDEM issued an individual 401 water quality certification (WQC) for the proposed discharges of dredged and fill material on April 28, 2023 indicating that the project meets the state's water quality standards. RIDEM issued an amendment on July 7, 2023, changing the seasonal restriction for the HDD work.

Will the discharge violate any toxic effluent standards (under Section 307 of the CWA)?

No, the proposed discharge will not violate any toxic effluent standards under Section 307 of the CWA.

Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?

No. BOEM as the lead federal agency completed Section 7 consultation under the ESA for the overall project. USFWS issued a biological opinion on May 30, 2023 for terrestrial species and NMFS issued a biological opinion on July 21, 2023, for marine species. Both biological opinions indicated that the overall project would not jeopardize the continued existence of threatened and endangered species and/or their critical habitat and BOEM and USACE agreed with these opinions. The proposed discharges of dredged and fill material within the 3 nautical mile limit of jurisdiction are a subset of the overall project and were therefore considered within the biological opinions.

Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972?

No. The proposed discharge will not occur within any marine sanctuaries and will not violate any standards set by the Department of Commerce.

Will the discharge cause or contribute to significant degradation of waters of the United States?

No. The proposed discharge should not cause or contribute to significant degradation of waters of the United States.

Have all appropriate and practicable steps (Subpart H, 40 CFR § 230.70-230.77) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?

Yes. All appropriate and practicable steps have been taken to minimize the potential adverse impacts of the proposed discharge on the aquatic ecosystem. There will be seasonal restrictions on the work to limit impacts to aquatic organisms. In addition, the cable location has been sited to be installed in soft sediments and to avoid impacting complex habitats to the degree possible. The cable work has also been designed to avoid impacts to special aquatic sites.

Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States?

No. The discharge of dredged material for the refilling of the HDD pits would only result in a temporary impact as the dredged material would be returned to its original location. The discharge of fill in the form of rock and concrete mattresses for the secondary cable protection would be a long-term impact, but there would be no loss of waters of the United States. In addition, the proposed discharge of fill for the secondary cable protection and the discharge of dredged material to refill the HDD pits would not be located in any special aquatic sites.

5.3.6 USACE Public Interest Review (33 CFR § 320.4 and RGL 84-09)

In accordance with 33 CFR Part 320, USACE's decision whether to issue a permit is based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impact which the proposed activity might have on the public interest required a careful weighing of all those factors which were relevant to this project. The benefits which reasonably may be expected to accrue from this project have been balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur, was therefore determined using this general balancing process. The decision reflects the national concern for both protection and utilization of important resources. All factors which may be relevant to the proposal have been considered including the cumulative effects thereof: among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs,

safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people. These public interest factors are addressed below.

5.3.6.1 USACE Review of Public Interest Factors (33 CFR § 320.4(a)(1))

Conservation: USACE anticipates that the project (Alternative G) would have no effect on conservation. Broadly defined, conservation is the planned management of natural resources in order to prevent or minimize exploitation, destruction, or neglect. The proposed project will not result in conservation of land to prevent or minimize exploitation destruction. The project will also not impact any currently conserved land. It is anticipated that applicants on other offshore wind projects will also try to avoid conservation land when looking for a landing site and an over land cable route to connect to existing power grids because it can be a challenge to obtain an easement to disturb these areas. Therefore, when considering past, present, and reasonably foreseeable future offshore wind projects, it is anticipated that these projects will have no effect on conservation either. When looking for a landing site and an over land cable route to connect to existing power grids, it is anticipated that applicants will try to avoid conservation land as it can be a challenge to obtain an easement to disturb these areas.

Economics: USACE anticipates that the project (Alternative G) would have a minor beneficial impact on economics (see Table 3-2 under Demographics, Employment, and Economics). When also considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that the cumulative impacts to economics would also be minor long-term beneficial. See Section 3.11 of the FEIS for an in-depth analysis of all relevant factors.

Aesthetics: USACE anticipates that the project (Alternative G) would result in long term moderate adverse to long term major adverse impacts to aesthetics (See Table 3-2 under Visual Resources). The visual impacts would be substantial to dominant for the life of the project (up to 35 years), but the resource would be expected to recover completely after decommissioning. When also considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that the cumulative visual impacts would range from negligible to major adverse although the impacts would end after decommissioning of the projects. See Section 3.20 of the FEIS for an in-depth analysis of all relevant factors.

Some applicant-proposed mitigation measures include the following:

- 1) Installation of no more than 65 turbines.
- 2) Elimination of the six most northern turbine locations within the lease area under the preferred Alternative G1/G2/G3 from the FEIS.
- 3) Uniform turbine spacing of 1 nautical mile which will decrease visual clutter.
- 4) Use of a paint color on the WTGs that is no lighter than RAL 9010 pure white and no darker than RAL 7035 light gray to help reduce potential visibility of the turbines against the horizon during daylight hours.
- 5) Use of an aircraft detection lighting system (ADLS) which will only activate lights when aircraft approach.

General Environmental Concerns: USACE anticipates that the project (Alternative G) would result in beneficial impacts to general environmental concerns. At full operation, Revolution Wind would produce at least 704 MW of renewable energy for the Connecticut and Rhode Island power grids. The addition of this energy would reduce emissions produced by current energy production methods and contribute towards Connecticut's mandate of 2,000 MW of offshore wind energy by 2030, as outlined in Connecticut Public Act 19-71, and to Rhode Island's 100% renewable energy goal by 2030, as outlined in Rhode Island Governor's EO 20-01 of January 2020. After subtracting the annual estimated CO₂ emissions caused by the project, it is estimated that the construction of Revolution Wind would result in a net avoidance of 1,378,102 tons of carbon dioxide emissions annually, which is equivalent to taking 278,206 cars off the road each year. Over the lifetime of the project (35 years) the FEIS anticipates that avoided CO₂ emissions will total 48,233,570 tons. A reduction in carbon emissions and other greenhouse gas emissions has the potential to contribute towards the slowing of climate change and sea level rise, both of which could impact multiple environmental factors. When also considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that the cumulative impacts would be beneficial as well.

Wetlands: USACE anticipates that the overall project (Alternative G) could result in negligible to minor adverse effects on wetlands (see Table 3-2) based on the impact-producing factors assessed in the FEIS. When also considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that the cumulative impacts would be minor adverse. See Section 3.22 of the FEIS for an in-depth analysis of various factors. However, impact-producing factors discussed in the FEIS include accidental spills and impacts to a wetland from soil disturbance activities outside of the wetland but nearby, neither of which trigger USACE jurisdiction. The Project does not involve wetland impacts that would require a permit from USACE under Section 404 of the CWA or Section 10 of the RHA.

Historic Properties: USACE anticipates that the project (Alternative G) would result in negligible to major negative impacts on historic properties (see Table 3-2 under Cultural Resources). Section 3.10 of the FEIS contains an in-depth analysis of relevant factors. USACE anticipates that the majority of adverse impacts- which are visual in nature- would cease after project decommissioning. When also considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that the cumulative impacts would be negligible to major negative. Impacts to historic properties were also required to be assessed under Section 106 of the NHPA. USACE designated BOEM as the lead federal agency and consultation was completed. Adverse effects were resolved via an MOA, which USACE signed as a concurring party.

Fish and Wildlife Values: USACE anticipates that the project (Alternative G) would result in minor to moderate impacts to fish and wildlife values. The FEIS analyzed impacts to wildlife, fish, and other marine fauna including the following: Bats (negligible adverse), birds (minor adverse), benthic invertebrates (minor to moderate adverse), finfish (moderate adverse), marine mammals (moderate adverse for all except for the North Atlantic Right Whale which is major adverse), and sea turtles (minor adverse). This information can be found in Table 3-2. Therefore, the project would result in minor adverse impacts to terrestrial species and moderate adverse

impacts for marine species. When considering past, present, and reasonably foreseeable offshore wind projects, USACE anticipates that cumulatively there would still be minor adverse impacts to terrestrial species and moderate adverse impacts to marine species. However, the FEIS estimates that cumulatively there would also be minor to moderate beneficial impacts to marine species via the reef effect created by the turbine foundations.

33 CFR § 320.4(c) also discusses the FWCA and the need for USACE to consider input from USFWS, NMFS, and state fish and wildlife agencies with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the proposed project. The RIDEM 401 WQC, which is part of the USACE permit, took into account input from state fish and wildlife agencies. USFWS did not specifically provide FWCA recommendations for review on this project. However, NMFS provided four FWCA recommendations for consideration.

USACE determined that two of the recommendations will be fully implemented and the other two will be partially implemented. These implemented recommendations will be reflected in the USACE permit conditions.

USACE anticipates that the concerns of state fish and wildlife agencies, the USFWS and NMFS in relation to the FWCA will be fully considered and implemented to the degree practicable and appropriate on future offshore wind projects as well.

Flood Hazards: USACE anticipates that the project (Alternative G) would have a negligible beneficial effect on flood hazards. There are no design project elements that would impact impoundments, levees, hurricane barriers, etc. In addition, as sea level rise is a component of climate change and sea levels are a component of coastal flooding, projects such as this which are aimed at reducing greenhouse gas emissions could help limit flooding. When looking at past, present, and reasonably foreseeable offshore wind projects, there could be a proposal to impact an impoundment, levee, hurricane barrier, etc. but it is anticipated that applicants would try to avoid these structures due to potential permitting complications. Therefore, when considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that cumulatively there would be a minor beneficial impact to flood hazards.

Floodplain Values: No effect. The project (Alternative G) would not impact floodplains as the onshore components are in the coastal zone. Due to the nature and siting of these projects, USACE estimates that this would be the case for reasonably foreseeable offshore wind projects as well.

Land Use: USACE anticipates that the project (Alternative G) would have minor adverse impacts on land use (see Table 3-2 under Land Use and Coastal Infrastructure). Section 3.14 of the FEIS contains an in-depth analysis of all relevant factors. When considering past, present, and reasonably foreseeable future offshore wind projects, USACE anticipates that there would still be minor adverse impacts on land use.

Navigation: USACE anticipates that the project (Alternative G) would have minor to moderate adverse impacts to navigation (see Table 3-2 under Navigation and Vessel Traffic). Section 3.16

of the FEIS contains an in-depth analysis of all relevant factors. Cumulatively when considered along with recently permitted and reasonably foreseeable offshore wind projects the project would have moderate adverse impacts to navigation.

Mitigation measures would include but not be limited to the following:

- Siting of all WTGs in a grid with approximately 1.15-mi (1-nm) by 1.15-mi (1-nm) spacing. This layout will help allow for safer navigation within the lease area. This layout will also provide a uniform spacing among structures to facilitate search and rescue operations.
- Installing private aids to navigation (PATONs) as part of construction to ensure that all structures (turbines and service platforms) are clearly marked for mariners.
- Coordinating project construction, O&M, and decommissioning activities with appropriate contacts at the USCG, Naval Undersea Warfare Center -Newport RI, the Northeast Marine Pilots Association, and DOD command headquarters.
- Establishing a comprehensive mariner communication plan during offshore construction to inform all mariners, including commercial and recreational fishermen and recreational boaters of construction activities and vessel movements. Communication will be facilitated through a Fisheries Liaison, the project website, and public notices to mariners and vessel float plans in coordination with the USCG.
- Limiting construction activities to periods of good weather conditions.
- Reporting to USCG and the harbor master the locations of any boulders protruding 2 meters or more above the seafloor that were moved during cable installation activities.

Shoreline Erosion and Accretion: USACE anticipates that the project (Alternative G) would have no effect on shoreline erosion or accretion as the project would not be anticipated to alter hydrodynamics that would affect these shoreline processes. Looking at recently permitted and reasonably foreseeable offshore wind projects in the vicinity, none of them appear to contain design elements that would be expected to cause shoreline erosion or accretion either. Therefore cumulatively, USACE anticipates no effect on shoreline erosion and accretion.

Recreation: USACE anticipates that the project (Alternative G) would result in minor adverse impacts to recreation (see Table 3-2 under Recreation and Tourism). When also considering recently permitted and reasonably foreseeable offshore wind projects, the cumulative impacts to recreation would be minor adverse and minor beneficial. See Section 3.18 of the FEIS for an in-depth analysis of all relevant factors.

Water Supply and Conservation: USACE anticipates that the project (Alternative G) would have no effect on water supply and conservation because it would have no effect on water quantities available for water supplies. When considering recently permitted and reasonably foreseeable offshore wind projects in the vicinity, none of them appear to contain design elements that would impact water quantities either. Therefore, cumulatively USACE anticipates that there would be no effect on water supply and conservation.

Water Quality: USACE anticipates that the project (Alternative G) would result in short term minor adverse impacts to water quality (see Table 3-2). Section 3.21 of the FEIS contains an in-

depth analysis of all relevant factors. When considered along with recently permitted and reasonably foreseeable offshore wind projects USACE anticipates that the project would cumulatively result in minor adverse impacts to water quality. RIDEM issued a 401 WQC for the project on April 28, 2023, and an amendment on July 7, 2023, indicating that the project meets the state's water quality standards.

Energy Needs: USACE anticipates that the project (Alternative G) would result in beneficial impacts to energy needs. The project would provide a total of 704 MW of renewable energy to the Connecticut and Rhode Island energy grids once it was operational. This project would contribute towards Connecticut's mandate of 2,000 MW of offshore wind energy by 2030, as outlined in Connecticut Public Act 19-71, and to Rhode Island's 100% renewable energy goal by 2030, as outlined in Rhode Island Governor's EO 20-01 of January 2020. This addition of reliable, renewable energy to these states' power grids is anticipated to have beneficial effects on energy needs. Based on previously permitted and reasonably foreseeable future offshore wind projects, the FEIS estimates that the projects along the Atlantic seaboard could generate up to 46 GW of clean energy by 2030. Cumulatively these impacts would be beneficial to energy needs.

Safety: USACE anticipates that the project (Alternative G) would have a minor adverse impact on safety. As the project is expected to impact navigation it could also impact safety. However, the mitigation measures described above under Navigation should limit adverse impacts to safety. When considering recently permitted and reasonably foreseeable offshore wind projects, USACE anticipates that these projects would have similar navigation concerns and implement similar safety measures. Therefore cumulatively USACE anticipates that the project would have a minor adverse impact to safety.

Food and Fiber Production: USACE anticipates that the project (Alternative G) would have a minor adverse impact on food and fiber production. USACE anticipates that commercial fishing is the aspect of food and fiber production that would be impacted by the project. Section 3.9 of the FEIS for an in-depth analysis of estimated impacts to commercial fishing. The FEIS estimates that impacts to commercial fishing would vary from short term to long term and from negligible to major adverse, with the duration and intensity of impacts varying by project phase and fishery and fishing operations due to differences in target species, gear type, and predominant location of fishing activity. However with the environmental protection measures the applicant has committed to implementing, the FEIS estimates that most vessels would only have to adjust somewhat to account for disruptions due to impacts. As commercial fishing is only one aspect of food and fiber production and does not include aquaculture and farming- neither of which are proposed to be impacted by the project- USACE estimates that the impacts to food and fiber production would be less than the impacts to commercial fishing. When considered along with previously permitted and reasonably foreseeable offshore wind projects, USACE anticipates that the cumulative impacts to food and fiber production would still be minor adverse.

Mineral Needs: USACE anticipates that the project (Alternative G) would have no effect on mineral needs. The project is not located within any federal sand or mineral lease areas. As BOEM authorizes offshore mineral lease areas, the wind energy lease area designation determination took into account the presence or potential for offshore sand or mineral extraction. As recently permitted and reasonably foreseeable future wind projects would also occur within

lease areas designated by BOEM, USACE anticipates that cumulatively there would be no effect on mineral needs.

Considerations of Property Ownership: USACE anticipates that the project (Alternative G) would have no effect on property ownership. The applicant has obtained a lease from BOEM to utilize the offshore area where the wind farm would be located for the life of the project (up to 35 years). The applicant has received authorization from the state of Rhode Island to install the offshore export cables within state waters. The applicant has obtained all real estate easements required for the onshore part of the work. As other recently permitted and reasonably foreseeable offshore wind projects would be expected to obtain the same authorizations and easements, USACE anticipates that cumulatively there would be no effect on property ownership.

Needs and Welfare of the People: USACE anticipates that the project would be in the interest of the people as the authorization of the project, with the required mitigation, would result in increased energy reliability and environmental benefits in the form of a net reduction in greenhouse gas emissions (see General Environmental Concerns above). The project has received approval from the Rhode Island Coastal Resources Management Council (RI CRMC), RIDEM, and the Massachusetts Office of Coastal Zone Management (CZM) indicating support for the project at the state level. Regarding public input on the federal permitting process, USACE only received four comments on the project, which are addressed above. However, as the lead federal agency, BOEM received numerous comments from the public, agencies, interested groups, and stakeholders. As summarized in Appendix L of the FEIS, BOEM received a total of 123 individual comment submissions. This includes comments submitted online via www.regulations.gov, transcripts of comments by individual speakers at BOEM's five public meetings, and written comments submitted by mail. BOEM counted each public hearing transcript as a single submission but pulled out the individual comments and addressed them separately in the EIS. In terms of comments received that BOEM primarily categorized as being in support of or against the project, 67 comments (81%) were in favor of the project while 16 comments (19%) were against the project. The other comments submitted to BOEM were substantive comments regarding information in the draft EIS and were all addressed and considered in the determination of the preferred alternative (Alternative G) in the FEIS. These comments were summarized and addressed by BOEM in Appendix L of the FEIS.

5.3.6.2 USACE Evaluation of the Relative Extent of the Public and Private Need for the Proposed Structure or Work (33 CFR § 320.4(a)(2)(i))

In terms of the public need for the proposed work, this project would contribute towards Connecticut's mandate of 2,000 MW of offshore wind energy by 2030, as outlined in Connecticut Public Act 19-71. It would also contribute to Rhode Island's 100% renewable energy goal by 2030, as outlined in Rhode Island Governor's EO 20-01 of January 2020. In terms of the private need, in addition to providing financial gain to the companies investing in the project, the FEIS indicates that the project would have a minor beneficial impact on employment and economics (see Table 3-2).

5.3.6.3 If there are Unresolved Conflicts as to Resource Use, USACE Evaluation of the Practicability of Using Reasonable Alternative Locations and Methods to Accomplish the Objective of the Proposed Structure or Work (33 CFR § 320.4(a)(2)(ii))

To the extent that there may be unresolved resource use conflicts among offshore wind energy generation, vessel navigation, and commercial fishing, USACE has determined that there are no reasonable alternative locations or methods to accomplish the proposed work that would lessen potential resource conflicts. USACE has determined that Alternative G is the only environmentally preferable alternative that satisfies the project purpose and need and is technically feasible.

5.3.6.4 USACE Evaluation of the Extent and Permanence of the Beneficial and/or Detrimental Effects Which the Proposed Structure or Work is Likely to Have on the Public and Private uses to Which the Area is Suited

The tidal waters within which the proposed work would be located are also suited for navigation by vessels as well as recreational and commercial fishing. As indicated in Table 3-2, the project would be expected to have minor to moderate adverse impacts to navigation, and moderate to major adverse impacts to commercial fishing. The project would be expected to have minor to moderate adverse impacts but also minor beneficial impacts to for hire recreational fishing. The positive impacts would be due to the reef effect created by the structural foundations. The project components that could impact public and private uses would be in place for the life of the project, which is up to 35 years.

5.3.7 Compliance With Other Laws, Policies, and Executive Orders:

5.3.7.1 Section 7(a)(2) of the Endangered Species Act

The “USACE action area” for Section 7 of the ESA includes all areas in the NEPA scope of analysis. The action area includes all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. USACE designated BOEM as the lead federal agency for Section 7 consultation and BOEM completed consultation with both USFWS and NMFS.

USACE accepts the USFWS biological opinion dated May 30, 2023, including its Incidental Take Statement (ITS), which states that the proposed action is not likely to jeopardize listed terrestrial species or destroy or adversely modify critical habitat under USFWS jurisdiction. The requirement for the applicant to adhere to the terms and conditions of the ITS will be included as a binding condition of the USACE authorization. The consultation has been found to be sufficient to ensure that the activity requiring USACE authorization is in compliance with Section 7 of the ESA.

USACE accepts the NMFS biological opinion dated July 21, 2023, including its ITS, which states that the proposed action is not likely to jeopardize listed marine species or destroy or adversely modify critical habitat under NMFS jurisdiction. The terms and conditions of the ITS relevant to the USACE action will be included as binding conditions of the USACE authorization. The consultation has been found to be sufficient to ensure the activity requiring USACE authorization is in compliance with Section 7 of the ESA.

5.3.7.2 Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitat

USACE designated BOEM as the lead federal agency for complying with the consultation requirements of Section 305(b)(2) of the Magnuson-Stevens Act regarding EFH. Accordingly, BOEM consulted with NMFS on USACE's behalf by submitting an EFH assessment on 02/06/23 and an EFH assessment addendum on 03/23/23. However BOEM and USACE came to the following agreement regarding the analysis of EFH conservation recommendations (CRs) provided by NMFS:

- 1) USACE agreed to address any EFH CRs that only applied to work within the 3 nautical mile jurisdictional limit of navigable waters and waters of the United States as this area is outside of BOEM's geographic authority.
- 2) As the lead federal agency, BOEM agreed to address any EFH CRs that specifically applied to work on the OCS even though BOEM and USACE both have geographic authority in this location.
- 3) BOEM agreed to address any EFH CRs that involved both the OCS and work within the 3 nautical mile limit of jurisdiction, coordinating with USACE if needed.

NMFS provided BOEM with twenty-two EFH CRs for the proposed project on June 16, 2023. USACE analyzed seven of the EFH CRs that were related to work within Narragansett Bay which is outside of BOEM's geographic authority. For each of these seven EFH CRs, USACE determined whether to adopt or not adopt the recommendation. For the EFH CRs that USACE did not adopt USACE provided a detailed rationale. For the EFH CRs that USACE did adopt, USACE committed to addressing them via special conditions in the USACE authorization. USACE put this information in an EFH CR response letter to BOEM dated 07/27/23. This USACE letter was an enclosure to BOEM's EFH CR response letter that addressed the other fifteen EFH CRs. This combined EFH CR response was submitted to NMFS on 08/07/23.

5.3.7.3 Section 106 of the National Historic Preservation Act

The USACE permit area for Section 106 of the NHPA on the Revolution Wind project includes those areas comprising waters of the United States, navigable waters of the United States, and the OCS that will be directly affected by the proposed work or structures, as well as activities outside of these waters because all three tests identified in 33 CFR Part 325, Appendix C § 1 (g)(1) have been met. USACE designated BOEM as the lead federal agency for complying with Section 106 of the NHPA. The USACE permit area has been addressed within the "area of potential effect" (APE) defined by BOEM in the FEIS.

BOEM made an adverse effect determination for 101 above-ground historic properties (which included five National Historic Landmarks) in the visual APE, nine ancient submerged landforms in the marine APE, and, and two terrestrial properties in the terrestrial APE.

BOEM- in conjunction with consulting parties- developed a MOA to resolve the adverse effects. USACE signed the MOA as a concurring party.

USACE has determined that the consultation was sufficient to confirm Section 106 compliance for this permit authorization, and additional consultation is not necessary. As lead federal agency, BOEM has fulfilled USACE's responsibilities under section 106.

5.3.7.4 Tribal Trust Responsibilities

As the lead federal agency for NEPA and for Section 106 consultation, BOEM also took the lead on government-to-government consultation with federally-recognized Tribes. BOEM began government-to-government consultation with federally recognized Tribes as early as August 2018 when BOEM conducted a meeting with the Narragansett Indian Tribe, the Mashantucket Pequot Tribal Nation, and the Mohegan Tribe of Indians of Connecticut to present an overview of planned wind projects off the coast of southern New England. Subsequent government-to-government meetings with these and other Tribes occurred. April 2021, BOEM invited by individual letter and email the Mashpee Wampanoag Tribe, Shinnecock Indian Nation, Mashantucket (Western) Pequot Tribal Nation, Wampanoag Tribe of Gay Head (Aquinnah), Mohegan Tribe of Indians of Connecticut, Narragansett Indian Tribe, Delaware Tribe of Indians, and Delaware Nation to join the EIS process as cooperating agencies, to participate in scoping, to meet government-to-government on the proposed project, and to consult under Section 106 of the NHPA. Almost all of the Tribes accepted the invitation to consult. Government-to-government meetings continued into 2023.

Consultation with the Tribes has been completed and found to be sufficient by USACE. Additional consultation by USACE is not necessary, as it would not provide additional value to the BOEM led consultation. A summary of government-to-government meetings held by BOEM regarding this project are included in Appendix A of the FEIS.

5.3.7.5 Section 401 of the Clean Water Act – Water Quality Certification

An individual 401 WQC was required and was issued by RIDEM on April 28, 2023. The EPA determined there were no neighboring jurisdiction issues with the project. RIDEM issued an amendment to the 401 WQC on July 7, 2023. The conditions of the 401 WQC and its amendment will be conditions of the USACE authorization as well.

5.3.7.6 Coastal Zone Management (CZM) Act

An individual Massachusetts CZM consistency statement was required and was issued by the Massachusetts Office of CZM on May 10, 2023.

An individual Rhode Island CZM consistency statement was required and was issued by the Rhode Island Coastal Resources Management Council on May 12, 2023.

5.3.7.7 Wild and Scenic Rivers Act

The project is not located in a component of the National Wild and Scenic River System or in a river officially designated by Congress as a "study river" for possible inclusion in the National Wild and Scenic River System. USACE has determined that it has fulfilled its responsibilities under the Wild and Scenic Rivers Act.

5.3.7.8 Effects on USACE Civil Works Projects (33 U.S.C. 408)

There are no USACE Civil Works projects in or near the vicinity of the proposal. Therefore the project does not require review under Section 14 of the RHA (33 U.S.C. § 408).

5.3.7.9 USACE Wetland Policy (33 CFR § 320.4(b))

The proposed project does not involve any wetland impacts regulated under Section 404 of the CWA or Section 10 of the RHA. Therefore, USACE Wetland Policy does not apply.

5.3.7.10 Presidential Executive Orders

E.O. 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians:

As the lead federal agency for NEPA and for Section 106 consultation, BOEM also took the lead on government-to-government consultation with federally recognized Tribes. See the section above on Tribal Trust Responsibilities for a summary of the consultations.

E.O. 11988, Floodplain Management: The proposed project is not located in a floodplain. Therefore E.O. 11988 is not applicable.

E.O. 12898, Environmental Justice: As the lead federal agency for NEPA, BOEM was also the lead for assessing environmental justice impacts from the proposed project. The Project is anticipated to have minor to moderate adverse impacts on environmental justice populations as well as negligible to moderate beneficial impacts (see Table 3-2). An in-depth analysis of environmental justice communities within the geographic analysis area and anticipated impacts to those communities from the proposed project can be found in Section 3.12 of the FEIS which USACE has adopted in this ROD.

E.O. 13112, Invasive Species: There are no anticipated invasive species issues involved with this proposed project. Therefore E.O. 13112 is not applicable.

E.O. 13212 and E.O. 13302, Energy Supply and Availability: Actions were taken to the extent permitted by law and regulation to accelerate completion of the review of this energy related project while maintaining safety, public health and environmental protections.

5.3.8 U.S. Army Corps of Engineers Approval

I find that the issuance of the USACE permit, as described by regulations published in 33 CFR Parts 320 through 332, for the work proposed in Alternative G of the FEIS and described above, is based on a thorough analysis and evaluation of all issues set forth in this ROD. Having completed the evaluation above, I have determined that the proposed discharge of dredged or fill material complies with the 404(b)(1) Guidelines. The issuance of this permit is consistent with national policy, statutes, regulations, and administrative directives; and on balance, issuance of a USACE permit to construct the Revolution Wind Project is not contrary to the public interest. As explained above, all practicable means to avoid and/or minimize environmental harm from the selected, permitted alternative have been adopted and will be required by the terms and conditions of the USACE permit.



Justin R. Pabis, P.E.
Colonel, Corps of Engineers
District Engineer

8/21/23

Date

6. References

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APPENDIX A. ANTICIPATED CONDITIONS OF CONSTRUCTION AND OPERATIONS PLAN APPROVAL

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1. GENERAL PROVISIONS

- 1.1. Adherence to the Approved Construction and Operations Plan, Statutes, Regulations, Permits, and Authorizations (Planning) (Construction) (Operations) (Decommissioning).¹ The Lessee must conduct all activities as proposed in its approved Construction and Operations Plan (COP) for the Revolution Wind Farm and Revolution Wind Export Cable Project (hereafter Project)² and as stated in these terms and conditions. Additionally, the Lessee must comply with all applicable requirements in commercial lease OCS-A 0486 (Lease), statutes, regulations, consultations, and permits and authorizations issued by Federal, state, and local agencies for the Project. The Department of the Interior (DOI) Bureau of Ocean Energy Management (BOEM) and/or the Bureau of Safety and Environmental Enforcement (BSEE), as applicable, may issue a notice of noncompliance, pursuant to 30 CFR § 585.106(b) and 30 CFR § 285.400(b), if it is determined that the Lessee failed to comply with any provision of its approved COP, the Lease, the Outer Continental Shelf Lands Act (OCSLA), or OCSLA's implementing regulations. BOEM and/or BSEE may also take additional actions pursuant to 30 CFR § 585.106 and 30 CFR § 285.400, where appropriate.
- 1.1.1. As depicted in the COP and modified by selected Alternative G in the Record of Decision (ROD), the Lessee may construct and install on the Outer Continental Shelf (OCS) in the area described in Lease OCS-A 0486 (Lease Area) up to 65 wind turbine generators (WTGs) within 79 possible positions, up to 2 offshore substations (OSSs), inter-array cables linking the individual WTGs to the OSSs, substation interconnector cables linking the substations, and up to 2 offshore export cables (co-located within a single corridor) that contain up to approximately 13.5 statute miles per cable of cable easement on the OCS in support of this Project.
- 1.2. Record of Decision (Planning) (Construction) (Operations) (Decommissioning). All mitigation measures selected in the ROD for this Project are incorporated herein by reference and are considered terms and conditions of this COP. If there is any inconsistency between the language used in the ROD and that found in the terms and conditions herein, the language in the latter will prevail.
- 1.3. Effectiveness (Construction) (Operations). This COP approval and these associated terms and conditions become effective on the date BOEM notifies the Lessee that its COP has been approved, and remain effective until the termination of the Lease, which, unless renewed, has an operations term of 25 years from the date of COP approval.
- 1.4. Consistency with Other Agreements and Authorizations (Planning) (Construction) (Operations) (Decommissioning). In the event that these terms and conditions are, or become, inconsistent with the terms and conditions of the Project's Biological Opinion (BiOp) issued by the National Oceanic and Atmospheric Administration (NOAA)

¹ Parenthetical indicators of (Planning) (Construction) (Operations) and/or (Decommissioning) at the start of a condition denote the primary development stage(s) to which the condition is relevant.

² Revolution Wind LLC. 2023. Construction and Operations Plan, Revolution Wind Farm. Volume I.

National Marine Fisheries Service (NMFS) on July 21, 2023³; the BiOp issued by the U.S. Fish and Wildlife Service (USFWS) on May 30, 2023⁴; Incidental Take Authorizations (ITA) issued for the Project under the Marine Mammal Protection Act (MMPA); the Section 106 Memorandum of Agreement (Section 106 MOA) executed on August 18, 2023, or amendments thereto; the language in the NMFS BiOp, USFWS BiOp, ITAs, Section 106 MOA or amendments thereto, will prevail. Activities authorized by COP approval will be subject to any terms and conditions and reasonable and prudent measures resulting from a BOEM reinitiated consultation for the Project's NMFS BiOp or USFWS BiOp, and any stipulations resulting from amendments to the Section 106 MOA.

- 1.5. Waiver of Terms and Conditions (Planning) (Construction) (Operations) (Decommissioning). The Lessee may submit a written request from the Lessee to BOEM and/or BSEE, seeking a waiver from particular requirements of these Terms and Conditions. The request must explain why compliance with a particular requirement is not technically and economically practical or feasible. To the extent not otherwise prohibited by law and after careful consideration of all relevant facts and applicable legal requirements, BOEM and/or BSEE may grant a waiver of particular requirements if they determine that the waiver: (1) would not result in a significant change in the Project impacts described in the Final Environmental Impact Statement (FEIS) and ROD for the Project, (2) would not alter conditions that were required after consultations performed by BOEM and BSEE under Federal law in connection with this COP approval (e.g., Endangered Species Act (ESA), Coastal Zone Management Act (CZMA), National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act (MSA)), and (3) would not alter BOEM's determination that the activities associated with the project would be conducted in accordance with section 8(p)(4) of OCSLA. After making a determination regarding a requested waiver, BOEM and/or BSEE will notify the Lessee in writing whether those agencies will waive particular requirements of these terms and conditions. Approved waivers will be made publicly available. This procedure applies to the extent not superseded by different waiver provisions for specific requirements.
- 1.6. 48-Hour Notification Prior to Construction Activities (Construction) (Operations) (Decommissioning). The Lessee must submit a 48-hour notification to BSEE through TIMSWeb (<https://timsweb.bsee.gov/>) prior to the start of each of the following construction activities occurring on the OCS: seabed preparation activities such as boulder relocation and pre-lay grapnel runs, export cable installation, inter-array cable

³ See BiOp § 11.3 Letter from Michael Pentony, Regional Administrator, US Dept of Commerce National Oceanic and Atmospheric Administration NMFS GARFO, to Karen Baker, Chief Office of Renewable Energy Programs, BOEM, Re: Endangered Species Act Section 7 Consultation (July 21, 2023), <https://www.boem.gov/renewable-energy/state-activities/nmfs-esa-consultations> [hereinafter NMFS BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

⁴ See BiOp Letter from Audrey Mayer, Field Supervisor New England Field Office, Fish and Wildlife Serv., to Katherine Segarra, BOEM. (May 30, 2023), <https://www.boem.gov/renewable-energy/state-activities/fws-esa-consultations> [hereinafter BiOp]. This is inclusive of the avoidance, minimization, and mitigation measures described in the proposed action and included in the BiOp's ITS.

installation, WTG and OSS foundation installation, WTG tower and nacelle installation, OSS topside installation, cable and scour protection installation.

- 1.7. Inspections (Construction) (Operations) (Decommissioning). The Lessee must plan for and have the capacity to receive Federal personnel who arrive for inspections and assessments to be conducted under 30 CFR §§ 285.820–285.825. As provided for in Reasonable and Prudent Measure 6 of the NMFS BiOp, the Lessee must consent to on-site observations and inspections by Federal agency personnel, including NOAA personnel during activities described in the NMFS BiOp, for the purposes of evaluating the effectiveness and implementation of measures designed to minimize or monitor incidental take.
- 1.8. Project Website (Planning) (Construction) (Operations) (Decommissioning). The Lessee must develop and maintain a Project website to provide a means for the public to communicate about the Project, including fisheries communication and outreach. The website must provide a method for the public to register comments or ask questions, through either a direct link to a comment form or email, or by providing the contact information (phone and/or email address) of a Lessee representative who can respond to these communications.
 - 1.8.1. The Lessee must post construction notices and other publicly relevant information to the Project website. The Project website must allow users to subscribe (or unsubscribe) to an electronic mailing list for Project update notifications.
 - 1.8.2. The Lessee must post the following information to the Project website within 5 business days of availability.
 - a) Locations where target burial depths were not achieved and locations of cable protection measures.
 - b) Project-specific information in the most current Local Notice to Mariners (LNM).
 - c) Communication Plan (COP Volume I, Table 4.7-2, Public Services, Recreation and Tourism, Commercial Shipping, Commercial and Recreational Fishing, and Appendix EE).
 - d) Fisheries Communication Plan.
 - e) Project Mitigation Plan identified in Section 1.9.
 - 1.8.3. Geographic information system (GIS) location data must be downloadable and packaged in an ESRI-compatible format, preferably as an ESRI shapefile. Files must utilize a NAD83 UTM Zone 18 or a geographic coordinate system in NAD83. A text file with table field descriptions that contain measurement units, where applicable, must be included.
- 1.9. Project Mitigation Plan (Planning) (Construction) (Operations) (Decommissioning). The Lessee must develop a Project Mitigation Plan that is informed by public engagement and consultation with the appropriate tribal nations and Federal, state,

regional, and non-government organizations (i.e., Regional Wildlife Science Collaborative for Offshore Wind and Responsible Offshore Science Alliance). The Project Mitigation Plan will be a comprehensive compilation of all mitigation measures or commitments required by the terms and conditions of COP approval, as well as other Federal and State authorizations and consultations (e.g., ESA, CZMA) required for the construction and operation of the Project. The Project Mitigation Plan must (1) summarize the expected Project impacts; (2) describe and provide technical details for each mitigation measure (including the type of Project impact to which it relates and the consultation, authorization, or conditions under which it is required); (3) identify policies and standards to be used and complied with; and (4) identify procedures for coordination with BOEM to evaluate proposed additional or modified measures to respond to impacts detected in Project monitoring and other monitoring and research studies and initiatives, including the Lessee's Fisheries Research and Monitoring Plan.

2. TECHNICAL CONDITIONS

- 2.1. Munitions and Explosives of Concern (MEC) and Unexploded Ordnances (UXO) Survey Results Implementation (Construction). The Lessee must implement the “as low as reasonably practical” (ALARP) risk mitigation principle with the following steps: (1) a desktop study (DTS); (2) an investigation survey to determine the presence of objects; (3) an identification survey to determine the nature of the identified objects; (4) MEC/UXO mitigation (avoidance, in situ disposal, or relocation); and (5) a certification that MEC/UXO risks from installation and operation of the facility have been reduced to ALARP levels. The Lessee must implement the mitigation methods identified in the approved COP, DTS, and the subsequent survey report(s) following the resolution of all comments provided by BOEM and BSEE. As part of the Fabrication and Installation Report (FIR) and prior to commencing installation activities, the Lessee must make available to the approved Certified Verification Agent (CVA), BOEM, and BSEE for review the complete and final versions of information on implementation and installation activities associated with the ALARP mitigation process, including the: (1) DTS; (2) investigation surveys to determine the presence of objects; (3) identification surveys to determine the nature of the identified objects; and (4) MEC/UXO relocation, disposition, and/or construction re-routing.
- 2.2. MEC/UXO ALARP Certification (Planning). The Lessee must provide to BOEM, BSEE, and the approved CVA, a certification confirming that MEC/UXO risks related to the installation and operation of the facility have been reduced to ALARP levels. The certification must be made available with the submission of the Facility Design Report (FDR) or FIR, whichever is submitted earlier.
- 2.3. MEC/UXO Discovery Notification (Construction) (Operations) (Decommissioning). In the event of a confirmed MEC/UXO, the Lessee must coordinate with the U.S. Coast Guard (USCG) to ensure the MEC/UXO discovery is published in the next version of the LNM for the specified area and provide BOEM and BSEE a copy of the LNM once it is available. The Lessee must also provide the following information to BOEM (BOEM_MEC_Reporting@boem.gov), BSEE, and relevant agency representatives within 24 hours of discovery for seabed clearance activities, construction, and operations:
- 2.3.1. Narrative describing activities that resulted in the identification of confirmed MEC/UXO;
 - 2.3.2. Activity at the time of discovery (e.g., survey, seabed clearance, cable installation);
 - 2.3.3. Location (latitude [DDD°MM.MMM’], longitude [DDD°MM.MMM]), lease area, and block;
 - 2.3.4. Water depth (meters);
 - 2.3.5. MEC/UXO type, dimensions, and weight;
 - 2.3.6. MEC/UXO vertical position (description of exposure or estimated depth of burial).

- 2.4. Munitions Response Plan for Confirmed MEC/UXO (Planning) (Construction). The Lessee must implement methods identified in the approved COP and as described in the MEC/UXO Survey Results Implementation for MEC/UXO mitigation activities. Under all circumstances of confirmed MEC/UXO, the Lessee must demonstrate to BSEE and BOEM that avoidance through micrositing of planned infrastructure (e.g., wind turbines, offshore substations, inter-array cables, or export cables) of confirmed MEC/UXO is not feasible. For confirmed MEC/UXO on the OCS where avoidance through micrositing is not feasible, the Lessee must provide a Munitions Response Plan. The Munitions Response Plan must include the following:
- 2.4.1. Method of munitions response (in situ disposal, or relocation through “lift and shift”) and an analysis describing the identification and determination of the method chosen for each confirmed MEC/UXO;
 - 2.4.2. Hazard analysis of the response;
 - 2.4.3. Type and designation of work vessels, remotely operated vehicles, unmanned surface vehicles, or craft planned to be used in proximity to the MEC/UXO;
 - 2.4.4. Contact information of the identified munitions response contractor;
 - 2.4.5. Contractor qualifications and competencies to safely carry out the response work;
 - 2.4.6. Proposed timeline of activities;
 - 2.4.7. Position of confirmed MEC/UXO and, if applicable, planned relocation position;
 - 2.4.8. Potential impact of weather and sea state on munitions response operations;
 - 2.4.9. Potential for human exposure;
 - 2.4.10. Medical emergency procedures plan;
 - 2.4.11. Protective measures to be implemented to reduce risk and/or monitor effects to protected species and habitats or other ocean users;
 - 2.4.12. Plan for accidental detonation.
- 2.5. Munitions Response After Action Report (Planning). The Lessee must submit a Munitions Response After Action Report detailing the activity and outcome to BOEM and BSEE. The report must include the following information:
- 2.5.1. Narrative describing the activities that were undertaken by the Lessee, including the following:
 - a) As Found Location and, if applicable, As Left Location (latitude [DDD°MM.MMM’], longitude [DDD°MM.MMM]), lease area, and block;
 - b) Water depth (meters);
 - c) Weather and sea state at the time of munitions response;

- d) Number and detailed characteristics (e.g., type, size, classification) of MEC items subject to response efforts;
 - e) Duration of the munitions response activities, including start and stop times;
- 2.5.2. Summary describing how the Lessee followed its Munitions Response Plan and any deviations from the plan;
- 2.5.3. Description of safety measures used, including but not limited to the presence of a USCG safety-zone, notices to mariners, other USCG safety actions in place prior to taking any munitions response actions, and how security call protocols were used;
- 2.5.4. Results of the munitions response;
- 2.5.5. Description of any threats and effects to health, safety, or the marine environment;
- 2.5.6. Description of any effects on protected species and marine mammals and measures implemented to reduce risk and monitor effects;
- 2.5.7. Details and results of any geophysical surveys conducted after the completion of the munitions response activities;
- 2.5.8. If applicable, a description of anticipated future munitions response activities.
- 2.6. Safety Management System (Planning) (Construction) (Operations) (Decommissioning). Pursuant to 30 CFR § 285.810, a lessee, designated operator, contractor, or subcontractor constructing, operating, or decommissioning renewable energy facilities on the OCS must have a Safety Management System (SMS). The Lessee must provide a description of the SMS that will guide all activities described in the approved COP (hereafter the “Lease Area’s Primary SMS”). BSEE will review the Lease Area’s Primary SMS and compare it to the regulations and requirements below (Sections 2.6.1 through 2.6.4) and verify that the submissions are acceptable.
- 2.6.1. The Lease Area’s Primary SMS must identify and assess risks to health, safety, and the environment associated with the offshore wind facilities and operations and must include an overview of the methods that will be used and maintained to control the identified risks.
- 2.6.2. The Lease Area’s Primary SMS is expected to evolve as activities progress from site characterization through construction, operations, and eventually to decommissioning, typically by identifying new risks that will be faced by the workforce and by incorporating work practices and operating procedures specific to managing those risks. Pursuant to 30 CFR § 285.811, the Lease Area’s Primary SMS must be functional when the Lessee begins activities described in the approved COP. A description of any changes to the Lease Area’s Primary SMS to address new or increased risk must be provided to BSEE before each phase of the Project commences (i.e., construction,

operation, maintenance, decommissioning). In addition, the Lessee must demonstrate to BSEE's satisfaction the functionality of the Lease Area's Primary SMS by providing evidence of such functionality no later than 30 days⁵ prior to beginning the relevant activities described in the COP. The Lessee can demonstrate the Lease Area's Primary SMS functionality through various means. The following list provides illustrative examples of demonstrations of functionality.

- a) If the Lessee wants to use a similar SMS that is functioning elsewhere as the Lease Area's Primary SMS, the Lessee may demonstrate the proper functioning of the similar SMS by sharing certifications of that SMS from recognized accreditation organizations (e.g., International Organization for Standardization (ISO) International Electric Code (IEC) 45001, American National Standards Institute (ANSI) Z10, American Petroleum Institute (API) Recommended Practices 75 4th or later edition), or by sharing reports of third-party or internal audits of the SMS. The Lessee must also share an explanation of how the Lessee has adapted the similar, audited SMS to become the Lease Area's Primary SMS.
- b) If the Lessee does not have a similar SMS that is functioning elsewhere, demonstration of functionality may include the following:
 - i. A desktop exercise in which the Lessee evaluates how the Lease Area's Primary SMS functions in response to different scenarios, including an evaluation of the strengths and weaknesses of Lessee's preparedness to control various risks.
 - ii. A description of the personnel who have been trained on the Lease Area's Primary SMS, an overview of the training content, and a description of controls the Lessee has established to ensure trained personnel's understanding of and adherence to the Lease Area's Primary SMS.
 - iii. A detailed description of how the Lessee intends to monitor whether the implementation of the Lease Area's Primary SMS is achieving the desired goals, and an overview of how the SMS will be adjusted as necessary to control identified risks.
 - iv. A description of how the Lessee intends to manage the interface with contractors, subcontractors, and other critical stakeholders.

2.6.3. The Lessee must conduct periodic Lease Area Primary SMS audits and provide BSEE with a report summarizing the results of the most recent audit at least once every 3 years, and upon BSEE's request. The report must include any corrective actions implemented or being implemented as a result of that audit and an updated description of the Lease Area's Primary SMS, highlighting

⁵ Unless otherwise specified in the terms and conditions, the term "days" means "calendar days".

changes that were made since the last such submission to BSEE. Following BSEE's review of the report, the Lessee must engage with and respond to BSEE until any questions or concerns BSEE may have are resolved and BSEE is satisfied that the Lease Area Primary SMS is effective and functional.

- 2.6.4. In addition to maintaining an acceptable Lease Area's Primary SMS, the Lessee, designated operator, contractor, and subcontractor constructing, operating, or decommissioning renewable energy facilities on the OCS are required to follow the policies and procedures of the specific SMS applicable to their activities and to take corrective action whenever there is a failure to follow the specific SMS or the specific SMS failed to ensure safety.
- 2.7. Emergency Response Procedure (Planning) (Construction) (Operations). Prior to construction of the Project, the Lessee must submit an Emergency Response Procedure addressing non-routine events for review and concurrence by BSEE. The Lessee must submit any revisions of the procedure once every 3 years or upon BSEE's request, consistent with Section 2.6.3. The Emergency Response Procedure must address the following:
 - 2.7.1. Standard Operating Procedures. Description of the procedures and systems that will be used at the Lessee's facilities in the case of emergencies, accidents, or non-routine conditions, regardless of whether they are man-made or natural. The Emergency Response Procedure must include, as a part of the standard operating procedures for non-routine conditions, descriptions of high-consequence and low probability events and methods for: (1) establishing and testing WTG rotor shutdown, braking, and locking; (2) lighting control; (3) notifying the USCG of mariners in distress or potential/actual search and rescue incidents; (4) notifying BSEE and the USCG of any events or incidents that may impact maritime safety or security; and (5) providing the USCG with environmental data, imagery, communications, and other information pertinent to search and rescue or marine pollution response.
 - 2.7.2. Communications. Description of the capabilities to be maintained by the control center to communicate with the USCG.
 - 2.7.3. Monitoring. The control center must maintain the capability to monitor (e.g., using cameras) the Lessee's installation and operations in real time, including at night and in periods of poor visibility.
- 2.8. Oil Spill Response Plan (Planning). Pursuant to 30 CFR § 585.627(c), the Lessee must submit an Oil Spill Response Plan (OSRP) to the BSEE Oil Spill Preparedness Division (OSPD) at BSEEOSPD_ATL_OSRLPs@bsee.gov for review and approval prior to the installation of any component that may handle or store oil on the OCS. The OSRP may be lease-specific, or it may be a regional OSRP covering multiple leases. Facilities and leases covered in a regional OSRP must have the same owner or operator (including affiliates) and must be located in the Atlantic OCS region. For a regional OSRP, subject to BSEE OSPD approval, the Lessee may group leases into sub-regions for the purposes of determining worst-case discharge (WCD) scenarios, conducting stochastic trajectory

analyses, and identifying response resources. The Lessee's OSRP must be consistent with the National Contingency Plan and the appropriate Area Contingency Plan(s), as defined in 30 CFR § 254.6. To continue operating, the Lessee must operate consistent with the OSRP approved by BSEE. The Lessee's OSRP, including any regional OSRP, must contain the following information:

- 2.8.1. Bookmarks. Appropriately labeled bookmarks that are linked to their corresponding sections of the OSRP.
- 2.8.2. Table of Contents.
- 2.8.3. Record of Change. A table identifying the changes made to the current version of the OSRP and, as applicable, a record of changes made to previously submitted versions of the OSRP.
- 2.8.4. Facility and Oil Information. "Facility", as defined in 30 CFR § 585.113, means an installation that is permanently or temporarily attached to the seabed of the OCS. An OSS and WTG, as examples, each meet this definition of facility. "Oil," as defined in 33 U.S.C. 1321(a), means oils of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Dielectric fluid, as an example, meets this definition of oil. The OSRP must:
 - a) List the latitude and longitude, water depth, and distance to the nearest shoreline for each facility that may handle and/or store oil.
 - b) List the oil(s) by product/brand name and corresponding volume(s) on each type of facility covered under the Lessee's OSRP.
 - c) Include a map depicting the location of each facility that may handle and/or store oil within the boundaries of the covered lease area(s) and their proximity to the nearest shoreline. The map must also feature a compass rose, scale, and legend.
- 2.8.5. Safety Data Sheets. The OSRP must include a safety data sheet for every type of oil present on any OCS facility in quantities equal to or greater than 100 gallons.
- 2.8.6. Response Organization. The OSRP must identify a trained Qualified Individual (QI), and at least one alternate, with full authority to implement removal actions and ensure immediate notification of appropriate Federal officials and response personnel. The Lessee must designate personnel to serve as trained members of an Incident Management Team (IMT) and identify them by name and Incident Command System (ICS) position in the OSRP. For the IMT, at least one alternate must be identified in the OSRP for the Incident Commander (IC), Planning Section Chief (PSC), Operations Section Chief (OSC), Logistics Section Chief (LSC), and Finance Section Chief (FSC). If a contract has been established with a third-party IMT, evidence of such a contract must be provided in the Lessee's OSRP.

- a) “Qualified Individual” (QI) means an English-speaking representative of the Lessee who is located in the United States, available on a 24-hour basis, and given full authority to obligate funds, carry out removal actions, and communicate with the appropriate Federal officials and the persons providing personnel and equipment in removal operations.
- b) “Incident Management Team” (IMT) means the group of personnel identified within the Lessee’s organizational structure who manage the overall response to an incident in accordance with the Lessee’s OSRP. The IMT consists of the IC, Command and General Staff, and other personnel assigned to key ICS positions designated in the Lessee’s OSRP.

2.8.7. Notification Procedures. The OSRP must describe the procedures for spill notification. Notification procedures must include the 24-hour contact information for:

- a) The QI and an alternate, including phone numbers and email addresses.
- b) IMT members, including phone numbers and email addresses.
- c) Federal, state, and local regulatory agencies that must be notified when a spill occurs, including, but not limited to, the National Response Center.
- d) The OSRO(s) and SROT(s) that are available to respond.
- e) Other response organizations and subject matter experts that the Lessee will rely on for the Lessee’s response.

2.8.8. Spill Mitigation Procedures. The OSRP must describe the different discharge scenarios that could occur from the Lessee’s facilities and the mitigation procedures by which the offshore facility operator and any listed/contracted Oil Spill Removal Organizations (OSROs) would follow when responding to such discharges. The mitigation procedures must address responding to both smaller spills (with slow, low-volume leakage) and larger spills, to include the largest WCD scenario covered under the Lessee’s OSRP. To achieve compliance with this section, the OSRP must include the following:

- a) Procedures for the early detection of a spill (i.e., monitoring procedures for detecting dielectric fluid and other oil-based substances handled or stored on the facility when spilled to the ocean).
- b) General procedures for ensuring the source of a discharge is controlled as soon as possible after a spill occurs.
- c) Procedures to remove oil and oiled debris from shallow waters and along shorelines.
- d) Procedures to store, transfer, and dispose of recovered oil and oil-contaminated materials and to ensure that all disposal is in accordance with Federal, State, and local requirements.

- 2.8.9. Resources at Risk. The OSRP must include a concise list of the sensitive resources located near the Lessee’s offshore facility that could be impacted by a spill. In lieu of listing sensitive resources, the Lessee may identify the areas that could be impacted by a spill from the Lessee’s facility and provide hyperlinks to corresponding Environmentally Sensitive Index Maps and Geographic Response Strategies/Plans for those areas from the appropriate Area Contingency Plans.
- 2.8.10. OSRO(s) and SROT(s). The “Oil Spill Removal Organization” (OSRO) is an entity contracted by the Lessee to provide spill response equipment and/or manpower in the event of an oil spill. The “Spill Response Operating Team” (SROT) is the trained persons who deploy and operate oil spill response equipment in the event of a spill, threat of a spill, or an exercise. The OSRP must include a list (with contact information) of the OSRO(s) and SROT(s) who are under contract and/or membership agreement to respond to the WCD of oil from the Lessee’s offshore facilities. Evidence of such contracts or membership agreements must be provided in the OSRP.
- 2.8.11. Oil Spill Response Equipment. The OSRP must include a list, or a hyperlink to a list, of the oil spill response equipment that is available to the Lessee through a contract and/or membership agreement with the OSRO(s). The OSRP must include a map that shows the oil spill response equipment storage depot(s) and planned/potential staging area(s) for the oil spill response equipment that would be deployed by the facility operators or the OSRO(s) listed in the plan in the event of a discharge.
- a) The Lessee must ensure that the oil spill response equipment is maintained in proper operating condition.
 - b) The Lessee must ensure that all oil spill response equipment maintenance, modification, and repair records are kept for a minimum of 3 years.
 - c) The Lessee must provide oil spill response equipment maintenance, modification, and repair records to BSEE OSPD upon request.
 - d) The Lessee or the OSRO must provide BSEE OSPD with physical access to the oil spill equipment storage depots and perform functional testing of the equipment upon request.
 - e) BSEE OSPD may require maintenance, modifications, or repairs to oil spill response equipment or require the Lessee to remove response equipment from being listed in the OSRP if it does not operate as intended.
- 2.8.12. Training. The OSRP must include a description of the training necessary to ensure that the QI, IMT, OSRO(s) and SROT(s) are sufficiently trained to perform their respective duties. The Lessee must ensure that the IMT, OSRO(s), and SROT(s) receive annual training. The Lessee’s OSRP must provide the most recent dates of applicable training(s) completed by the QI,

IMT, OSRO(s) and SROT(s). The Lessee must maintain and retain for 3 years training records and must provide the training records to BSEE upon request.

2.8.13. Worst-Case Discharge (WCD) Scenario. The OSRP must describe the WCD scenario for the facility containing the highest cumulative volume of oil(s). For a regional OSRP covering multiple sub-regions, a WCD scenario must be described for each sub-region.

- a) If multiple candidate WCD facilities contain the same cumulative volume of oil(s), the WCD facility is the one closest to shore.
- b) In addition to the facility information required by Condition 2.8.4, the information for a WCD facility must include the longitude and latitude, water depth, distance to the nearest shoreline, and its location shown on a map.
- c) The OSRP must identify the subset of oil spill response equipment from the inventory listed in the OSRP that will be used to contain and recover the WCD volume. The OSRP must include timeframes for response resources to deploy to the WCD facility. Timeframes must include times for equipment procurement, loadout, travel, and deployment.

2.8.14. Stochastic Trajectory Analysis. The OSRP must include a stochastic spill trajectory analysis for the WCD facility. For a regional OSRP containing multiple WCD scenarios, a stochastic trajectory analysis must be included for each WCD scenario. The stochastic trajectory analysis must:

- a) Be based on the WCD volume.
- b) Be conducted for the longest period that the discharged oil would reasonably be expected to persist on the water's surface, or 14 days, whichever is shorter.
- c) Identify the probabilities for oiling on the water's surface and on shorelines, and minimum travel times for the transport of the oil over the duration of the model simulation. Oiling probabilities and minimum travel times must be calculated for exposure threshold concentrations reaching 10 grams per square meter. Stochastic analysis must incorporate a minimum of 100 different trajectory simulations using random start dates selected over a multi-year period.

2.8.15. Response Plan Exercise. The OSRP must include a triennial exercise plan for review and concurrence by BSEE to ensure that the Lessee is able to respond quickly and effectively whenever oil is discharged from the Lessee's facilities. Compliance with the National Preparedness for Response Exercise Program guidelines will satisfy the exercise requirements of this section. If the Lessee chooses to follow an alternative exercise program, the OSRP must provide a description of that program. For a regional OSRP covering multiple sub-

regions, the IMT exercise scenarios must be rotated between each sub-region within the triennial exercise period.

- a) The Lessee must conduct an annual scenario-based notification exercise, an annual scenario-based IMT tabletop exercise (if applicable), and, during the triennial exercise period, at least one functional exercise.
- b) The Lessee must conduct an annual oil spill response equipment deployment exercise.
- c) The Lessee must notify BSEE OSPD at least 30 days in advance of any exercise they intend to conduct for compliance with this condition.
- d) BSEE will advise on the options the Lessee has to satisfy these requirements and may require changes in the type, frequency, or location of the required exercises, exercise objectives, equipment to be deployed and operated, or deployment procedures or strategies.
- e) BSEE may evaluate the results of the exercises and advise the Lessee of any needed changes in response equipment, procedures, tactics, or strategies.
- f) BSEE may periodically initiate unannounced exercises to test the Lessee's spill preparedness and response capabilities.
- g) The Lessee must maintain and retain for at least 3 years exercise records and must provide the exercise records to BSEE upon request.

2.8.16. OSRP Review and Update. The Lessee must review and update the OSRP at least once every 3 years and more frequently as needed, starting from the date the OSRP was initially approved. The Lessee must send a written notification to BSEE OSPD upon completion of this review and submit any updates for concurrence. BSEE OSPD may require the Lessee to make changes to the OSRP at any time if it is determined to be outdated or to contain significant inadequacies as discovered through a review of the Lessee's OSRP, information obtained during exercises or actual spill responses, or other relevant information obtained by BSEE OSPD.

2.8.17. OSRP Maintenance. The Lessee must submit a revised OSRP to BSEE OSPD within 15 days if any of the following conditions occur:

- a) The Lessee experiences a change that would significantly reduce their oil spill response capability.
- b) The calculated WCD volume has significantly increased.
- c) The Lessee removes a contracted IMT, OSRO, or SROT from the Lessee's plan.
- d) There has been a significant change to the applicable area contingency plan(s).

- 2.9. Cable Routings (Planning). The Lessee must submit the final Cable Burial Risk Assessment (CBRA) package and engineered cable routings for all cable routes on the OCS to BSEE for review and concurrence no later than the submittal of the relevant FDR. The final CBRA package must include a summary of final information on (1) natural and man-made hazards; (2) sediment mobility, including high and low seabed levels from both mobile and stable seabed, expected over the Project lifetime; (3) feasibility and effort level information required to meet burial targets; (4) profile drawings of the cable routings illustrating cable burial target depths; and (5) minimum burial depths from seabed to address threats to the cable including, but not limited to, anchoring risk, military activity, third-party cable crossings, and fishing gear interaction. Detailed supporting data and analysis may be incorporated by reference or attachments, including relevant geospatial data. The Lessee must resolve any BSEE comments on the CBRA to BSEE's satisfaction before BSEE completes its review of the associated FDR under 30 CFR § 285.700.
- 2.10. Cable Burial (Planning) (Construction) (Operations). The export, interconnector, and inter-array cables are expected to be installed using jetting, vertical injection, control flow excavation, trenching, and plowing as described in Section 3.3.3.2 of the approved COP. For the approved COP, BOEM has determined the proper burial depth to be a minimum of 1.2 meters (4 feet) below seabed along Federal sections of the export, interconnector, and inter-array cables. This depth is consistent with the approved COP and the cable burial performance assessment provided in Appendix F Cable Burial Feasibility Assessment. Unless otherwise authorized by BSEE, the Lessee must comply with cable burial conditions described in the COP by demonstrating proper burial depth of the installed submarine cables along at least 90 percent of the total export cable length on the OCS and at least 90 percent of the inter-array cable routing, excluding cable crossings and approaches to foundations. The Lessee must demonstrate proper burial depth by providing cable monitoring reports (Section 2.13) and final, as-built information (Section 2.20).
- 2.11. Cable Protection Measures (Planning) (Construction) (Operations). The export, interconnector, and inter-array cables are expected to be installed using jetting, vertical injection, control flow excavation, trenching, and plowing as described in Section 3.3.3.2 of the approved COP. In areas where final cable burial depth is less than 1.2 meters below seabed, the Lessee must install secondary protection such as concrete mattresses, fronded mattresses, rock bags or rock placement and must adhere to the scour and cable protection measures in Section 5.7.5.
- 2.11.1. The use of cable protection measures must not exceed 10 percent of the total export cable length on the OCS or 10 percent of the interconnector and inter-array cable routing, excluding cable crossings and approaches to foundations. The Lessee must employ cable protection measures when proper burial depth is not achieved, as defined in Section 2.10. The Lessee must include design information and drawings as part of the relevant cable FDR and installation information as a part of the relevant FIR or must submit, and obtain concurrence from BSEE on, a standalone design and installation report, containing design information, drawings, and installation information

respectively, prior to installing cable protection. The Lessee must provide BSEE with detailed drawings/information of the actual burial depths and locations where protective measures were used, no later than when the final, as-built cable drawings are submitted. The Lessee must ensure notice of locations where target burial depths were not achieved and where cable protection measures were used, including accessible graphic/geo-referenced repository for this information, is made available on the Project website (Section 1.8 Project Website).

2.11.2. If the Lessee cannot comply with the requirements in Section 2.11.1, the Lessee must request a waiver under Section 1.5. As a component of its request, the Lessee must provide BSEE information explaining the proposed alternatives (including a justification of the equivalent level of protection and CVA verification of the proposed alternative) and must resolve any BSEE comments.

2.12. Crossing Agreements (Planning). The Lessee must provide final cable crossing agreements for each active, in-service submarine cable or other types of in-use infrastructure, such as pipelines, to BOEM at least 60 days before seabed preparation activities, including boulder clearance. The Lessee must make the agreements and crossing designs available to the CVA for review, unless otherwise determined by BOEM.

2.12.1. If the Lessee concludes that it will be unable to reach a cable crossing agreement, the Lessee must inform BOEM as soon as possible, and no later than 60 days before seabed preparation activities, including boulder clearance. A cable crossing agreement will not be required if BOEM has determined—at its sole discretion and based on its review of the record of relevant communications from the Lessee to owners or operators of active, in-service submarine cables or other types of in-use infrastructure—that the Lessee made reasonable efforts to enter an agreement and was unable to do so. Information to support a claim of reasonable efforts may include call logs, emails, letters, or other methods of communication.

2.13. Post-Installation Cable Monitoring (Construction) (Operations). The Lessee must conduct an inspection of each inter-array, interconnector, and export cable to determine cable location, burial depths, the state of the cable, and site conditions within: 6 months, 1 year, and 2 years of commissioning, and every 3 years thereafter (e.g., years 5, 8, 11, 14, 17, 20, and 24 after commissioning). These surveys must also be conducted within 180 days of a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.17). The Lessee must provide BSEE and BOEM with a cable monitoring report within 90 days following each inspection. Inspections of the inter-array and export cables must include high resolution geophysical (HRG) methods involving, for example, multibeam bathymetric survey equipment; and identify seabed features, natural and man-made hazards, and site conditions along Federal sections of the cable routing.

2.13.1. If BSEE determines that conditions along the cable corridor warrant adjusting the frequency of inspections (e.g., due to changes in cable burial or seabed

conditions that may impact cable stability or other users of the seabed), then BSEE may require the Lessee to submit a revised inspection schedule for review and concurrence.

- 2.13.2. If BSEE determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, BSEE will notify the Lessee that the Lessee must submit the following via TIMSWeb within 90 days of being notified: a seabed stability analysis, a remedial action plan, and a schedule for completing remedial actions. All remedial actions must be consistent with the approved COP. BSEE will review the plan and schedule and provide any comments within 60 days of receiving the plan. The Lessee must resolve all comments to BSEE's satisfaction.
- 2.13.3. If the Lessee determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, the Lessee must submit the following to BSEE via TIMSWeb within 90 days of making the determination: the data used to make the determination, a seabed stability analysis, a plan for remedial actions, and a schedule for the proposed work. All remedial actions must be consistent with those described in the approved COP. BSEE will review the plan and schedule and provide comments within 60 days, if applicable. The Lessee must resolve all comments to BSEE's satisfaction.
- 2.14. WTG and OSS Foundation Depths (Planning). In a letter dated December 3, 2020, BOEM granted a departure from 30 CFR § 585.626(a)(4) and (6), permitting the Lessee to provide the final geotechnical investigation at the proposed foundation locations in the FDR. The FDR must include geotechnical investigations at all approved foundation locations, along with associated geotechnical design parameters and recommendations consistent with 30 CFR § 585.626(a)(4) and (6). The geotechnical investigations at the OSSs must include, at a minimum, one deep boring located within the footprint of each OSS.
- 2.15. Structural Integrity Monitoring (Construction) (Operations). The Lessee must conduct annual above-water inspections to ensure structural integrity is maintained. The Lessee must inspect the condition of cathodic protection system(s) and for indications of obvious overloading; deteriorating coating systems; excessive corrosion; and bent, missing, and/or damaged members of the structure in the splash zone and above the water line. The Lessee must provide a summary of the findings in the Annual Self-Inspection Report pursuant to 30 CFR § 285.824(b). See Section 2.17 for post-storm structural integrity monitoring.
- 2.16. Foundation Scour Protection Monitoring (Construction) (Operations) (Decommissioning). The Lessee must minimize the footprint of scour protection measures at the WTG foundations and must inspect scour protection performance. The Lessee must submit an Inspection Plan to BSEE at least 60 days prior to initiating inspection activities described in the Inspection Plan. BSEE will review the Inspection Plan and provide comments, if any, on the plan within 60 days of its submittal. The Lessee must resolve all comments on the Inspection Plan to BSEE's satisfaction and

receive concurrence prior to initiating the inspection program. If BSEE does not send comments within 60 days, the Lessee may presume concurrence.

- 2.16.1. The Lessee must carry out an initial foundation scour inspection within 6 months of completing installation of each foundation location, thereafter at intervals not greater than 5 years, and within 180 days after a storm event (as defined in the Post-Storm Event Monitoring Plan, described in Section 2.17).
- 2.16.2. The Lessee must provide BSEE with a foundation scour monitoring report within 90 days of completing each foundation scour inspection. If multiple foundation locations are inspected within a single survey effort, the foundation scour monitoring reports for those locations may be combined into a single foundation scour monitoring report provided within 90 days of completing the last foundation scour inspection. The schedule of reporting must be included in the Inspection Plan for BSEE review and concurrence.
- 2.16.3. The Lessee must submit a plan for additional monitoring and/or mitigation to BSEE for review and concurrence if scour protection losses develop within 10 percent of the maximum loss allowance, edge scour develops within 10 percent of the maximum allowance, or spud depressions from installation affect scour protection stability.

2.17. Post-Storm Event Monitoring Plan (Construction) (Operations) (Decommissioning).

The Lessee must provide a plan for post-storm event condition monitoring of the facility infrastructure, foundation scour protection, and cables to BSEE for review and concurrence prior to commencing installation activities. Plans may be submitted separately for the cables (including cable protection), WTG, and OSS. The plan must describe how the Lessee will measure and monitor environmental conditions and duration of storm events; specify the environmental condition thresholds (and their associated technical justification) above which post-storm event monitoring or mitigation is necessary; describe potential monitoring, mitigation, and damage identification methods; and state when the Lessee must notify BSEE of post-storm event related activities. At a minimum, post-storm event inspections must be conducted following a storm where conditions exceed one-half the design return period. For example, the WTG platform design for 50-year wind storm event must be inspected following a 25-year wind storm event. BSEE reserves the right to require post-storm mitigations to address conditions that could result in safety risks and/or impacts to the environment.

2.18. High Frequency Radar Interference Analysis and Mitigation (Planning) (Construction) (Operations). The Project has the potential to interfere with oceanographic high frequency (HF) radar systems in the U.S. Integrated Ocean Observing System (IOOS®), which is managed by the IOOS Office within NOAA pursuant to the Integrated Coastal and Ocean Observation System Act of 2009 (Pub. L. No. 111-11), as amended by the Coordinated Ocean Observation and Research Act of 2020 (Pub. L. No. 116-271, Title I), codified at 33 U.S.C. §§ 3601–3610 (referred to herein as “IOOS HF-radar”). IOOS HF-radar measures the sea state, including ocean surface current velocity and waves in near real time. These data have many vital uses (“mission objectives”),

including tracking and predicting the movement of spills of hazardous materials or other pollutants, monitoring water quality, and predicting sea state for safe marine navigation. The USCG also integrates IOOS HF-radar data into its Search and Rescue systems. The Project is within the measurement range of 11 IOOS HF-radar systems listed in the table below:

Table 2.18. Identified IOOS HF-radar systems

Radar Name	Radar Operator
Amagansett, NY SeaSonde	Rutgers University
Block Island Long Range, RI SeaSonde	Rutgers University
Block Island Standard Range, RI SeaSonde	Rutgers University
Camp Varnum, RI LERA	Woods Hole Oceanographic Institution (WHOI)
Horseneck Beach State Reservation, MA LERA	WHOI
Long Point Wildlife Refuge, MA LERA	WHOI
Martha's Vineyard, MA SeaSonde	WHOI
Moriches, NY SeaSonde	Rutgers University
Nantucket, MA LERA	WHOI
Nantucket Island, MA SeaSonde	Rutgers University
Nauset, MA SeaSonde	University of Massachusetts Dartmouth

- 2.18.1. **Mitigation Requirement.** Due to the potential interference with IOOS HF-radar and the risk to public health, safety, and the environment, the Lessee must mitigate unacceptable interference with IOOS HF-radar from the Project. Interference must be mitigated before rotor blades are installed within the Project, and continue throughout the life of the Project until the point of decommissioning where all rotor blades are removed. Interference is considered unacceptable if, as determined by BOEM in consultation with NOAA IOOS, IOOS HF-radar performance falls or may fall outside any of the specific radar systems' operational parameters or fails or may fail to meet IOOS's mission objectives.
- 2.18.2. **Mitigation Approval.** At least 60 days before commissioning the first WTG, the Lessee must submit to BOEM documentation demonstrating how it will mitigate interference with IOOS HF-radar in accordance with Section 2.18.1. If, after consultation with NOAA IOOS, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations.
- 2.18.3. **Mitigation Agreement.** The Lessee is encouraged to enter into an agreement with NOAA IOOS to implement mitigation measures, and any such Mitigation Agreement may satisfy the requirement to mitigate interference with IOOS HF-radar. The point of contact for development of a Mitigation Agreement with NOAA IOOS is the Surface Currents Program Manager, whose contact information is available at <https://ioos.noaa.gov/about/meet-the-ioos-program-office/> and upon request from BOEM. A Mitigation Agreement may serve the purpose of implementing Section 2.18.2. If there is any discrepancy between

Section 2.18.2 and the terms of a Mitigation Agreement, the terms of the Mitigation Agreement will prevail.

2.18.4. Mitigation Data Requirements. Mitigation required under Section 2.18.2 must address the following:

- a) Before rotor blades are installed within the Project, and continuing throughout the life of the Project until the point of decommissioning when all rotor blades are removed, the Lessee must make publicly available via NOAA IOOS near real-time, accurate numerical telemetry of surface current velocity, wave height, wave period, wave direction, and other oceanographic data measured at Project locations selected by the Lessee in coordination with NOAA IOOS.
- b) If requested by NOAA IOOS, the Lessee must share with IOOS accurate numerical time-series data of blade rotation rates, nacelle bearing angles, and other information about the operational state of each WTG in the Lease Area to aid interference mitigation.

2.18.5. Additional Notification and Mitigation.

- a) If at any time NOAA IOOS or a HF-radar operator informs the Lessee that the Project will cause a HF-radar system to fall outside of its operational parameters or fail to meet mission objectives, the Lessee must notify BOEM of the determination and propose new or modified mitigation pursuant to Section 2.18.5(b) as soon as possible and no later than 30 days from the date on which NOAA IOOS communicated the determination to the Lessee.
- b) If a mitigation measure other than that identified in Section 2.18.2 is proposed, then the Lessee must submit information on the proposed mitigation measure to BOEM for its review and concurrence. If, after consultation with NOAA IOOS, BOEM deems the mitigation acceptable, the Lessee must conduct activities in accordance with the proposed mitigations.

2.19. Critical Safety Systems (Planning) (Construction). The Lessee must provide to BSEE qualified third-party verification of (1) the identification, (2) proper installation, and (3) commissioning of all critical safety systems and equipment designed to prevent or ameliorate major accidents that could result in harm to health, safety, or the environment (hereinafter “critical safety systems”). The documentation provided to BSEE must demonstrate that the qualified third party verified that the critical safety systems were identified based on a standardized risk assessment methodology, were installed and commissioned in conformity with the Original Equipment Manufacturer’s (OEM’s) standards and the Project’s functional requirements, and are functioning properly, as required by the surveillance reporting requirements in 2.19.4.

2.19.1. Qualified Third Party. A qualified third party must be either a technical classification society, a licensed professional engineering firm, or a registered

professional engineer capable of providing the necessary certifications, verifications, and reports. The qualified third party must not have been involved in the design of the Project.

2.19.2. Identification of Critical Safety Systems and Equipment Risk Assessment. The Lessee must conduct a risk assessment to identify the critical safety systems and equipment within its facility including the WTG, tower, and each OSS. The Lessee must submit the risk assessment to BSEE and the qualified third party for review no later than submission of the FDR. The Lessee must arrange with the qualified third party and provide the information necessary for a qualified third party to make a recommendation to BSEE on the acceptability of the risk assessment and its associated conclusions. The Lessee must address BSEE's comments to BSEE's satisfaction before BSEE completes its review of the associated FDR under 30 CFR § 285.700.

2.19.3. Installation and Commissioning Surveillance Requirements. The Lessee must ensure the proper installation and commissioning of the critical safety systems and equipment. The Lessee must arrange for a qualified third party to evaluate whether the installation and commissioning of the critical safety systems and equipment are in conformance with the OEM requirements and the Project's functional requirements. BSEE and the Lessee may agree to perform additional tests during commissioning surveillance activities.

The aforementioned third-party evaluation must include: (1) an examination of the commissioning records of the critical safety systems and equipment for every WTG and OSS, (2) witnessing the commissioning of the critical safety systems and equipment of 5 percent of the WTG, including at least one WTG in the first array string, and each OSS. The Lessee must arrange for a qualified third party, at a minimum, to verify the following:

- a) The installation procedures and/or commissioning instructions supplied by the manufacturer and identified in the Project's functional requirements are adequate.
- b) The Lessee is following the instructions supplied by the manufacturer and identified in the Project's functional requirements during commissioning.
- c) The systems and equipment function as designed.
- d) The completion of final commissioning records.

2.19.4. Surveillance Reporting. The Lessee must submit surveillance records (for example, the final results and acceptance of the commissioning test by the qualified third party) or a Conformity Statement and supporting documentation (prepared consistent with *International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Renewable Energy Applications* [IECRE OD-502]) for the critical safety systems identified in Section 2.19.2. Once the commissioning of the critical safety systems and equipment has been completed for the first WTG, the Lessee must,

on a bi-weekly basis, submit the surveillance records or Conformity Statement and supporting summary documentation for all WTGs which have been verified by a qualified third party within the previous two weeks. If BSEE has not responded to the surveillance records or Conformity Statement and supporting documentation submitted by the qualified third party within 5 business days, then the Lessee may presume concurrence and keep operating. If the surveillance records or Conformity Statement and supporting documentation are not submitted within two weeks of qualified third-party verification of the commissioning of the safety systems, the WTG is not allowed to continue operating.

2.20. Engineering Drawings (Construction) (Operations) (Decommissioning). The Lessee must compile, retain, and make available to BSEE the drawings and documents specified in Table 2.20.

Table 2.20. Engineering drawings and documents

Drawing Type	Time Frame to Make Available “Issued for Construction” Drawings	Time Frame to Make Available Post-Fabrication Drawings	Deadline to Make Available Final, As-Built Drawings
Complete set of structural drawing(s), including major structural components and evacuation routes ¹	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	No later than March 31st of each calendar year, for all structures installed the prior year and submitted annually until project completion.
Front, side, and plan view drawings ²	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	N/A
Location plat for all Project facilities ³	With FDR submittal. Drawings must be reviewed and stamped by a registered professional land surveyor.	N/A	No later than March 31st of each calendar year, for all assets installed the prior year and updated annually until project completion. Drawings must be reviewed and stamped by a registered professional land surveyor.
Complete set of cable drawing(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	Prior to completion of Final FIR review as contemplated in 30 CFR § 285.700(b) ⁴	Submit quarterly for all assets installed in the previous quarter.
Proposed Anchoring Plat as required by Section 5.5.2 and 7.2	120 days before anchoring activities.	N/A	N/A
As-placed Anchor Plats for all anchoring activities (as required by Section 2.20.4 and 5.5.2)	N/A	N/A	90 days upon completion of an activity or construction of a major facility component. Drawings must be reviewed and stamped by a professional land surveyor.
Piping and instrumentation diagram(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all assets installed in the previous quarter.
Safety diagram(s) ⁵	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all assets installed in the previous quarter.
Electrical drawings, i.e., Electrical one-line drawing(s) and Protective Relay Coordination Study/Diagram	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all assets installed in the previous quarter.
Cause and Effect Chart	With FDR submittal.	N/A	N/A

Drawing Type	Time Frame to Make Available “Issued for Construction” Drawings	Time Frame to Make Available Post-Fabrication Drawings	Deadline to Make Available Final, As-Built Drawings
Schematics of fire and gas-detection system(s)	With FDR submittal. Drawings must be reviewed and stamped by a registered professional engineer.	N/A	Submit quarterly for all assets installed in the previous quarter.
Area classification diagrams	With FDR submittal.	N/A	Submit quarterly for all assets installed in the previous quarter.

Notes:

¹ As required by 30 CFR § 285.701(a)(4). This is applicable to the WTGs and OSSs.

² As required by 30 CFR § 285.701(a)(3). This is applicable to the WTGs and OSSs.

³ As required by 30 CFR § 285(a)(2). This is applicable for all installed assets on the OCS including scour protection, cables, WTGs, and OSSs.

⁴ As-installed location must be submitted with the final FIR.

⁵ Safety diagrams must depict the location of critical safety systems and equipment designed to prevent or ameliorate major accidents that could result in harm to health, safety, or the environment. This must include, but not be limited to, escape routes, station bill, fire/gas detectors, fire-fighting equipment, etc.

- 2.20.1. Engineering drawings and the associated engineering report(s) must be reviewed and stamped by a licensed professional engineer or a professional land surveyor as outlined in Table 2.20. For modified systems, only the modifications are required to be reviewed and stamped by a licensed professional engineer(s) or a professional land surveyor. The professional engineer or land surveyor must be licensed in a state or territory of the United States and have sufficient expertise and experience to perform the duties.
- 2.20.2. The Lessee must certify in an accompanying letter that the as-built design documents have been reviewed for compliance with applicable FDR/FIR, do not make material changes from the stamped issued for construction drawings (IFC), and accurately represent the as-installed facility. The drawings must be clearly marked “as-built.”
- 2.20.3. The Lessee must ensure that the engineer of record submits a stamped report showing that the as-built design documents have been reviewed and do not make material changes from the IFC drawings and accurately represent the as-installed facility. The Lessee must also ensure that the engineer of record documents any differences between the IFC drawings and the as-built drawings in the stamped report and submits the report with the as-built drawings.
- 2.20.4. As-Placed Anchor Plats. The Lessee must provide as-placed anchor plats to BOEM and BSEE within 90 days of completion of an activity (including during operations and decommissioning) or construction of a major facility component (e.g., buoys; export cable installation; WTG or OSS installation; and inter array cable installation) or decommissioning to demonstrate that seabed-disturbing activities complied with avoidance requirements for seabed features and

hazards, complex habitat⁶, archaeological resources, and/or anomalies. As-placed plats must be certified by a professional land surveyor showing the “as-placed” location of all anchors and any associated anchor chains and/or wire ropes and relevant locations of interest or avoidance on the seabed for all seabed disturbing activities. The plats must be at a scale of 1 inch = 1,000 feet (300 meters) with Differential Global Positioning System (DGPS) accuracy.

2.21. Construction Status (Construction). On a monthly basis, the Lessee must provide BSEE, BOEM, and the USCG with a construction status update and any changes to the construction schedule or process described in the plan required by Section 3.2.1 (Installation Schedule).

2.22. Maintenance Schedule (Operations). On a quarterly basis, the Lessee must provide BSEE with its maintenance schedule for any planned WTG or OSS maintenance.

2.23. Pre-lay Grapnel Run Plan (Planning). The Lessee must submit a Pre-lay Grapnel Run Plan for BSEE review and concurrence. The plan must be submitted at least 60 days prior to pre-lay grapnel run activities. BSEE will review the plan within 60 days of submittal. If BSEE does not provide comments on the plan within 60 days of its submittal, then the Lessee may presume BSEE concurrence with the plan. The plan must be consistent and meet the conditions of the SMS in Section 2.6.

2.23.1. The plan must include the following:

- a) A clear depiction (i.e., figures) of the location of pre-lay grapnel run activities, including Lessee proposed safety zones associated with third-party assets.
- b) A description of pre-lay grapnel run methods, including expected grapnel penetration depth, vessel specifications, and metocean limits on operation, etc.
- c) A description of debris removal and disposal methods, and applicable environmental regulations.
- d) A description of safety distances or zones to limit pre-lay grapnel activities near third-party assets.
- e) The environmental footprint of disturbance activities and measures taken to avoid further adverse impacts to archaeological resources, seafloor hazards, complex habitat, and fishing operations.
- f) A summary of any consultation and outreach with resource agencies and the fishing industry in development of the plan (e.g., notifications to mariners).

⁶ Complex habitat is defined as coarse, unconsolidated mineral substrates (i.e., substrates containing 5% or greater gravels), rock substrates (e.g., bedrock), and shell substrates (e.g., mussel reef) consistent with Coastal and Marine Ecological Classification Standard definitions as well as vegetated habitats (e.g., submerged aquatic vegetation).

- 2.23.2. The Lessee must submit a letter to BSEE outlining any deviations from the Pre-lay Grapnel Run Plan within 90 days following pre-lay grapnel run activities.

3. NAVIGATIONAL AND AVIATION SAFETY CONDITIONS

3.1. Design Conditions (Planning) (Construction) (Operations).

- 3.1.1. Marking. The Lessee must mark each WTG and OSS with private aids to navigation (PATON). No sooner than 60 and no less than 15 days before installation, the Lessee must file an application (form CG-2554), either in paper form or electronically at this website: (<http://www.usharbormaster.com>), with the Commander of the First Coast Guard District to establish PATON, as provided in 33 C.F.R. part 66. USCG approval of the application must be obtained before the Lessee begins installation of the facilities. The PATON must be included with the lighting, marking, and signaling plan and design specifications for maritime navigation lighting. The Lessee must:
- a) Provide a lighting, marking, and signaling plan for review by BOEM, BSEE, and the USCG at least 180 days before installation. The Lessee must obtain BOEM's and BSEE's concurrence with this plan. The plan must include elements from applicable Federal law and regulations, and guidelines, e.g., International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation G1162, *The Marking of Man-Made Offshore Structures*; USCG's LNM (D1 LNM: 19/23) or the most recent version on Ocean-Structure PATON Marking Guidance; and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development (April 28, 2021).
 - b) Mark each individual WTG and OSS with clearly visible, unique, alpha-numeric identification characters consistent with the attached Rhode Island and Massachusetts Structure Labeling Plot. The Lessee must additionally display this label on each WTG nacelle, visible from above. If the Lessee's OSS includes helicopter landing platforms, as described in Section 3.1.3, the Lessee must also display this label on the platforms.
 - c) For each WTG, install red obstruction lighting that is compatible with night vision goggles and consistent with the Federal Aviation Administration (FAA) Advisory Circular 70/7460-1M and 150/5345-43.
 - d) Provide signage that is visible to mariners in a 360-degree arc around the structures to inform vessels of the vertical blade-tip clearance air draft below the turbine blades as determined at Highest Astronomical Tide (HAT).
 - e) Cooperate with the USCG and NOAA to ensure that cable routes, OSS, and WTGs are depicted on appropriate government-produced and commercially available nautical charts.

- f) Provide mariner information sheets on the Lessee's website within 90 days of installation of WTGs and OSS foundations, with details on the location of the WTGs and OSS and specifics, such as blade-tip clearance above sea level. If multiple structures are being installed in a short timeframe, the information sheets may be combined into a single update to be posted within 90 days of completing the last foundation installation.
- g) Submit summary documentation of mariner information to BSEE via TIMSWeb, within 90 days of the completion of commissioning activities, of the Lessee's compliance with Sections 3.1.1(a) through (f).
- h) Immediately report discrepancies in the status of all PATONs to the local USCG Sector Command Center (a timeline of when discrepancies can be resolved must be sent to USCG within 14 days of identifying the discrepancy).

3.1.2. Blade/Nacelle Control. The Lessee must equip all WTG rotors (blade assemblies) with control mechanisms constantly operable from the Lessee's control center.

- a) Control mechanisms must enable the Lessee to immediately initiate the shutdown of any WTG upon emergency order from the Department of Defense (DOD) or the USCG. The Lessee must initiate breaking and shut down of each requested WTG after the shutdown order. The Lessee may resume operations only upon notification from the entity (DOD or USCG) that initiated the shutdown.
- b) The Lessee must include a shutdown procedure in its Emergency Response Procedure and test the shutdown capability (functioning) of at least one WTG within the field at least annually. The Lessee must submit the results of testing to BSEE with the Project's annual inspection results.
- c) The Lessee must work with the USCG to establish the proper blade configuration during WTG shutdown for USCG air assets conducting search and rescue operations.
- d) The Lessee must notify the USCG and BSEE in advance of trainings and exercises to test and refine notification and shutdown procedures and allow USCG and BSEE to participate in these trainings and exercises.

3.1.3. Structure Micrositing. The Lessee must not adjust approved structure locations in a way that narrows any northwest-southeast or northeast-southwest transit corridors to less than 0.6 nautical miles, nor to a layout that eliminates two distinct lines of orientation in a grid pattern. The Lessee must submit the final as-built structure locations as part of the as-built documentation outlined in Section 2.20.

3.2. Installation Conditions (Planning) (Construction).

- 3.2.1. Installation Schedule. As early as possible, but not less than 60 days prior to commencing offshore construction activities, the Lessee must provide BSEE and the USCG with a plan that describes the schedule and process for seabed preparation; export, substation interconnector, and inter-array cable installation; and WTGs and OSS installation. This plan must include all planned mitigations to be implemented to minimize any adverse impacts to navigation while installation is ongoing. No WTG or OSS installation work may begin at the Project site (i.e., on or under the water) without prior review by BOEM, BSEE, and the USCG of the plan as required under this provision. The Lessee must submit any significant revisions or updates to the plan at least 60 days before commencing the activities described in that update or revision. Appropriate LNM submissions must accompany the plan and its revisions.
- 3.2.2. Design Modifications. Any changes or modification in the design of the Lease Area that may impact navigation safety (including, but not limited to, a change in number, size, or location of WTGs, or change in construction materials or construction method), requires written approval by BSEE.
- 3.2.3. Cable Burial. A detailed submarine cable system burial plan must be submitted to the USCG and BSEE for BSEE review no later than the relevant FIR submittal. No later than 60 days post-cable installation of all cable lines (export, interconnector, and array), the Lessee must submit to BSEE, BOEM, and the USCG a copy of the final submarine cable system route positioning list that depicts the precise location and burial depths of the entire cable system.
- 3.3. Reporting Conditions (Planning) (Construction) (Operations) (Decommissioning).
- 3.3.1. Complaints. On a monthly basis, the Lessee must (1) provide BSEE with a description of any complaints received (written or oral) by boaters, fishermen, commercial vessel operators, or other mariners regarding impacts to navigation safety allegedly caused by construction or operations vessels, crew transfer vessels, barges, or other equipment; and (2) describe remedial action(s) taken in response to complaints received, if any. BSEE reserves the right to require additional remedial action consistent with 30 CFR § 285. The monthly report must be submitted via TIMSWeb.
- 3.3.2. Correspondence. On a monthly basis, the Lessee must provide BSEE, BOEM, and the USCG with copies of any correspondence received from other Federal, state, or local agencies regarding navigation safety issues. Monthly reports must be submitted to BSEE via TIMSWeb and monthly reports must go to BOEM at renewable_reporting@boem.gov.
- 3.4. Meeting Attendance (Planning) (Construction) (Operations). As requested by BSEE, BOEM, and the USCG, the Lessee must attend meetings (i.e., Harbor Safety Committee, Area Committee) to provide briefings on the status of construction and operations, and on any problems or issues encountered with respect to navigation safety.

4. NATIONAL SECURITY CONDITIONS

- 4.1. Hold and Save Harmless – United States Government (Planning) (Construction) (Operations). Whether compensation for such damage or injury might otherwise be due under a theory of strict or absolute liability or any other theory, the Lessee assumes all risks of damage or injury to any person or property that occur in, on, or above the OCS in connection with any activities being performed by the Lessee in, on, or above the OCS, if the injury or damage to any person or property occurs by reason of the activities of any agency of the U.S. Government, its contractors and subcontractors, or any of its officers, agents, or employees, being conducted as a part of, or in connection with, the programs or activities of the individual military command headquarters (hereinafter “the appropriate command headquarters”) listed below:

United States Fleet Forces (USFF) N46
1562 Mitscher Ave, Suite 250
Norfolk, VA 23551
(757) 836-6206

The Lessee assumes this risk, whether or not such injury or damage is caused in whole or in part by any act or omission, regardless of negligence or fault, of the United States, its contractors or subcontractors, or any of its officers, agents, or employees. The Lessee further agrees to indemnify and save harmless the United States against all claims for loss, damage, or injury in connection with the programs or activities of the command headquarters, whether the same is caused in whole or in part by the negligence or fault of the United States, its contractors and subcontractors, or any of its officers, agents, or employees and whether such claims might be sustained under a theory of strict or absolute liability or otherwise.

- 4.2. Falmouth Airport Surveillance Radar-8 System (Construction) (Operations). To mitigate impacts on the North American Aerospace Defense Command’s (NORAD’s) operation of the Falmouth, MA, Air Surveillance Radar-8 (ASR-8), the Lessee must complete the following:
- 4.2.1. Mitigation Agreement. The Lessee must enter into a mitigation agreement with the DOD for purposes of implementing Sections 4.2.2 and 4.2.3 below. If there is any discrepancy between Sections 4.2.2 and 4.2.3 and the terms of the mitigation agreement, the terms of the mitigation agreement will prevail. Within 15 days of entering into the mitigation agreement, the Lessee must provide BOEM with a copy of the executed mitigation agreement. Within 45 days of completing the requirements in Sections 4.2.2 and 4.2.3, the Lessee must provide BOEM with evidence of compliance with those requirements. The NORAD point of contact for development of the agreement is Frederick Shepherd: frederick.l.shepherd.civ@mail.mil; 719-556-3260.
- 4.2.2. NORAD Notification. At least 30, but no more than 60, days prior to the completion of commissioning of the last WTG (meaning every WTG in the Project is installed with potential for blade rotation), the Lessee must notify

NORAD for Radar Adverse Impact Management (RAM) scheduling, which is required for the Falmouth ASR-8.

- 4.2.3. Funding for RAM Execution. At least 30, but no more than 60, days prior to the completion of commissioning of the last WTG (meaning every WTG in the Project is installed with potential for blade rotation), the Lessee must contribute funds in the amount of \$80,000 to NORAD toward the execution of the RAM.
- 4.3. Distributed Fiber-Optic Sensing Technology (Planning) (Construction) (Operations). To mitigate potential impacts on the Department of the Navy's (DON's) operations, the Lessee must coordinate with the DOD/DON on any proposal to use distributed fiber-optic sensing technology as part of the Project or associated transmission cables. The DON point-of-contact for coordination is Matthew Senska: matthew.senska@navy.mil; 571-970-8400.
- 4.4. Electromagnetic Emissions (Planning) (Construction) (Operations). Before entering any designated defense operating area, warning area, or water test area for the purpose of carrying out any survey activities under the approved COP, the Lessee must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters. The Lessee must provide BOEM with a copy of the agreement within 15 days of entering into the agreement.

5. PROTECTED SPECIES⁷ AND HABITAT CONDITIONS

5.1. General Environmental Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.1.1. Aircraft Detection Lighting System (Construction) (Operations). The Lessee must use an FAA-approved vendor for the Aircraft Detection Lighting System (ADLS), which will activate the FAA hazard lighting only when an aircraft is in the vicinity of the wind facility to reduce visual impacts at night. The Lessee must confirm the use of and submit to BOEM (via renewable_reporting@boem.gov) and BSEE (via TIMSWeb), the information about the FAA-approved vendor for ADLSs on WTGs and the OSS at the time the relevant FIR is submitted.

5.1.2. Marine Debris⁸ Awareness and Elimination (Planning) (Construction) (Operations) (Decommissioning).

- a) The Lessee must submit required documents related to marine debris awareness training, reporting, and recovery (e.g., annual training compliance, incident reporting, 24-hour notices, recovery plans, recovery notifications, monthly reporting, annual survey and reporting, and decommissioning and site clearance) described in Section 5.1.2(b) through (i) to BSEE via TIMSWeb with a notification email sent to marinedebris@bsee.gov.
- b) Marine Debris Awareness Training and Certification. The Lessee must ensure that all vessel operators, employees, and contractors engaged in offshore activities pursuant to the approved COP complete marine debris awareness training initially (i.e., prior to engaging in offshore activities pursuant to the approved COP) and annually. Operators must implement a marine debris awareness training and certification process that ensures that their employees and contractors are adequately trained. The training and certification process must include the following elements: (1) training through viewing of either a marine debris video or training slide pack posted on the BSEE website or by contacting BSEE; (2) an explanation from management personnel that emphasizes their commitment to the requirements; and (3) documented certification that all personnel listed above have completed their initial and annual training. The Lessee must make this certification available for inspection by BSEE upon request.
- c) Training Compliance Report. By January 31 of each year, the Lessee must submit to BSEE an annual report that describes its marine debris awareness

⁷ As used herein, the term “protected species” means species of fish, wildlife, or plant that have been determined to be endangered or threatened under Section 4 of the Endangered Species Act (ESA). ESA-listed species are provided in 50 CFR § 17.11-12. The term also includes marine mammals protected under the MMPA.

⁸ Throughout this document, “marine debris” is defined as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper, or any other man-made item or material that is lost or discarded in the marine environment.

training process and certifies that the training process has been followed for the preceding calendar year.

- d) Marking. Any materials, equipment, tools, containers, and other items that are used in OCS activities and that are of a shape or configuration that make them likely to snag or damage fishing devices or be lost or discarded overboard, must be clearly marked with the vessel or facility identification number and must be properly secured to prevent loss overboard. All markings must clearly identify the owner and must be able to resist the effects of the environmental conditions to which they may be exposed.
- e) Recovery. Discarding trash or debris in the marine environment is prohibited. Debris that is accidentally released by the Lessee in the marine environment while performing any activities associated with the Project must be recovered within 24 hours when the marine debris is likely to (1) cause undue harm or damage to natural resources (e.g., entanglement or ingestion by protected species); or (2) interfere with OCS uses (e.g., snagging or damaging fishing equipment, or presenting a hazard to navigation). If the marine debris is located within the boundaries of an archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact BSEE for concurrence before conducting any recovery efforts. The Lessee must take steps to prevent similar releases of marine debris and must submit a description of these preventative actions to BSEE within 30 days from the date on which the release of marine debris occurred.
- f) Notification. The Lessee must notify BSEE within 24 hours of any releases of marine debris and indicate whether the released marine debris was immediately recovered. If the marine debris was not recovered, the Lessee must provide their rationale for not recovering the marine debris (e.g., marine debris is located within the boundaries of a sensitive area, recovery was not possible because conditions are unsafe, or recovery was not practicable and warranted because the released marine debris is not likely to result in items (1) or (2) listed in Section 5.1.2(e).
- g) Remedial Recovery. After reviewing the notification and rationale, BSEE may order the Lessee to recover the marine debris if BSEE finds that the reasons provided by the Lessee in the notification are insufficient and the marine debris would cause undue harm or damage to natural resources or interfere with OCS uses.
 - i. Recovery Plan. If BSEE requires the Lessee to recover the marine debris, the Lessee must submit the Recovery Plan to BSEE within 10 days after receiving BSEE's request. Unless BSEE objects within 48 hours after the Recovery Plan has been accepted or is in review status by BSEE in TIMSWeb, the Lessee may proceed with the activities described in the Recovery Plan. The Lessee must request and obtain a

time extension if recovery activities cannot be completed within 30 days from the date on which marine debris was released.

- ii. Recovery Completion Notification. Within 30 days after the marine debris is recovered, the Lessee must provide notification to BSEE that recovery was completed and, if applicable, describe any substantial variance from the activities described in the Recovery Plan that was required during the recovery efforts.
- h) Monthly Reporting. The Lessee must submit to BSEE a monthly report, no later than the fifth day of the month, of all marine debris lost or discarded during the preceding month. The Lessee is not required to submit a report for those months in which no marine debris was lost or discarded. The monthly report must include the following:
- i. If applicable, information related to 48-Hour Reporting and Recovery Plan information that occurred and include the referenced TIMSWeb Submittal ID (SID);
 - ii. Project identification and contact information for the Lessee and for any operators or contractors involved;
 - iii. Date and time of the incident;
 - iv. Lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);
 - v. Detailed description of the dropped object, including dimensions (approximate length, width, height, and weight), composition (e.g., plastic, aluminum, steel, wood, or paper), and buoyancy (floats or sinks);
 - vi. Pictures, data imagery, data streams, and/or a schematic or illustration of the object, if available;
 - vii. Indication of whether the lost or discarded object could be detected as a magnetic anomaly of greater than 50 nanotesla, a seafloor target of greater than 1.6 feet (0.5 meters), or a sub-bottom anomaly of greater than 1.6 feet (0.5 meters) when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profiler in accordance with BOEM and/or BSEE's most recent, applicable guidance;
 - viii. Explanation of how the object was lost;
 - ix. Description of immediate recovery efforts and results, including photos.
- i) Annual Surveying and Reporting, Periodic Underwater Surveys, Reporting of Monofilament and Other Fishing Gear Around WTG Foundations (Operations). The Lessee must monitor indirect impacts associated with charter and recreational fishing gear lost from expected increases in fishing

around WTG foundations by surveying at least 10 of the WTGs in the Lease Area annually. The Lessee may conduct surveys by remotely operated vehicles, divers, or other means to determine the frequency and locations of marine debris. The Lessee must report the results of the surveys to BOEM (at renewable_reporting@boem.gov) and BSEE in an annual report, submitted by January 31, for the preceding calendar year. Annual reports must be submitted in both Microsoft Word and Adobe PDF format. Photographic and videographic materials (TIFF or Motion JPEG 2000) must be provided in TIMSWeb with the submittal of the annual report. Photographic and videographic files can also be submitted to marinedebris@bsee.gov if the files cannot be uploaded in TIMSWeb. Survey design and effort (i.e., the number of WTGs and frequency of reporting) may be modified; but any modification must be reviewed and concurred by BOEM and BSEE.

- x. Annual reports must include a summary of the survey reports that includes survey date(s); contact information of the operator; location and pile identification number; photographic and/or video documentation of the survey and debris encountered; any animals sighted; and the disposition of any located debris (i.e., removed or left in place). Annual reports must also include claim data attributable to the Project from the Lessee's corporate gear loss compensation policy and procedures. Required data and reports may be archived, analyzed, published, and disseminated by BOEM and BSEE.
- j) Site Clearance and Decommissioning. The Lessee must include and address information on unrecovered marine debris in the description of the site clearance activities provided in the decommissioning application required under 30 CFR § 585.906 and 285.906.

5.2. Avian and Bat Protection Conditions.

- 5.2.1. The Lessee must submit all required documents related to avian and bat protection conditions in Sections 5.2.2 through Section 5.2.17 to: BOEM at renewable_reporting@boem.gov; BSEE at protectedspecies@bsee.gov for a notification email and via TIMSWeb; and USFWS New England Field Office at newengland@fws.gov. The Lessee must confirm the relevant point of contact before submitting the required documents and must also confirm that the agencies have received the documents.
- 5.2.2. Bird-Deterrent Devices and Plan. (Construction) (Operations). To minimize attracting birds to operating turbines, the Lessee must install bird perching deterrent device(s) on each WTG and OSS. The Lessee must submit a plan to deter perching on offshore infrastructure by roseate terns and other marine birds for BOEM, BSEE, and USFWS approval. BOEM, BSEE, and USFWS will review the Bird Perching Deterrent Plan and provide any comments on the plan to the Lessee within 60 days of its submittal. The Bird Perching Deterrent Plan must include the type(s) and locations of bird perching deterrent devices, a

monitoring plan for the life of the Project, allow for modifications and updates as new information and technology become available, and track the efficacy of the deterrents. The plan must be based on best available science regarding the effectiveness of perching deterrent devices on minimizing collision risk. The Lessee must propose the location of bird perching deterrent devices based on best management practices applicable to the appropriate operation and safe installation of the devices. The Lessee must submit the Bird Perching Deterrent Plan with the FDR. The Bird Perching Deterrent Plan must be approved before the Lessee may begin installation of WTGs or OSS(s). The Lessee must also provide the location and type of bird-deterrent devices as part of the as-built submittals to BSEE.

- 5.2.3. Navigation Lighting Upward Illumination Minimization (Planning) (Construction) (Operations). Conditional on USCG approval, the top of each USCG-required marine navigation light must be shielded to minimize upward illumination to minimize the potential of attracting migratory birds. The Lessee must provide BOEM, BSEE, and USFWS with a copy of the application to USCG to establish PATON (Section 3.1.1).
- 5.2.4. Avian and Bat Monitoring Program (Construction) (Operations) (Decommissioning). The Lessee must develop and implement an Avian and Bat Post-Construction Monitoring Plan based on the Revolution Wind Avian and Bat Post-Construction Monitoring Framework in COP Appendix AA, in coordination with USFWS, and other relevant regulatory agencies. Annual monitoring reports will be used to determine the need for adjustments to monitoring approaches, consideration of new monitoring technologies, and/or additional periods of monitoring. Prior to or concurrent with offshore construction activities, including seabed preparation activities, the Lessee must submit an Avian and Bat Post-Construction Monitoring Plan for BOEM, BSEE and USFWS review. BOEM, BSEE, and USFWS will review the Avian and Bat Post-Construction Monitoring Plan and provide any comments on the plan to the Lessee within 60 days of its submittal. The Lessee must resolve all comments on the Avian and Bat Post-Construction Monitoring Plan to BOEM's and BSEE's satisfaction before implementing the plan and before commissioning of the first WTG.
- 5.2.5. Monitoring. The Lessee must conduct monitoring as outlined in the Revolution Wind Avian and Bat Post-Construction Monitoring Framework in COP Appendix AA. In addition, the Lessee must monitor the action area for piping plovers and rufa red knots. The monitoring method(s) must be informed by the best available information and technology and could include boat-based monitoring, Motus stations, remote sensing, cameras, microphones, Doppler and NEXRAD radar, eDNA, etc. The monitoring must occur during the time(s) of year when collisions are most likely. Initially, monitoring will proceed according to the Lessee's Avian and Bat Post-Construction Monitoring Framework and be operational for the first piping plover and rufa red knot migratory seasons after the WTGs are operational (see Monitoring and

Reporting Requirements in USFWS BiOp). Subsequently, consideration of new methods and timing by BOEM and USFWS will occur on the same timeline as the collision minimization report (CMR) described in the Terms and Conditions of the USFWS BiOp unless BOEM and USFWS agree to a different schedule.

- 5.2.6. Annual Monitoring Reports. The Lessee must submit to BOEM, BSEE, and USFWS a comprehensive report after each full year of monitoring (pre- and post-construction) within 12 months of completion of the last avian survey. The report must include all data, analyses, and summaries regarding ESA-listed and non-ESA-listed birds and bats. In addition, the Lessee must report observations of injured or dead piping plovers and rufa red knots; any listed species perching on Project infrastructure (including offshore substations); implementation and effectiveness of avoidance and minimization measures; and any other relevant activity and information related to the proposed action and potential impacts to listed species (see Monitoring and Reporting Requirements in USFWS BiOp).
- 5.2.7. Post-Construction Quarterly Progress Reports. During the first complete year the Project is fully operational and commissioned (all installed WTGs producing power), the Lessee must submit quarterly progress reports during the implementation of the Avian and Bat Post-Construction Monitoring Plan to BOEM, BSEE, and USFWS by the 15th day of the first month following the end of each quarter. The Lessee must include a summary of all work performed, an explanation of overall progress, and any technical problems encountered in the progress reports.
- 5.2.8. Monitoring Plan Revisions. Within 30 days of submitting the annual monitoring report, the Lessee must meet with BOEM, BSEE, USFWS, and appropriate state wildlife agencies to discuss the monitoring results, the potential need for revisions to the Avian and Bat Post-Construction Monitoring Plan, including technical refinements or additional monitoring, and the potential need for any additional efforts to reduce impacts. If, following that meeting, BOEM, BSEE, and USFWS jointly determine that revisions to the Avian and Bat Post-Construction Monitoring Plan are necessary, the Lessee will be required to modify the Avian and Bat Post-Construction Monitoring Plan. If the reported monitoring results deviate substantially from the impact analysis included in the FEIS⁹, the Lessee must transmit to BOEM, BSEE, and USFWS recommendations for new mitigation measures and/or monitoring methods. The frequency, duration, and methods for various monitoring efforts in future revisions of the Avian and Bat Post-Construction Monitoring Plan will be determined adaptively based on current technology and the evolving weight of evidence regarding the likely levels of collision mortality for each listed bird species. The effectiveness and cost of various technologies/methods will be key considerations when revising the plan (see USFWS BiOp, Appendix B, Section 5e. for details).

⁹ <https://www.boem.gov/renewable-energy/state-activities/revolution-wind-final-eis>

- 5.2.9. Operation Reporting (Operations). Upon commissioning of the first WTG, the Lessee must submit to BOEM and BSEE an annual report, due by January 31, summarizing monthly operational data from the preceding year calculated from 10-minute supervisory control and data acquisition (SCADA) data for all WTGs together in tabular format, including the proportion of time the WTGs were spinning each month, the average rotor speed (monthly revolutions per minute) of spinning WTGs plus 1 standard deviation, and the average pitch angle of blades (degrees relative to rotor plane) plus 1 standard deviation. Any data considered by the Lessee to be privileged or confidential must be clearly marked as confidential business information and will be handled by BOEM and BSEE in a manner consistent with 30 CFR § 585.114.
- 5.2.10. Raw Data. The Lessee must store the raw data from all avian and bat surveys and monitoring activities according to accepted archiving practices. Such data must be accessible to BOEM, BSEE, and USFWS upon request for the duration of the Lease. The Lessee must work with BOEM to ensure the data are publicly available. All avian tracking data (i.e., from radio and satellite transmitters) must be stored, managed, and made available to BOEM and USFWS following the protocols and procedures outlined in the agency document entitled Guidance for Coordination of Data from Avian Tracking Studies, or its successor.
- 5.2.11. Annual Bird/Bat Mortality Reporting (Construction) (Operations) (Decommissioning). The Lessee must submit an annual report to BOEM, BSEE, and USFWS, covering each calendar year, due by January 31, documenting any dead or injured birds or bats found on vessels and structures during construction, operations, and decommissioning in the preceding year. The report must contain the following information: the name of species, date found, location, a photo to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory.¹⁰
- 5.2.12. Immediate Reporting (Construction) (Operations) (Decommissioning). Any occurrence of dead or injured ESA-listed birds or bats must be reported to BOEM, BSEE, and USFWS (New England Field Office at newengland@fws.gov and 603-223-2541) as soon as practicable (taking into account crew and vessel safety), ideally within 24 hours and no more than two business days after the sighting. If practicable, the Lessee must carefully collect the dead specimen and preserve the material in the best possible state, contingent on the acquisition of the any necessary wildlife permits and compliance with the Lessee's health and safety standards (see Monitoring Requirements in USFWS BiOp).
- 5.2.13. Collision Minimization (Planning) (Construction) (Operations). Within 5 years of the start of WTG operation and every 5 years thereafter for the operational

¹⁰ <https://www.usgs.gov/centers/eesc/science/bird-banding-laboratory>

life of the Project, the Lessee must provide BOEM with a review of best available scientific and commercial data on technologies and methods that have been implemented or are being studied to reduce or minimize bird collisions at WTGs. The review must be worldwide and include both offshore and onshore WTGs. BOEM's Collision Minimization Report, consistent with Term and Condition 1b of the USFWS BiOp, will be provided to the Lessee, USFWS, and appropriate state agencies for a 60-day review period. Within 60 days of BOEM's issuance of the final Collision Minimization Report, the Lessee must participate in a meeting to discuss the report with BOEM, BSEE, USFWS, and appropriate state agencies.

- 5.2.14. The Lessee must submit an annual report covering each calendar year, due by January 31, documenting the implementation of any collision minimization measures during the preceding year. The report must be submitted to BOEM, BSEE, and USFWS.
- 5.2.15. Compensatory Mitigation for Piping Plover and Red Knot (Planning) (Construction) (Operations). The Lessee must prepare a Compensatory Mitigation Plan prior to the start of WTG operation. At a minimum, the Compensatory Mitigation Plan must provide compensatory mitigation actions to offset projected levels of take of Piping Plover and Red Knot for the first 5 years of WTG operation at a ratio of 1:1. At its discretion, the Lessee may include actions to offset projected take over a longer time period and/or at a higher ratio.
- 5.2.16. The Compensatory Mitigation Plan for Piping Plover and Red Knot must include: a) detailed description of one or more specific mitigation actions; b) the specific location for each action; c) a timeline for completion; d) itemized costs for implementing the mitigation actions; e) a list of permits, approvals, and permissions necessary for implementing the mitigation actions; f) details of the mitigation mechanism (e.g., mitigation agreement, applicant-proposed mitigation); g) best available science linking the compensatory mitigation action(s) to the projected level of collision mortality, as described in the USFWS BiOp; h) a schedule for completion of the mitigation actions; and i) monitoring to ensure the effectiveness of the mitigation action(s) in offsetting the target level of take.
- 5.2.17. Compensatory Mitigation Plan development and implementation must occur according to the following schedule:
 - a) At least 180 days prior to the commissioning of the first WTG, the Lessee must distribute a draft Compensatory Mitigation Plan to BOEM, BSEE, USFWS, appropriate state wildlife agencies, and other stakeholders or interested parties identified by the Lessee and confirmed by BOEM and BSEE for a 60-day review period.
 - b) At least 90 days prior to the commissioning of the first WTG, the Lessee must transmit a revised Compensatory Mitigation Plan for approval by

BOEM, BSEE, and USFWS, along with a record of comments received on the draft. The Lessee must rectify any outstanding agency comments or concerns before BOEM, BSEE, and USFWS make a final decision about whether to approve the Plan.

- c) Before or concurrent with commissioning of the first WTG, the Lessee must provide documentation to BOEM and USFWS showing the Lessee's financial, legal, or other binding commitment(s) for implementing the Compensatory Mitigation Plan and must provide a status update in the Annual Certification¹¹ to BSEE.
- d) The Lessee must prepare and implement a new Compensatory Mitigation Plan every 5 years for the life of the Project, according to a schedule developed by BOEM and approved by USFWS. Compensatory mitigation actions included in each new Compensatory Mitigation Plan must reflect a) the level and effectiveness of mitigation provided by the Lessee; b) the level of take over the next 5 years as projected by Stochastic Collision Risk Assessment for Movement (SCRAM) (or its successor; see Conservation Measure 4 in the USFWS BiOp); c) current information regarding any effects of offshore lighting (see Conservation Measure 2 in the USFWS BiOp); and d) the effectiveness of any minimization measures that have been implemented as required by the reasonable and prudent measures included in the USFWS BiOp.

5.3. Benthic Habitat and Fisheries Monitoring Conditions (Planning) (Construction) (Operations).

5.3.1. The Lessee must submit the Fisheries Research and Monitoring Plan to BOEM at renewable_reporting@boem.gov, to BSEE with status updates of submittals in the Annual Certification, and to NMFS Greater Atlantic Regional Fisheries Office (GARFO) Habitat and Ecosystem Services Division (HESD) at NMFS.GAR.HESDoffshorewind@noaa.gov.

5.3.2. Fisheries Research and Monitoring Plan (Planning) (Construction) (Operations). The Lessee must conduct fisheries monitoring according to the *Revolution Wind Fisheries Research and Monitoring Plan* to assess fisheries status in the Project area pre-, during, and post- construction.

The Lessee must submit an annual report to BOEM, BSEE, and NMFS GARFO's Protected Resources Division (nmfs.gar.incidental-take@noaa.gov) for benthic habitat and fisheries monitoring activities in the preceding calendar year by February 15 (i.e., the report of 2023 activities is due by February 15, 2024). The report must include a summary of all activities conducted, the dates and locations of all ventless trap surveys and otter trawl surveys, number of sets and soak duration for all ventless trap surveys and tows and duration for all

¹¹ 30 CFR § 285.633(a) requires certification of compliance annually with certain terms and conditions of your COP, hereinafter referred to as "Annual Certification."

trawl surveys summarized by month, number of vessel transits, and a summary table of any observations and captures of ESA listed species during these surveys. The report must also summarize all acoustic telemetry and benthic monitoring activities that occurred, inclusive of vessel transits. The Lessee must share data consistent with its data sharing plan and upon BOEM's or BSEE's request.

5.4. Protected Species Monitoring Plan Conditions (Planning) (Construction) (Operations) (Decommissioning).

- 5.4.1. The Lessee must submit all required documents related to protected species in Sections 5.4.2 through 5.4.10 (e.g., passive acoustic monitoring (PAM), pile driving monitoring plans, UXO/MEC PAM Plan, sound field verification (SFV), and vessel strike) to: BOEM at renewable_reporting@boem.gov; BSEE via TIMSWeb with a notification email sent to BSEE at protectedspecies@bsee.gov; NMFS GARFO at nmfs.gar.incidental-take@noaa.gov; NMFS's Office of Protected Resources (OPR) at <mailto:pr.itp.monitoringreports@noaa.gov>; and United States Army Corps of Engineers (USACE) at cenae-r-@usace.army.mil.
- 5.4.2. Passive Acoustic Monitoring (PAM) During Construction (Planning) (Construction). The Lessee must conduct PAM to supplement visual monitoring of marine mammals before, during, and after all monopile installations and UXO/MEC detonations.
- 5.4.3. UXO/MEC PAM Plan (Planning) (Construction) (Operations). The Lessee must prepare and implement a UXO/MEC PAM Plan that describes all proposed equipment, deployment locations, detection review methodology, and other procedures and protocols related to the use of PAM to supplement visual monitoring prior to, during, and after UXO/MEC detonation. The Lessee must submit this plan to the contacts listed in Section 5.4.1 for review and BOEM's and BSEE's concurrence at least 180 days before the planned start of UXO/MEC activities. The UXO/MEC PAM Plan must incorporate the list of requirements for the Pile Driving PAM Plan described in Section 5.4.4.
- 5.4.4. Pile Driving PAM Plan (Planning) (Construction). The Lessee must prepare and implement a Pile Driving PAM Plan. The Lessee must submit this plan to BOEM, BSEE, NMFS GARFO, and NMFS OPR at least 180 calendar days before impact pile driving is planned. BOEM, BSEE, and NMFS GARFO will review the plan and will provide comments within 45 days of receipt of the plan. NMFS GARFO may comment to BOEM, BSEE, and the Lessee about whether the plan is consistent with the requirements outlined in the BiOp and its Incidental Take Statement (ITS). If BOEM and BSEE determines that the plan is inconsistent with those requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity. BOEM, BSEE and NMFS GARFO will discuss a timeline for review of the modified plan to meet the Lessee's schedule to the maximum extent practicable. The Lessee must obtain BOEM's and BSEE's concurrence with this Plan prior to the start of any pile driving. The plan must

include a description of all proposed PAM equipment and hardware, the calibration data, bandwidth capability and sensitivity of hydrophones, and address how the proposed PAM will follow standardized measurement, processing methods, reporting metrics, and metadata standards for offshore wind (Van Parijs et al., 2021). The plan must describe and include all procedures, documentation, and protocols including information (i.e., testing, reports, equipment specifications) to support that it will be able to detect vocalizing whales, including the North Atlantic right whale (NARW), within the clearance and shutdown zones. This information includes deployment locations, procedures, detection review methodology, and protocols; hydrophone detection ranges with and without foundation installation activities and data supporting those ranges; where PAM Operators will be stationed relative to hydrophones and PSOs on pile driving vessel calling for delay/shutdowns; and a full description of all proposed software, call detectors and their performance metrics, and filters. The plan must also incorporate the requirements relative to NARW reporting in 5.14.1.

The Lessee must submit full detection data, metadata, and location of recorders (or GPS tracks, if applicable) from all real-time hydrophones used for monitoring during construction within 90 calendar days after pile-driving has ended and instruments have been pulled from the water. Reporting must use the webform templates on the NMFS Passive Acoustic Reporting System website at <https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates>. The Lessee must submit the full acoustic recordings from all the real-time hydrophones to the National Centers for Environmental Information (NCEI) for archiving within 90 calendar days after pile-driving has ended and instruments have been pulled from the water. Confirmation of both submittals must be sent to NMFS GARFO.

- 5.4.5. Sound Field Verification Plan (Planning) (Construction). The Lessee must submit, prepare, and implement a SFV Plan prior to pile driving and UXO/MEC detonation. The Lessee must submit a SFV Plan or Plans, if separate Pile Driving SFV Plans and UXO/MEC SFV Plans are prepared, to BOEM, BSEE, NMFS OPR, and NMFS GARFO at least 180 days before impact pile driving or UXO detonation is planned to begin. BOEM, BSEE, and NMFS GARFO will review the plan and provide comments within 45 days of receipt of the plan. NMFS GARFO's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the BiOp and its ITS. If the plan is determined to be inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity; at that time, BOEM, BSEE and NMFS will discuss a timeline for review of the modified plan to meet the Lessee's schedule to the maximum extent practicable. The Lessee must obtain BOEM's and BSEE's concurrence with this Plan prior to the start of pile driving or UXO detonation activities.

To validate the estimated sound field, SFV measurements will be conducted during pile driving of the first three monopiles installed over the course of the Project, with noise attenuation activated. The plan(s) must describe how the first three monopile installation sites and installation scenarios (i.e., hammer energy and number of strikes) are representative of the rest of the monopile installations and, therefore, why these monopile installations would be representative of the remaining monopile installations. If the monitored pile locations are different from the ones used for exposure modeling, the Lessee must provide a justification for why these locations are representative of the modeling. In the case that these sites are not determined to be representative of all other monopile installation sites, the Lessee must include information on how additional monopiles/sites will be selected for SFV. The plan must also include methodology for collecting, analyzing, and preparing SFV data for submission to NMFS GARFO. The Lessee's plan must describe how the effectiveness of the sound attenuation methodology will be evaluated based on the results. For the first 3 piles, the Lessee must also provide, as soon as they are available, but no later than 48 hours after each installation, the initial results of the SFV measurements to BOEM, BSEE, and NMFS GARFO in an interim report after each monopile. If any interim SFV report submitted for any of the first 3 monopiles indicates the sound fields exceed the modeled distances to any protected species injury or behavioral harassment/disturbance thresholds (as modeled assuming 10 decibel attenuation), the Lessee must carry out SFV for the next 3 monopiles (e.g., the fourth, fifth, and sixth pile driven) and provide a SFV report to BOEM, BSEE, and NMFS GARFO within 48 hours after each foundation is installed. After receiving reports for the first 6 monopiles, BOEM, BSEE, or NMFS GARFO may require the Lessee to carry out additional SFV and provide additional interim SFV reports to BOEM, BSEE, and NMFS GARFO if the measured sound fields continue to exceed the modeled results. These requirements are in addition to the requirement for the Lessee to implement additional sound attenuation measures and/or adjustments to clearance and shutdown zones if sound fields exceed the modeled distances to any protected species injury or behavioral harassment/disturbance thresholds (as modeled assuming 10 decibel attenuation; see 5.11.3 and 5.11.5).

- 5.4.6. Long-term PAM (Construction) (Operations). The Lessee must conduct long-term monitoring of ambient noise, marine mammal and commercially-important fish vocalizations in the Lease Area before, during, and following construction. The Lessee must conduct continuous¹² recording at least 1 year before construction, during construction, initial operation, and for at least 3 but no more than 10 full calendar years of operation to monitor for potential noise impacts. The Lessee must meet with BOEM and BSEE at least 60 days prior to conclusion of the third full calendar year of operation monitoring (and at least

¹² Continuous recording in this measure recognizes that PAM devices can be damaged or lost from weather and other ocean uses, mechanical failures, and general maintenance. The Lessee must make every effort to maintain the PAM system as near continuous as possible. If temporal gaps in recording are expected, the lessee must ensure that additional recorders can be deployed to fill gaps.

60 days prior to the conclusion of each subsequent year until monitoring is concluded) to discuss: 1) monitoring conducted to-date, 2) the need for continued monitoring, and 3) if monitoring is continued, whether adjustments to the monitoring are warranted. The instrument(s) must be configured to ensure that the specific locations of vocalizing NARW anywhere within the lease area could be identified, based on the assumption of a 10 km detection range for their calls. The lessee may execute the implementation of this condition through Option 1 or Option 2, as below. The timing requirement (i.e., monitoring for at least 3 but no more than 10 full calendar years of operation) will be reevaluated by BOEM and BSEE at the end of the third year and each year subsequently thereafter at the request of the Lessee (at a maximum frequency of requests of once per year).

- a) Option 1 - Lessee Conducts Long-term Passive Acoustic Monitoring. The Lessee must conduct PAM, including data processing and archiving following the Regional Wildlife Science Collaborative (RWSC) best practices to ensure data comparability and transparency. PAM instrumentation must be deployed to allow for identification of any NARW that vocalize anywhere within the lease area as well as Atlantic cod that may use Priority Area 1 for spawning.

Priority Area 1 encompasses 7 WTG positions in the center portion of the Lease Area. This Area is defined in Appendix K of the Final EIS for Revolution Wind, depicted in Figure K-1 of the Final EIS, and includes WTG positions WTG_39, WTG_40, WTG_47, WTG_48, WTG_49, WTG_56, and WTG_58.

The sampling rate (minimum 10 kHz) of the recorders must prioritize baleen whale detections, but must also have a minimum capability to record noise from vessels, pile-driving, and WTG operation in the lease area. The system must be configured for continuous recording over the entire year. If temporal gaps in recording are expected, the Lessee must ensure that additional recorders can be deployed to fill gaps. The Lessee must use trawl-resistant moorings to ensure that instruments are not lost, and must replace any lost instruments as soon as possible. The Lessee must also notify BOEM if this occurs.

The Lessee must follow the best practices outlined in the RWSC best practices document¹³, unless otherwise required through conditions of COP approval. The best practices include engaging with the RWSC, calibrating the instruments, running QA/QC on the raw data, following the templates for reporting species vocalizations, and preparing the data for archiving at National Centers for Ecological Information (NCEI). Although section III of the RWSC best practices document specifies steps for Section 106

¹³ <https://rWSC.org/wp-content/uploads/2022/12/RWSC-PAM-Data-Management-Storage-Best-Practices.pdf>.

compliance, the Lessee must instead follow the conditions outlined in Section 7.13 and the Section 106 Memorandum of Agreement.

In terms of data processing, the Lessee must document the occurrence of whale vocalizations (calls of North Atlantic right, humpback, sei, fin, and minke whales, as well as odontocete clicks, as available based on sample rate) using automatic or manual detection methods. In addition, data must be processed with either manual or automatic detection software to detect vocalizations of spawning cod. The Lessee must submit a log of these detections as well as the detection methodology to BOEM (at renewable_reporting@boem.gov), BSEE (at protectedspecies@bsee.gov) and NMFS (at nmfs.pacmdata@noaa.gov) within 120 days following each recorder retrieval. All raw data must be sent to the NCEI Passive Acoustic Data archive on an annual basis and the Lessee must follow NCEI guidance for packaging the data and pay the fee.

- i. Long-term Passive Acoustic Monitoring Plan. The Lessee must prepare and implement a Long-term PAM Plan under this option. No later than 120 days prior to instrument deployment and before any construction begins, the Lessee must submit to BOEM and BSEE (renewable_reporting@boem.gov and OSWsubmittals@bsee.gov) the Long-term PAM Plan that describes all proposed equipment (including number and configuration of instruments), deployment locations, mooring design, detection review methodology, and other procedures and protocols related to the required use of PAM. As the Lessee prepares the Long-term PAM Plan, it must coordinate with the RWSC.

BOEM and BSEE will review the Long-term PAM Plan and provide comments, if any, on the plan within 45 days of its submittal. The Lessee may be required to submit a modified Long-term PAM Plan based on feedback from BOEM and BSEE. The Lessee must address all outstanding comments to BOEM's and BSEE's satisfaction and will need to receive written concurrence from BOEM and BSEE. If BOEM or BSEE do not provide comments on the Long-term PAM Plan within 45 days of its submittal, the Lessee may conclusively presume BOEM's and BSEE's concurrence with the Long-term PAM Plan.

Option 2 – Economic and Other Contributions to BOEM's Environmental Studies Program.¹⁴ As an alternative to conducting long-term PAM in the Lease Area, the Lessee may opt to make an economic contribution to BOEM's Environmental Studies Partnership for an Offshore Wind Energy Regional Observation Network (POWERON) initiative on an annual basis and cooperate with the POWERON team to allow access to the Lease Area for deployment, regular servicing, and retrieval of instruments. The Lessee's economic contribution will provide for all activities necessary to

¹⁴ The Lessee may elect Option 2 initially or during any subsequent calendar year of monitoring, subject to agreement with BOEM and BSEE.

conduct PAM within the Lease Area, such as vessel and staff time for regular servicing of instruments, QA/QC on data, data processing to obtain vocalizations of sound-producing species and ambient noise metrics, as well as long-term archiving of data at NCEI. At the Lessee's request, the amount of the economic contribution will be estimated by BOEM's Environmental Studies Program. The Lessee will also be invited to contribute to discussions about the scientific approach of the POWERON initiative via the RWSC. The Lessee may request temporary withholding of the public release (placement into the NCEI public data archive) of raw acoustic data collected within the Lease Area or up to 180 days after it is collected. During this temporary hold, the Lessee may be provided a copy of the raw PAM data that was collected in the Lease Area or ROW after it has been cleared for any national security concerns under the RWSC best practices document.

- 5.4.7. Vessel Strike Avoidance Plan (Planning) (Construction). The Lessee must submit the Vessel Strike Avoidance Plan to BOEM, BSEE, and NMFS GARFO at least 90 days prior to the planned start of in-water construction activities outside of Narragansett Bay (including cable installation). BOEM, BSEE, and NMFS GARFO will review the plan and provide comments within 45 days of receipt of the plan. The plan must provide details on all relevant mitigation and monitoring measures for listed species, vessel transit protocols from all planned ports, vessel-based observer protocols for transiting vessels, communication and reporting plans, proposed alternative monitoring equipment to maintain effective visual monitoring of vessel strike avoidance zones in varying weather conditions, darkness, sea states, and in consideration of the use of artificial lighting. If the Lessee plans to implement PAM in any transit corridor to allow vessel transit above 10 knots, the plan must describe how the Lessee will conduct PAM, in combination with visual observations, to ensure the transit corridor is clear of NARW. The plan must also include any strike avoidance measures for NARW included in the ITA. The plan must acknowledge and indicate compliance with applicable vessel speed restrictions per the ITA, other NMFS regulations, or state regulations. The Lessee must submit a summary of all vessel speed requirements applicable to Project activities in the plan. The Lessee must obtain BOEM's and BSEE's concurrence with the plan prior to the commencement of in-water construction activities outside of Narragansett Bay (including cable installation).

NMFS GARFO's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the BiOp and its ITS. If NMFS determines the plan to be inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity. BOEM, BSEE and NMFS will discuss a timeline for review of the modified plan to meet the Lessee's schedule to the maximum extent practicable. The plan must provide details on the vessel-based observer protocols on transiting vessels. If the Lessee plans to implement the Reduced

Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan (see 5.5.1) for vessel strike avoidance the plan must describe how PAM, in combination with visual observations, will be conducted to ensure the transit corridor is clear of NARWs. or vessel strike avoidance the plan must describe how PAM, in combination with visual observations, will be conducted to ensure the transit corridor is clear of NARWs.

- 5.5. Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving and UXO Detonation (Planning) (Construction). The Lessee must submit a Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving and UXO Detonation to BOEM, BSEE, and NMFS GARFO at least 180 days before any pile driving or UXO detonation is planned. BOEM, BSEE, and NMFS GARFO will review the plan and provide comments within 45 days of receipt of the plan. NMFS GARFO's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the BiOp and its ITS. If NMFS determines the plan to be inconsistent with these requirements, the Lessee must resubmit a modified plan that addresses the identified issues at least 15 days before the start of the associated activity; at that time, BOEM, BSEE and NMFS GARFO will discuss a timeline for review and approval of the modified plan to meet the Lessee's schedule to the maximum extent practicable. The Lessee must obtain BOEM's and BSEE's concurrence with the Marine Mammal and Sea Turtle Monitoring Plan before starting any pile driving or carrying out any UXO detonation. The plan(s) must include: a description of how all relevant mitigation and monitoring requirements contained in the incidental take statement will be implemented, a pile driving installation summary and sequence of events, a description of all training protocols for all project personnel (PSOs, PAM Operators, trained crew lookouts, etc.), a description of all monitoring equipment and evidence (i.e., manufacturer's specifications, reports, testing) that the Lessee can use to effectively monitor and detect ESA listed marine mammals and sea turtles in the identified clearance and shutdown zones (i.e., field data demonstrating reliable and consistent ability to detect ESA listed large whales and sea turtles at the relevant distances in the conditions planned for use), communications and reporting details, and PSO monitoring and mitigation protocols (including number and location of PSOs) for effective observation and documentation of sea turtles and ESA listed marine mammals during all pile driving events and UXO/MEC detonations. The plan(s) must demonstrate sufficient PSO and PAM Operator staffing (in accordance with watch shifts), PSO and PAM Operator schedules, and contingency plans for instances if additional PSOs and PAM Operators are required. The plan must also describe how the Lessee would determine the number of sea turtles exposed to noise above the 175 decibel (dB) harassment threshold during impact pile driving of WTG and OSS foundations and how the Lessee would determine the number of ESA listed whales exposed to noise above the Level B harassment threshold during impact pile driving of WTG and OSS foundations. If any clearance or shutdown zones are expanded, the Lessee must submit a revised monitoring plan describing the location of all PSOs to NMFS GARFO, BOEM and BSEE for review. The Lessee must resolve comments to the proposed monitoring plan to BOEM's and BSEE's satisfaction and must conduct activities in accordance with the plan.

5.5.1. Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan (Planning) (Construction). The Lessee must submit the Reduced Visibility Monitoring/Nighttime Pile Driving Monitoring Plan (or plans if separate plans are submitted) to BOEM, BSEE, and NMFS GARFO at least 180 days before impact pile driving is planned to begin unless specified differently under the LOA. BOEM, BSEE, and NMFS will review the Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan and provide comments within 45 days of receipt of the plan. NMFS GARFO's comments to BOEM, BSEE, and the Lessee will include a determination as to whether the plan is consistent with the requirements outlined in the BiOp and its ITS. The Lessee must obtain BOEM's and BSEE's concurrence with the Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan prior to the start of pile driving. The plan must contain a thorough description of how the Lessee will monitor pile driving activities during reduced visibility conditions (e.g. rain, fog) and at night, including proof of the efficacy of monitoring devices (e.g., mounted thermal/infrared camera systems, hand-held or wearable night vision devices NVDs, spotlights) in detecting ESA listed marine mammals and sea turtles over the full extent of the required clearance and shutdown zones, including demonstration that the full extent of the minimum visibility zones (WTG foundations: May - November, 2300 meters and December, 4,400 meters; OSS foundations: May - November 1,600 meters and 2,700 meters December) can be effectively and reliably monitored in reduced visibility conditions. The plan must identify the efficacy of the technology at detecting marine mammals and sea turtles in the clearance and shutdown zones. The plan must include a full description of the proposed technology, monitoring methodology, and data demonstrating that marine mammals and sea turtles can reliably and effectively be detected within the clearance and shutdown zones for monopiles before, during, and after impact pile driving at night. Additionally, this Plan must contain a thorough description of how the Lessee will monitor pile driving activities during daytime when unexpected changes to lighting or weather occur during pile driving that prevent visual monitoring of the full extent of the clearance and shutdown zones. Without approval of this plan, no pile driving may be initiated later than 1.5 hours prior to civil sunset.

5.6. Pre-Seabed Disturbance Conditions (Planning) (Construction) (Operations) (Decommissioning).

5.6.1. The Lessee must submit all required documents related to pre-seabed disturbance and specified in Sections 5.6.2 to 5.6.11 to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to NMFS GARFO HESD at NMFS.GAR.HESDoffshorewind@noaa.

5.6.2. Anchoring Plan (Planning) (Construction) (Operations). The Lessee must prepare and implement an Anchoring Plan for all areas where anchoring occurs during construction and operations/maintenance within 1,640 feet (500 meters) of habitats, resources, and submerged infrastructure that are sensitive, including

complex habitat; boulders ≥ 0.5 meters; ancient submerged landform features; known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). The proposed anchoring plans and relevant locations of interest or avoidance must be sealed by a professional land surveyor. The Lessee must provide to all construction and support vessels the locations where anchoring must be avoided to the extent technically and/or economically practical or feasible, including complex habitat; boulders ≥ 0.5 meters; ancient submerged landform features; known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). If anchoring is necessary at these locations, then all vessels deploying anchors must extend the anchor lines to the extent practicable to minimize the number of times the anchors must be raised and lowered to reduce the amount of habitat disturbance, unless the anchor chain sweep area includes complex habitat that may be impacted by the chain sweep. On all vessels deploying anchors, the Lessee must use mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed, unless the Lessee demonstrates, and BOEM and BSEE accept, that (1) the use of mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed is not technically practical or feasible; or (2) a different alternative is as safe and provides the same or greater environmental protection.

a) The Lessee must provide the Anchoring Plan to BOEM and BSEE with a notification email sent to NMFS GARFO HESD for a 60-day review at least 120 days before anchoring activities and construction begins. The Lessee must resolve all comments on the Anchoring Plan to BOEM's and BSEE's satisfaction before conducting any OCS seabed-disturbing activities that require anchoring.

5.6.3. Micrositing Plan (Planning) (Construction). The Lessee must prepare and implement a Micrositing Plan that describes how WTG locations, inter-array cables, and export cable routes will be microsited to avoid or minimize impacts to complex habitat, boulders, and confirmed MEC/UXO. The plan must specifically describe how WTG_38, WTG_39, WTG_40, WTG_41, WTG_44, WTG_45, WTG_47, WTG_48, WTG_49, WTG_53, WTG_56, WTG_58, WTG_62, WTG_63, WTG_64, WTG_65, WTG_72, WTG_73, WTG_81, and WTG_82 and inter-array and export cable routes will be microsited to avoid or minimize impacts to complex benthic habitat and boulders ≥ 0.5 meters, as technically and/or economically practical or feasible. The Lessee must not microsite structure locations in a way that narrows any WTG corridors to less than the distance required by Section 3.1.3. The Lessee must submit detailed supporting data and analysis as part of the FDR or FIR, including relevant geophysical and geospatial data. The submission of the data may be incorporated by reference or submitted as an attachment to the FDR or FIR. The Micrositing Plan must be consistent with MEC/UXO ALARP Certification (Section 2.2), Cable Routings (Section 2.9), and Boulder Identification and Relocation (Section 5.6.6). The Micrositing Plan must include a figure for each

microsited WTG or cable segment, including benthic habitat delineations showing complex habitat and locations of boulders ≥ 0.5 meters. The plan must include a figure depicting large boulder locations, multibeam backscatter returns, and the proposed microsited locations for cables and WTGs.

- a) For WTGs and cables that cannot be microsited to avoid impacts to complex habitat or boulders ≥ 0.5 meters, the micrositing plan must identify technically and economically practical or feasible impact minimization measures and use the following, prioritized list of complex habitat sub-types to avoid during micrositing:
 - ii. Complex habitats (i.e., areas of medium to high backscatter) with high density large boulders;
 - iii. Complex habitats (i.e., areas of medium to high backscatter) with medium density large boulders;
 - iv. Complex habitats (i.e., areas of medium to high backscatter) with low density large boulders;
 - v. Complex habitats (i.e., areas of medium to high backscatter) with scattered large boulders;
 - vi. Complex habitats (i.e., areas of medium to high backscatter) with no large boulders.
- b) The Micrositing Plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO HESD for a 60-day review, 120 days prior to site preparation activities for cables and WTGs. The Lessee must resolve all comments on the Micrositing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan.

5.6.4. Cod Spawning Monitoring Plan (Planning) (Construction). Prior to OCS seabed prep, interarray cable installation, foundation site preparation, and other construction-related bottom disturbing activities (e.g., boulder relocation, pre-cut trenching, cable-crossing installation, cable lay and burial, scour protection installation), the Lessee must prepare and implement a Cod Spawning Monitoring Plan to monitor for Atlantic cod aggregations in the lease area between November 1 and March 31 of each year during which construction activities are planned.

- a) The Lessee must submit the plan to BOEM and BSEE to coordinate with NMFS GARFO HESD for a 60-day review at least 120 days before the commencement of in-water construction on the OCS. The Lessee must resolve all comments on the plan to BOEM's and BSEE's satisfaction prior to implementation of the Plan.
- b) The Lessee must submit an annual Cod Spawning Monitoring Report within 90 days of the completion of each survey season to BOEM, BSEE, and

NMFS GARFO HESD. The report must include documentation of any cod detections and contain information on all survey activities that took place during the season, including location of equipment and location, time, and date of detections. The report on survey activities must be comprehensive of all activities, regardless of whether cod were detected.

- 5.6.5. Sequencing Plan (Planning) (Construction). The Lessee must prepare and implement a Sequencing Plan that describes how construction activities will be sequenced to avoid or minimize impacts to Atlantic cod spawning. The plan must specifically describe how construction activities (e.g., sea-bed prep, pre-cut trenching, export or interarray cable installation and burial, scour protection installation, boulder relocation, foundation site preparation, WTG or OSS installation including pile driving, and other construction-related bottom disturbing activities) will occur such that construction activities in the center portion of the lease area are avoided, to the extent feasible, between November 1 to March 31. The Sequencing Plan must be consistent with MEC/UXO ALARP Certification (Section 2.2), Cable Routings (Section 2.9), the Boulder Identification and Relocation Plan (Section 5.6.6), and seasonal restrictions for NARW (5.11.2). All pile driving must also comply with requirements for noise abatement as stipulated in Section 5.10.3.
- a) The Sequencing Plan must describe how the construction schedule is designed to avoid pile driving in the lease area between November 1 and December 31 each year (in addition to the January 1 to April 30 restriction on pile driving for NARW). If pile driving is necessary during this time, the Lessee must limit pile driving to Priority Area 3a. Priority Area 3a is defined in Appendix K of the Final EIS for Revolution Wind, depicted in Figure K-1 of the Final EIS, and includes WTG positions WTG_64 to WTG_68 and WTG_75 to WTG_79.
 - b) If full avoidance is not feasible and pile driving beyond Priority Area 3b during November and December is deemed necessary, the Lessee must prioritize avoiding pile driving in Priority Area 1 from November 1 to December 31, followed in priority order by the areas radiating out of Priority Area 1 moving north and east within the lease area. Priority Area 1 encompasses 7 WTG positions in the center portion of the Lease Area. This Area is defined in Appendix K of the Final EIS for Revolution Wind, depicted in Figure K-1 of the Final EIS, and includes WTG positions WTG_39, WTG_40, WTG_47, WTG_48, WTG_49, WTG_56, and WTG_58.
 - c) The Sequencing Plan must describe how the construction schedule is designed to avoid potential impacts to spawning cod from construction-related bottom-disturbing activities from November 1 to March 31 by sequencing construction activities to occur in the northernmost and easternmost portions of the lease area between November 1 and March 31. The lessee must avoid construction activities during this time in the following areas in order of priority: Priority Area 1, followed by the areas

radiating north and east from Priority Area 1, with priority given to those areas immediately adjacent to Priority Area 1.

- d) The Sequencing Plan must provide a detailed construction schedule that includes installation timeframes and locations for export cable, interarray cable, and foundation construction.
- e) The Lessee must submit the Sequencing Plan to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb, with notification to NMFS GARFO HESD for a 60-day review, 120 days prior to site preparation activities for cables and WTGs. The Lessee must resolve all comments on the Sequencing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan.

5.6.6. Boulder Identification and Relocation Plan (Planning) (Construction). The Lessee must submit a Boulder Identification and Relocation Plan to BSEE for review and concurrence. The plan must detail, to the extent technically and/or economically practical or feasible for this Project, how the Lessee will relocate boulders as close as practicable to areas immediately adjacent to existing similar habitat. The plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO HESD for a 60-day review, 120 days prior to boulder relocation activities. The Lessee must resolve all comments on the Boulder Relocation Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If BOEM or BSEE do not provide comments on the plan within 60 days of its submittal, then the Lessee may presume concurrence with the plan. The plan must include sufficient scope to mitigate boulders for facility installation and operation risks. The plan must be consistent and meet the conditions of the SMS in Section 2.6. The plan must include the following for boulders that are planned to be relocated:

- a) A summary and detailed description of surface and subsurface boulders > 0.5 meters in diameter, and locations along the cable routes and wind turbine areas.
 - i. A detailed summary of utilized methodologies in boulder identification, including geological and geophysical survey results.
 - ii. A clear depiction (i.e., figures) of the location of boulder relocation activities specified by activity type (e.g., pick or plow, removal, or placement).
 - iii. A description of boulder removal and/or relocation methods for each type of boulder relocation activity and technical feasibility constraints, including capacity of crane used in grab systems, vessel specifications and metocean limits on operation, etc.
 - iv. The environmental footprint of disturbance activities and measures taken to avoid further adverse impacts to complex habitat and fishing operations.

- v. A comprehensive list and shapefile of boulder locations that would be relocated (latitude, longitude), boulder dimensions (meters), buffer radius (meters), areas of active (within last 5 years) bottom trawl fishing (latitude, longitude), areas where boulders > 2 meters in diameter are anticipated to occur (latitude, longitude), and identification of approximate areas where boulder would be relocated (latitude, longitude).
- vi. The measures taken to minimize the quantity of seafloor obstructions from relocated boulders in areas of active bottom trawl fishing, as technically and/or economically practical or feasible.
- vii. A description of safety distances or zones to limit boulder relocation activities near third-party assets.
- viii. A summary of any consultation and outreach conducted with resource agencies and the fishing industry in development of the plan (e.g., notifications to mariners).
- ix. A statement of consistency with the Micrositing Plan.

- b) The Lessee must provide USCG, NOAA, and the local harbormaster with a comprehensive list and shapefile of positions and areas where boulders > 2 meters would be relocated (latitude, longitude) at least 60 days prior to boulder relocation activities.

5.6.7. Scour and Cable Protection Plan (Planning) (Construction). The Lessee must prepare and implement a Scour and Cable Protection Plan that includes descriptions and specifications for all scour and cable protection materials. The plan must include a depiction of the location and extent of proposed scour or cable protection, the habitat delineations for the areas of proposed scour and cable protection, detailed information on the proposed scour or cable protection materials for each area and habitat type.

- a) The Lessee must avoid the use of engineered stone or concrete mattresses in complex habitat, as technically and/or economically practical or feasible. The Lessee must ensure that all materials used for scour and cable protection measures consist of natural or engineered stone that does not inhibit epibenthic growth and provides three-dimensional complexity in height and in interstitial spaces, as technically and/or economically practical or feasible. The Lessee must minimize the use of scour protection to the minimum amount necessary to accomplish the purpose.
- b) Cable protection measures must have tapered or sloped edges to reduce hangs for mobile fishing gear. The Lessee must avoid the use of plastics/recycled polyesters/net material (i.e., rock-filled mesh bags, fronded mattresses) for scour protection, as technically and/or economically practical or feasible.

- c) The Lessee must submit the plan to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb, with notification to NMFS GARFO at NMFS.GAR.HESDoffshorewind@noaa.gov for a 60-day review at least 120 days before placement of scour and cable protection. The Lessee must resolve all comments on the plan to BOEM's and BSEE's satisfaction before placement of the scour and cable protection materials.
- 5.6.8. WTG Removal (Planning) (Construction). To the extent it is technically and/or economically practical or feasible, the lessee must prioritize removal of WTG positions from the Project layout in the following order of priority:
- a) WTG positions in Priority Area 1 (WTG_39, WTG_40, WTG_47, WTG_48, WTG_49, WTG_56, and WTG_58 (the Lessee may choose the order in which the listed WTGs are removed);
 - b) WTG position WTG_38 and WTG_41 (the Lessee may choose order);
 - c) WTG position WTG_72;
 - d) WTG positions WTG_44, WTG_45, WTG_65, WTG_81, and WTG_82 (the Lessee may choose order).
- 5.6.9. Spare WTG Locations (Planning) (Construction). If the Lessee determines that any of the spare WTG positions (as defined in Chapter 2 of the Revolution Wind FEIS in the description of Alternative G) are necessary to be constructed, the Lessee must prioritize the use of spare locations that would have the least impacts on complex habitats to the extent it is technically and/or economically practical or feasible for the Lessee. Namely, the lessee must avoid the use of spare WTG positions from the project layout in the following order of priority: WTG positions WTG_47, WTG_48, and WTG_56
- a) WTG positions WTG_53, WTG_62, WTG_63, and WTG_73;
 - b) WTG positions WTG_64;
 - c) WTGs positions within complex habitats and impacts cannot be minimized through micrositing; and,
 - d) Locations where impacts to complex habitats from inter array cable connecting the turbines would be reduced.
- 5.6.10. Avoid Zinc Anodes (Construction) (Operations). To the extent it is technically and/or economically practical or feasible, the Lessee must avoid using Zinc sacrificial anodes in WTG foundations to reduce the release of metal contaminants in the water column.
- 5.6.11. Use of Jack-up Barges (Construction) (Operations). To the extent it is technically and/or economically practical or feasible, jack-up barge locations must avoid complex habitats. Where full avoidance is not feasible, the Lessee must avoid locations for the jack-up barge in order of the following priority:

- a) Complex habitats (i.e., areas of medium to high backscatter) with high density large boulders;
- b) Complex habitats (i.e., areas of medium to high backscatter) with medium density large boulders;
- c) Complex habitats (i.e., areas of medium to high backscatter) with low density large boulders;
- d) Complex habitats (i.e., areas of medium to high backscatter) with scattered large boulders;
- e) Complex habitats (i.e., areas of medium to high backscatter) with no large boulders.

5.7. Post-Seabed Disturbance Conditions (Construction) (Operations).

- 5.7.1. Micrositing Report (Construction). The Lessee must provide BOEM, BSEE, and NMFS HESD with a post-installation Micrositing Report. The report must include a summary of the micrositing activities for WTGs, inter-array cables, and the export cable and demonstrate (i.e., figures of as-built locations overlaid on multibeam echosounder backscatter survey data) how impacts to complex habitats and benthic features were avoided and/or minimized within the lease area and export cable corridors (i.e., RWEC-OCS and RWEC-RI). The report must also identify and depict (i.e., figures) areas in which WTGs or cables could not be microsited to avoid complex habitats with a description of the complex habitat sub-types impacted (see prioritized list of complex habitat sub-types listed under the Micrositing Plan Section 5.6.3) and include documentation of technical feasibility issues encountered. The report must be submitted within 60 days of completion of all WTG and cable installations. The Lessee must also provide BOEM, BSEE, and NMFS HESD a shapefile of as-built WTGs, inter-array cables, and the export cables, as well as best-available multibeam echosounder backscatter survey data (i.e., as a raster file for use in ArcGIS).
- 5.7.2. Berm Survey and Report (Construction) (Operations). Where plows, jets, grapnel runs, or other similar methods are used, post-construction surveys capable of detecting bathymetry changes of 0.5 feet or less must be completed to determine the height and width of any created berms. The Lessee must capture bathymetry changes greater than 3 feet during the Year 1 multi-beam echosounder (MBES) bathymetry survey along the cable routes. If there are bathymetric changes in berm height greater than 3 feet above grade, the Lessee must develop and implement a Berm Remediation Plan to restore created berms to match adjacent natural bathymetric contours (isobaths), as technically and/or economically practical or feasible. The Lessee must submit the Berm Remediation Plan to BOEM and BSEE to coordinate with NMFS for a 60-day review within 90 days of completion of the Year 1 MBES bathymetry survey. BOEM and BSEE will also review the plan to determine if the scope of

activities (e.g., methods, disturbance area, vessel trips, emissions) is within the already completed National Environmental Policy Act analysis and ESA and EFH consultations and, if not, will complete additional environmental review and consultations. The Lessee must resolve all comments on the Berm Remediation Plan to BOEM's and BSEE's satisfaction prior to initiating restoration activities.

- 5.7.3. Boulder Relocation (Construction). The Lessee must implement methods identified in the approved COP and described in the Boulder Identification and Relocation Plan (Section 5.6.6) for boulder relocation activities. The Lessee must consider the spatial extent of boulder relocation in the micrositing of WTGs and OSS foundations and inter-array and export cables for this Project, and must, to the extent technically and/or economically practical or feasible for this Project, relocate boulders as close as practicable in areas immediately adjacent to existing similar habitat. The relocation of boulders must be consistent with the project easement.
- 5.7.4. Boulder Relocation Report (Construction). The Lessee must provide to BSEE and make available to the approved CVA a Boulder Relocation Report. The report must include a post-relocation summary of the Boulder Relocation activities and information to certify boulder risks related to the installation and operation of the facility have been properly mitigated. The report must also identify boulders that could not be relocated with documentation of technical feasibility concerns, including information on how, if at all, the final boulder placement differs from the Boulder Relocation Plan and why such changes were necessary. The report must be submitted within 60 days of completion of the Boulder Relocation Implementation campaign. The Lessee must also provide BOEM and BSEE a comprehensive list and shapefile of boulder locations that were relocated (latitude, longitude), boulder dimensions (meters), any safety distances or zones to limit boulder relocation activities near third-party assets (meters), and areas of active (within last 5 years) bottom trawl fishing (i.e., as a raster file for use in ArcGIS).
- 5.7.5. Jack-up Barge Post-Completion Report (Construction): The Lessee must provide Jack-up Barge Post-Completion Report to BOEM, BSEE, and HESD within 90 days of construction of a major facility component (e.g., export cable installation; WTG or OSS installation; inter array cable installation) to demonstrate that seabed-disturbing activities complied with avoidance requirements in Section 5.6.11. The report must include "as-placed" plats certified by a professional land surveyor depicting the locations in which jack-up barge legs contacted the seabed. The report must include a summary of how impacts to complex habitats were avoided and/or minimized, as required by 5.5.11 and include documentation of technical feasibility issues encountered. The plats must be at a scale of 1 inch = 1,000 feet (300 meters) with Differential Global Positioning System (DGPS) accuracy.

- 5.8. Endangered and Threatened Species Conditions for Fishery Monitoring (Planning) (Construction) (Operations).

- 5.8.1. The Lessee must submit all required documents related to endangered and threatened species conditions for fishery monitoring in Sections 5.8.2 through 5.8.7 (e.g., marine debris, visual and protected species observers (PSOs), take, and annual reporting) to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov or marinedebris@bsee.gov (if related to marine debris/lost gear), and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
- 5.8.2. The Lessee must ensure that any lost survey gear is reported and recovered according to the Marine Debris Awareness and Elimination conditions in 5.1.2. All lost gear must also be reported to NMFS GARFO and BSEE within 24 hours of the documented time when gear is discovered to be missing or lost. This report must include information on any markings on the gear and any efforts undertaken or planned to recover the gear.
- a) All vessels must comply with applicable vessel speed restrictions.
 - b) Marine mammal monitoring must occur prior to, during, and after haul-back of fisheries gear. If a marine mammal is determined to be at risk of interaction with the deployed gear, all gear must be immediately removed.
 - c) If marine mammals are sighted in the area within 15 minutes before deploying gear and are considered to be at risk of interaction with the research gear, then the sampling station must be either moved or canceled, or the activity must be suspended, until there are no sightings of any marine mammal for 15 minutes within 1 nautical mile (1,852 meters) of sampling location. This information must be included in PSO reporting.
 - d) The Lessee must ensure all vessels deploying fixed gear (e.g., ventless traps) have adequate disentanglement equipment (i.e., knife and boathook) onboard. Any disentanglement must occur consistent with the Northeast Atlantic Coast Sea Turtle Disentanglement Network Guidelines and the procedures described in “Careful Release Protocols for Sea Turtle Release with Minimal Injury.”
- 5.8.3. Conditions for Trawl Surveys (Planning) (Construction) (Operations).
- a) The Lessee must ensure all vessels have at least one survey team member onboard each trawl survey who has completed Northeast Fisheries Observer Program (NEFOP) observer training (or another training in protected species identification and safe handling, inclusive of taking genetic samples from Atlantic sturgeon), or equivalent training, within the last 5 years. Reference materials for identification, disentanglement, safe handling, and genetic sampling procedures must be available on board each survey vessel. This requirement applies to any trips where gear is set or hauled. Documentation of training must be provided to BOEM and BSEE within 48 hours upon request. If the Lessee will deploy non-NEFOP trained observers, the Lessee must submit a plan to BOEM, BSEE, and NMFS

GARFO describing the training that will be provided to the survey observers. The Lessee must submit the PSO Training Plan for Trawl Surveys as soon as possible after issuance of the Project's BiOp but no later than 7 days prior to the start of trawl surveys. The Lessee must obtain BOEM's concurrence with this plan before starting any trawl surveys. In the case of a marine mammal interaction during trawling, the Lessee must contact the Marine Mammal Stranding Network immediately.

- i. The Lessee must ensure that any sea turtles or Atlantic sturgeon incidentally caught and/or collected in any fisheries survey gear are identified to species or species group and reported to BOEM, BSEE, and NMFS GARFO. Each individually ESA-listed species incidentally caught and/or collected must then be properly documented using appropriate equipment and the NMFS data collection form.¹⁵ Biological data, samples, and tagging must occur as outlined below. The Lessee must follow the Sturgeon and Sea Turtle Take Standard Operating Procedures.¹⁶
- ii. The Lessee must equip survey vessels with a passive integrated transponder (PIT) tag reader onboard capable of reading 134.2 kHz and 125 kHz encrypted tags (e.g., Biomark GPR Plus Handheld PIT Tag Reader), and this reader must be used to scan any captured sea turtles and sturgeon for tags. Any recorded tags must be recorded on the take reporting form¹⁰ and reported to BOEM, BSEE, and NMFS GARFO.
- iii. The Lessee must take genetic samples from all captured Atlantic sturgeon (alive or dead) to allow for identification of the distinct population segment (DPS) of origin of captured individuals and the tracking of the amount of incidental take. This sample collection must be done consistent with the Procedures for Obtaining Sturgeon Fin Clips.¹⁷
- iv. The Lessee must send fin clips to a BOEM-approved laboratory capable of performing genetic analysis and assignment to DPS of origin. The Lessee must submit the results of genetic analysis, including assigned DPS of origin, to BOEM, BSEE, and NMFS GARFO within 6 months of the sample collection.
- v. The Lessee must hold and submit subsamples of all fin clips and accompanying metadata form to the Atlantic Coast Sturgeon Tissue

¹⁵ <https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null>

¹⁶ <https://media.fisheries.noaa.gov/2021-11/Sturgeon-Sea-Turtle-Take-SOPs-external-11032021.pdf>

¹⁷ https://media.fisheries.noaa.gov/dam-migration/sturgeon_genetics_sampling_revised_june_2019.pdf

Research Repository on a quarterly basis using the Sturgeon Genetic Sample Submission Form.¹⁸

- f) The Lessee must ensure any live, uninjured animals are returned to the water as quickly as possible after completing the required handling and documentation. Live and responsive sea turtles or Atlantic sturgeon incidentally caught and retrieved in gear used in any fisheries survey must be released according to established protocols and whenever at-sea conditions are safe for those releasing the animal(s). Any unresponsive sea turtles or Atlantic sturgeon caught and retrieved in gear used in fisheries surveys must be handled and resuscitated whenever at-sea conditions are safe for those handling and resuscitating the animal(s).
- i. To the extent allowed by sea conditions, the Lessee must give priority to the handling and resuscitation of any sea turtles or sturgeon that are captured in the gear being used. Handling times for these species must be minimized (i.e., kept to 15 minutes or less) to limit the amount of stress placed on the animals.
 - ii. All survey vessels must have copies of the sea turtle handling and resuscitation requirements found at 50 CFR § 223.206(d)(1) prior to the commencement of any on-water activity.¹⁹ These handling and resuscitation procedures (the latter, when necessary) must be executed any time a sea turtle is incidentally captured and brought onboard a survey vessel.
 - iii. For sea turtles that appear injured, sick, distressed, or dead (including stranded or entangled individuals), survey staff must immediately contact the Greater Atlantic Region Marine Animal Hotline at 866-755-6622 for further instructions and guidance on handling, retention, and/or disposal of the animal. If survey staff are unable to contact the hotline (e.g., due to distance from shore or lack of ability to communicate via phone), then survey staff must contact the USCG via VHF marine radio on Channel 16. If required, hard-shelled sea turtles (i.e., non-leatherbacks) may be held on board for up to 24 hours, provided conditions during holding are authorized by the NMFS GARFO Protected Resources Division and safe handling practices are followed. If the hotline or an available veterinarian cannot be contacted and the injured animal cannot be taken to a rehabilitation center, activities that could further stress the animal must be stopped. When sea-to-shore contact with the hotline or an available veterinarian is not possible, the animal must be allowed to recover and be responsive before safely releasing it to the sea.

¹⁸ <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic>

¹⁹ https://media.fisheries.noaa.gov/dam-migration/sea_turtle_handling_and_resuscitation_measures.pdf

- iv. The Lessee must make attempts to resuscitate any Atlantic sturgeon that are unresponsive or comatose by providing a running source of water over the gills as described in the Sturgeon Resuscitation Guidelines.²⁰
- v. Carcasses of incidentally caught sea turtles and sturgeon must be held in cold storage (frozen is preferred, although refrigerated is permitted if a freezer is not available) until retention or disposal procedures are authorized by the NMFS GARFO Protected Resources Division, which may include transfer to an appropriately permitted partner or facility on shore. Following reporting of an incidental capture, NMFS may authorize that incidentally captured dead sea turtles or Atlantic sturgeon be retained on board the survey vessel, provided that appropriate cold storage facilities are available on the survey vessel.

5.8.4. Notification Report. The Lessee must notify BOEM, BSEE, and NMFS GARFO via email within 24 hours of any interaction with a sea turtle or sturgeon and include the NMFS take reporting form.²¹ The report must include, at a minimum, the following: (1) survey name and applicable information (e.g., vessel name, station number); (2) Global Positioning System (GPS) coordinates describing the location of the interaction (in decimal degrees); (3) gear type involved (e.g., bottom trawl, gillnet, longline); (4) soak time, gear configuration and any other pertinent gear information; (5) time and date of the interaction; (6) identification of the animal to the species level (if possible); and (7) a photograph or video of the animal (multiple photographs are suggested, including at least one photograph of the head scutes). If reporting within 24 hours is not possible (e.g., due to distance from shore or lack of ability to communicate via phone, fax, or email), the Lessee must submit reports as soon as possible and must submit late reports with an explanation for the delay.

5.8.5. Annual Report. The Lessee must submit an annual report within 90 days of the completion of each survey season to BOEM, BSEE, and NMFS GARFO. The report must include all information on any observations of and interactions with ESA-listed species and contain information on all survey activities that took place during the season, including location of gear set, duration of soak/trawl, and total effort. The report on survey activities must be comprehensive of all activities, regardless of whether ESA-listed species were observed.

5.9. Protected Species Training and Coordination (Construction) (Operations) (Decommissioning). Before beginning any in-water activities involving vessel use, pile driving, UXO/MEC detonation, and HRG surveys, and when new personnel join the work, the Lessee must conduct briefings for construction supervisors and crews, PSO and PAM teams, vessel operators, and all staff in order to explain responsibilities, communication procedures, and protected species mitigation, monitoring, and reporting requirements. This must occur prior to the start of all pile driving, UXO/MEC

²⁰ <https://media.fisheries.noaa.gov/dam-migration-miss/Resuscitation-Cards-120513.pdf>

²¹ <https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null>

detonation, HRG and fisheries resources surveys, and when any new personnel are involved in any of these work activities.

- 5.9.1. The Lessee must submit all required documents and reports related to protected species training and coordination conditions in Sections 5.9.2. and 5.9.3 to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, NMFS's OPR at pr.itp.monitoringreports@noaa.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
- 5.9.2. Vessel Crew and Protected Species Observer Training Requirements (Construction) (Operations) (Decommissioning). The Lessee must provide Project-specific training to all vessel crew members, PSOs, and Trained Lookouts on the identification of sea turtles and marine mammals, vessel strike avoidance and reporting protocols, how and when to communicate with the vessel captain, the authority of the PSOs, and the associated regulations for avoiding vessel collisions with protected species prior to the start of in-water construction or detonation activities. The Lessee must make reference materials for identifying sea turtles and marine mammals available aboard all Project vessels. Copies of the Marine Mammal and Sea Turtle Monitoring Plan (see 5.5) and Vessel Strike Avoidance Plan (see 5.4.7) must be available aboard all Project vessels. Confirmation of the training and understanding of the requirements must be documented on a training course log sheet, and the Lessee must provide the log sheets to BOEM and BSEE upon request. The Lessee must communicate to all crew members its expectation for them to report sightings of sea turtles and marine mammals to the designated vessel contacts. The Lessee must communicate the process for reporting sea turtles and marine mammals (including live, entangled, and dead individuals) to the designated vessel contact and all crew members. The Lessee must post the reporting instructions, including communication channels, in highly visible locations aboard all Project vessels.
- 5.9.3. PSO Requirements (Construction) (Operations) (Decommissioning). The Lessee must use independent, dedicated, qualified PSOs provided by a third party. PSOs must have no Project-related tasks other than to observe, collect and report data, and communicate with and instruct relevant vessel crew regarding the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards). PSOs or any PAM operators serving as PSOs must have completed a commercial PSO training program for the Atlantic with an overall examination score of 80 percent or greater. The Lessee must use NMFS-approved PSOs and PAM operators. The Lessee must provide training certificates for individual PSOs to BOEM or BSEE upon request. PSOs and PAM operators must be approved by NMFS before the start of construction activities. Application requirements to become a NMFS-approved PSO for construction activities can be found on the NOAA website or for geological and geophysical surveys by sending an inquiry to nmfs.psoreview@noaa.gov.

- g) PSOs and PAM operators must be on watch for no more than a maximum of 4 consecutive hours, followed by a break of at least 2 hours between watches.

5.10. Vessel Strike Avoidance Conditions (Planning) (Construction) (Operations) (Decommissioning).

- 5.10.1. The Lessee must submit any required documents related to vessel strike avoidance as a result of the NMFS BiOp to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
- 5.10.2. Protected Species Observer Requirements (Construction) (Operations) (Decommissioning). The Lessee must ensure that vessel operators and crew members maintain a vigilant watch for marine mammals and sea turtles, and reduce vessel speed, alter the vessel's course, or stop the vessel as necessary to avoid striking marine mammals or sea turtles.
 - a) All vessels must have a visual observer on board who is responsible for monitoring the vessel strike avoidance zone for marine mammals and sea turtles. Visual observers may be PSO or crew members, but crew members responsible for these duties must be provided sufficient training by the Lessee to distinguish marine mammals and sea turtles from other phenomena and must be able to identify a marine mammal as a NARW, other whale (defined in this context as sperm whales or baleen whales other than NARW), or other marine mammal, as well as identify sea turtles. Crew members serving as visual observers must not have duties other than observing for marine mammals while the vessel is operating over 10 knots.
- 5.10.3. Vessel Communication of Threatened and Endangered Species Sightings (Planning) (Construction) (Operations) (Decommissioning). The Lessee must ensure that whenever multiple Project vessels are operating, any detections of ESA-listed species (marine mammals and sea turtles) are communicated in near real time to these personnel on the other Project vessels: PSOs, vessel captains, or both.
 - a) Year-round, all vessel operators must monitor the Project's Situational Awareness System, WhaleAlert, USCG VHF Channel 16, and the Right Whale Sighting Advisory System (RWSAS) for the presence of NARWs once every 4-hour shift during Project-related activities. The PSO and PAM operator monitoring teams for all activities must also monitor these systems no less than every 12 hours. If a vessel operator is alerted to a NARW detection within the Project area, they must immediately convey this information to the PSO and PAM teams. For any UXO/MEC detonation, these systems must be monitored for 24 hours prior to blasting.

- b) Any observations of any large whale by any of the Lessee's staff or contractor, including vessel crew, must be communicated immediately to PSOs and all vessel captains to increase situational awareness.

5.10.4. Vessel Strike Avoidance of Sea Turtles (Construction) (Operations) (Decommissioning).

- a) For all vessels operating north of the Virginia/North Carolina border between June 1 and November 30, the Lessee must have a trained lookout posted on all vessel transits during all phases of the project to observe for sea turtles. The trained lookout must communicate any sightings, in real time, to the captain so that the requirements below can be implemented.
- b) For all vessels operating south of the Virginia/North Carolina border, year-round, the Lessee must have a trained lookout posted on all vessel transits during all phases of the project to observe for sea turtles. The trained lookout must communicate any sightings, in real time, to the captain so that the requirements below can be implemented. This requirement is in place year-round for any vessels transiting south of Virginia, as sea turtles are present year-round in those waters.
- c) The trained lookout must monitor <https://seaturtlesightings.org/> prior to each trip and report any observations of sea turtles in the vicinity of the planned transit to all vessel operators/captains and lookouts on duty that day.
- d) The trained lookout must maintain a vigilant watch and monitor a Vessel Strike Avoidance Zone (500 meters) at all times to maintain minimum separation distances from ESA-listed species. Alternative monitoring technology (e.g., night vision, thermal cameras, etc.) must be available to ensure effective watch at night and in any other low visibility conditions. If the trained lookout is a vessel crew member, monitoring must be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.
- e) If a sea turtle is sighted within 100 meters or less of the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless it is unsafe to do so) and then proceed away from the turtle at a speed of 4 knots or less until there is a separation distance of at least 100 meters, at which time the vessel may resume normal operations. If a sea turtle is sighted within 50 meters of the forward path of the operating vessel, the vessel operator must shift to neutral when safe to do so and then proceed away from the turtle at a speed of 4 knots. The vessel may resume normal operations after it has passed 100 meters from the turtle.

- f) Vessel captains and operators must avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats. If operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
- g) All vessel crew members must be briefed in the identification of sea turtles and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of sea turtles. The requirement and process for reporting of sea turtles (including live, entangled, and dead individuals) must be clearly communicated and posted in highly visible locations aboard all project vessels, so that there is a clear requirement for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so.
- h) The only exception to the requirements regarding vessel speed and avoiding jellyfish, sargassum, and/or sea turtles is when the safety of the vessel or crew during an emergency necessitates deviation from these requirements. If any such incidents occur, they must be reported to BSEE and NMFS GARFO within 24 hours.
- i) If a vessel is carrying a PSO or trained lookout for the purposes of maintaining watch for NARWs, an additional lookout is not required and this PSO or trained lookout must also maintain watch for sea turtles.
- j) Vessel transits to and from the Project area that require PSOs must maintain a speed commensurate with weather conditions and effectively detecting sea turtles prior to reaching the 100 meters separation distance mentioned above, at which point the vessel must reduce speed and avoid sea turtles.

5.11. WTG and OSS Foundation Installation Conditions (Construction) (Operations).

Monopiles must be no larger than 15 meters in diameter, representing the larger end of the tapered 7/15-meter monopile design. For all monopiles, the minimum amount of hammer energy necessary to effectively and safely install and maintain the integrity of the piles must be used. Hammer energies must not exceed 4,000 kilojoules.

- 5.11.1. The Lessee must submit all required documents related to WTG and OSS foundation installation conditions in Sections 5.10.2 through 5.10.5 to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
- 5.11.2. Seasonal and Daily Restrictions (Construction). No foundation impact pile driving activities are allowed to occur January 1 through April 30. No more than two foundation monopiles are allowed to be installed per day. The Lessee must not conduct pile driving operations at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevent visual monitoring of the full extent of the clearance and shutdown zones. The lead PSO must determine

when sufficient light exists to allow effective visual monitoring in all cardinal directions. If light is insufficient, the lead PSO must call for a delay until the visual clearance zone is visible in all directions or must implement the Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan (as required by the terms of the NMFS BiOp; see Section 5.5.1). The Lessee is not allowed to conduct night-time pile driving, unless the Lessee has received concurrence from BOEM and BSEE on the Reduced Visibility Monitoring Plan/Nighttime Pile Driving Monitoring Plan (see Section 5.5.1).

- 5.11.3. Noise Abatement Systems (Construction). The Lessee must employ noise abatement systems, also known as noise mitigation systems (NMS), during all impact pile driving, consistent with the Protected Species Mitigation and Monitoring Plan to reduce the sound pressure levels that are transmitted through the water in an effort to reduce ranges to acoustic thresholds and minimize any acoustic impacts resulting from pile driving. The Lessee must employ a double big bubble curtain or a combination of two or more noise mitigation systems during these activities; the method used must be capable of achieving, at a minimum, 10 decibels of modelled sound attenuation during all impact pile driving of foundation piles. The Lessee must also adjust operational protocols to minimize noise levels.
- a) The bubble curtain(s) must distribute air bubbles using an airflow rate of at least $0.5 \text{ meters}^3/(\text{minutes} \cdot \text{meter})$. The bubble curtain(s) must surround 100 percent of the piling perimeter throughout the full depth of the water column. In the unforeseen event of a single compressor malfunction, the offshore personnel operating the bubble curtain(s) must make appropriate adjustments to the air supply and operating pressure such that the maximum possible sound attenuation performance of the bubble curtain(s) is achieved.
 - b) The lowest bubble ring must be in contact with the seabed for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seabed contact.
 - c) No parts of the ring or other objects may prevent full seabed contact.
 - d) The Lessee must use qualified and experienced staff to train personnel in the proper balancing of airflow to the ring. The Lessee must ensure that construction contractors submit an inspection and performance report for approval by the Lessee within 72 hours following the performance test; that report must also be submitted to NMFS GARFO, NMFS OPR, BOEM, and BSEE at that time. Corrections to the bubble ring(s) to meet the performance standards must occur prior to impact pile driving of monopiles. If the Lessee uses a noise mitigation device in addition to the big bubble curtain, the Lessee must maintain similar quality control measures as described here.
 - e) The lessee must submit video and/or photographs of the bubble curtain(s) operating during all pile driving with the weekly reports specified in

condition 5.14.5. The video and/or photographs must show that the bubble curtain(s) is providing 360 degree coverage around each monopile. All videos and photographs submitted must include a description identifying the pile being driven.

5.11.4. Use of PSOs and PAM Operators (Construction). The Lessee must use NMFS-approved PSOs and PAM operators before, during, and after all foundation installation activities. At minimum, four visual PSOs must be actively observing for marine mammals and sea turtles before, during, and after pile driving. At least two visual PSOs must be stationed on the pile driving vessel and at least two visual PSOs must be stationed on a secondary, PSO-dedicated vessel. The dedicated PSO vessel must be positioned near the outer edge of the modelled large whale clearance zone (2 km in the summer; 2.5 kilometer in the winter) to maximize detectability for monitoring and must adjust this distance as needed based upon on SFV results. At least one active PSO on each platform must have a minimum of 90 days at-sea experience working in those roles in offshore environments, with no more than 18 months elapsed since the conclusion of the at-sea experience. These PSOs must maintain watch at all times when impact pile driving of monopiles is underway. Concurrently, at least one PAM operator must actively monitor for vocalizing marine mammals before, during and after pile driving. Furthermore, all crew and personnel working on the Project are required to maintain situational awareness of marine mammal presence (discussed further above) and are required to report any sightings to the PSOs.

- a) The Lessee must ensure that PSO coverage is sufficient to reliably detect marine mammals and sea turtles at the surface in the identified clearance and shutdown zones (Section 5.11.5) to execute any pile driving delays or shutdown requirements. If, at any point prior to or during construction, the PSO coverage is determined not to be sufficient to reliably detect ESA-listed marine mammals and sea turtles within the clearance and shutdown zones, additional PSOs and/or platforms must be deployed. Determinations prior to construction must be based on review of the Marine Mammal and Sea Turtle Monitoring Plan for Pile Driving and UXO Detonations (Section 5.4.8). Determinations during construction must be based on review of the weekly reports and other information, as appropriate.
- b) The Lessee must ensure that, if the clearance and/or shutdown zones are expanded due to the verification of sound fields from Project activities, PSO coverage is sufficient to reliably monitor the expanded clearance and/or shutdown zones. Additional observers must be deployed on additional platforms for every 1,500 meters that a clearance or shutdown zone is expanded beyond the initial clearance and shutdown zones (Table 5.11.5; Section 5.11.5). In the event that the clearance or shutdown zone for sea turtles needs to be expanded, the Lessee must submit a revised monitoring plan for the expanded zones to NMFS GARFO for approval.

5.11.5. Clearance and Shutdown Zones (Construction). The Lessee must use visual PSOs and PAM operators to monitor the area around each foundation pile before, during and after pile driving. The clearance and shutdown zones for May to November are defined in the table below (numbers in parentheses are distances for December). The clearance procedures cannot begin until the lead PSO has determined that there is minimum visibility of at least 2,300 meters from May to November and 4,400 meters in December. Additionally, the Lessee must visually monitor the full extent of the area where noise may exceed the 175 decibel rms threshold for sea turtles for the full duration of all pile driving activities and for 30 minutes following the cessation of pile driving activities and record all observations in order to ensure that all take that occurs is documented.

Table 5.11.5. Clearance and shutdown zones for pile driving May to November (with numbers in parentheses for December)

Species	Clearance Zone (Meters)	Shutdown Zone (Meters)
North Atlantic right whale – visual PSO	any distance	any distance
North Atlantic right whale – PAM	WTG: 3,900 (4,300) OSS: 4,100 (4,700)	WTG: 3,900 (4,300) OSS: 4,100 (4,700)
Large whales	WTG: 2,300 (4,400) OSS: 1,600 (2,700)	WTG: 2,300 (4,400) OSS: 1,600 (2,700)
Seals	500 (900)	500 (900)
Sea Turtles	500	500

Notes: Minimum Visibility Zone is 2,300 meters from May to November and 4,400 meters in December

- a) Clearance or Shutdown Zone Adjustment After Sound Field Verification. The Lessee must conduct SFV consistent with an approved SFV Plan. If any of the SFV measurements indicate that the distances to level A thresholds for ESA listed whales or PTS peak or cumulative thresholds for sea turtles are larger than the modeled distances (assuming 10 dB attenuation, per thresholds in the July 21, 2023 BiOp for the project in Tables 7.1.8, 7.1.9, 7.1.23, 7.1.24, 7.1.31, 7.1.32), the clearance and shutdown zones (Table 5.11.5) for subsequent piles must be increased so that they are at least the size of the distances to those thresholds as indicated by SFV (e.g., if threshold distances are exceeded on pile 1 then the clearance and shutdown zones for pile 2 must be expanded). BOEM and BSEE, after consultation with NMFS OPR and NMFS GARFO, may

approve the Lessee's request for reductions in the shutdown zones based upon SFV of a minimum of three piles; however, the shutdown zone must not be reduced to less than 1,000 meters for large whales, or 500 meters for sea turtles. No reductions in the clearance or shutdown zones for NARWs will be considered regardless of the results of SFV.

- b) If any interim SFV report submitted for the first 3 monopiles, as required in 5.14.4, indicate the sound fields exceed the modeled distances to protected species injury and behavioral harassment thresholds (assuming the attenuation rates expected), then the Lessee must implement both required additional sound attenuation measures and adjustments to clearance and shutdown zones as described in 5.11.3 and in (a) above, respectively.
- c) Pile Driving Clearance Zones for Marine Mammals and Sea Turtles. The Lessee must establish and implement clearance (all distances to the perimeter are the radii from the center of the pile being driven) as described above for all WTG and OSS foundation installation. The Lessee must use visual PSOs and PAM operators to monitor the area around each foundation pile before, during, and after pile driving. PSOs must visually monitor clearance zones for marine mammals and sea turtles for a minimum of 60 minutes prior to commencing pile driving. Acoustic PSOs (at least one PAM operator) must review data from at least 24 hours prior to pile driving and actively monitor hydrophones for 60 minutes prior to pile driving. Prior to initiating soft-start procedures, the entire minimum visibility zone must be visible (i.e., not obscured by dark, rain, fog, etc.), and all clearance zones must be confirmed to be free of marine mammals and sea turtles for 30 minutes immediately prior to starting a soft-start of pile driving. Clearance zones extending beyond the minimum visibility zone may be cleared using either visual or acoustic methods. If a marine mammal or sea turtle is observed entering or within the relevant clearance zone prior to the initiation of impact pile driving activities, pile driving must be delayed and must not begin until either the marine mammal(s) or sea turtle(s) has voluntarily left the specific clearance zones and has been visually or acoustically confirmed beyond that clearance zone, or, when specific time periods have elapsed with no further sightings or acoustic detections have occurred (i.e., 15 minutes for small odontocetes and 30 minutes for all other marine mammal species and sea turtles). The clearance zone may only be declared clear if no confirmed NARW acoustic or visual detections have occurred during the 60-minute monitoring period. Any large whale sighting by a PSO or detected by a PAM operator that cannot be identified as a non-NARW must be treated as if it were a NARW.
- d) Pile Driving Shutdown for Marine Mammals and Sea Turtles. If a marine mammal or sea turtle is observed entering or within the respective shutdown zone (as defined above) and impact pile driving has begun, the PSO must call for a temporary cessation of impact pile driving. The Lessee must immediately cease pile driving upon orders of the PSO unless shutdown is

not practicable due to imminent risk of injury or loss of life to an individual, pile refusal, or pile instability. In this situation, reduced hammer energy must be implemented instead, as determined to be practicable.

The Lessee must file a report with BSEE and NMFS GARFO in the event that any ESA-listed species is observed within the identified shutdown zone during active pile driving. This report must be filed within 48 hours of the incident and include the following: duration of pile driving prior to the detection of the animal, location of PSOs and any factors that impaired visibility or detection ability, time of detection of the animal, time the PSO called for shutdown, time the pile driving was stopped, and any measures implemented (e.g., reduced hammer energy) prior to shutdown. The report must also include the time that the animal was last detected and any PSO reports on the behavior of the animal. If shutdown was determined not to be feasible, the report must include an explanation for that determination and the measures that were implemented (e.g., reduced hammer energy).

- e) Pile Driving Restart Procedures for Marine Mammal or Sea Turtle Detections. Pile driving must not restart until either the marine mammal(s) or sea turtle(s) has voluntarily left the specific clearance zones and has been visually or acoustically confirmed beyond that clearance zone, or, when specific time periods have elapsed during which no further sightings or acoustic detections have occurred. The specific time periods are 15 minutes for small odontocetes and 30 minutes for all other marine mammal species and sea turtles. In cases where these criteria are not met, pile driving may restart only if necessary to maintain pile stability at which time the lowest hammer energy must be used to maintain stability. If impact pile driving has been shut down due to the presence of a NARW, pile driving may not restart until the NARW is no longer observed or 30 minutes has elapsed since the last detection. Upon re-starting pile driving, soft start protocols must be followed.
- f) Soft Start for Pile Driving (Construction). The Lessee must use a soft start protocol for impact pile driving of monopiles by performing 4–6 strikes per minute at 10 to 20 percent of the maximum hammer energy, for a minimum of 20 minutes. Soft start must be used at the beginning of each day's monopile installation, and at any time following a cessation of impact pile driving of 30 minutes or longer. If a marine mammal or sea turtle is detected within or about to enter the applicable clearance zones, prior to the beginning of soft-start procedures, impact pile driving must be delayed until the animal has been visually observed exiting the clearance zone or until a specific time period has elapsed with no further sightings (i.e., 15 minutes for small odontocetes and 30 minutes for all other marine mammal species and sea turtles).

5.12. HRG Survey Conditions for Marine Mammals and Sea Turtles (Planning)
(Construction) (Operations) (Decommissioning).

- 5.12.1. The Lessee must submit all required documents related to HRG survey conditions in 5.12.2 through 5.12.8 to BOEM at renewable_reporting@boem.gov, to BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and to NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
- 5.12.2. Use of PSOs. The Lessee must employ qualified NMFS-approved PSOs during HRG surveys related to the Project. One PSO must monitor during daylight hours and two must monitor during nighttime hours, per vessel. Between four and six PSOs must be present on every 24-hour survey vessel, and two to three PSOs must be present on every 12-hour survey vessel. At least one PSO must be on active duty during HRG surveys conducted during daylight, and at least two PSOs must be on activity duty during HRG surveys conducted at night. Any PSO must have the authority to call for a delay or shutdown of survey activities. PSOs must begin visually monitoring 30 minutes prior to the initiation of the specified acoustic source (i.e., ramp-up, if applicable) through 30 minutes after the use of the specified acoustic source has ceased. Any observations of marine mammals must be communicated to PSOs on all nearby survey vessels during concurrent HRG surveys. PSOs must establish and monitor the clearance and shutdown zones described below. These zones must be based on the radial distance from the acoustic source and not from the vessel.
- 5.12.3. HRG Clearance Procedures. The Lessee must implement a 30-minute clearance period of the clearance zones immediately prior to the commencing of the survey or when there is more than a 30-minute break in survey activities and PSOs are not actively monitoring. The clearance and shutdown zones prescribed by the Incidental Take Authorization must be followed for all marine mammals. The clearance zone and shutdown zone for all sea turtles is 100 meters. The clearance zones must be monitored by PSOs, using the appropriate visual technology. If a marine mammal or sea turtle is observed within a clearance zone during the clearance period, ramp-up must not begin until the animal(s) has been observed voluntarily exiting its respective clearance zone or until additional time has elapsed with no further sighting (i.e., 15 minutes for small odontocetes and seals and 30 minutes for all other marine mammal species and sea turtles). In any case when the clearance process has begun in conditions with good visibility, including via the use of night vision equipment (infrared [IR]/thermal camera), and the Lead PSO has determined that the clearance zones are clear of marine mammals, survey operations may commence (i.e., no delay is required) for periods of inclement weather and/or loss of daylight.
- 5.12.4. During periods of low visibility (e.g., darkness, rain, fog, etc.), PSOs must use alternative technology (i.e., IR/thermal camera) to monitor the clearance and shutdown zones.
- 5.12.5. HRG Shutdown Procedures. After the survey has commenced, the Lessee must shut down boomers, sparkers, and compressed high-intensity radiated pulses

(CHIRPs) if a marine mammal or sea turtle enters a respective shutdown zone. In cases when the shutdown zones become obscured for brief periods due to inclement weather, survey operations may continue (i.e., no shutdown is required) so long as no marine mammals or sea turtles have been detected. The use of boomers, and sparkers, and CHIRPS must not commence or resume until the animal(s) has been confirmed to have left the Level B harassment zone or until a full 15 minutes (for small odontocetes and seals) or 30 minutes (for all other marine mammals and sea turtles) have elapsed with no further sighting. Any large whale sighted by a PSO within 1,000 meters of the boomers, sparkers, and CHIRPs that cannot be identified as a non-NARW must be treated as if it were a NARW.

Shutdown zones are defined as a 500-meter zone for the NARW or a 100-meter zone for all other marine mammal species (with exception of specific delphinid species). The shutdown requirement is waived for small delphinids of the following genera: *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Tursiops*. Specifically, if a delphinid from the specified genera is visually detected approaching the vessel (i.e., to bow-ride) or towed equipment, shutdown will not be required. If there is uncertainty regarding identification of a marine mammal species (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), the PSOs must use their best professional judgment in making the decision to call for a shutdown. Additionally, shutdown is required if a delphinid that belongs to a genus other than those specified is detected in the shutdown zone. During periods of low visibility (e.g., darkness, rain, fog), PSOs must use alternative technology (i.e., IR/thermal camera) to monitor the clearance and shutdown zones.

- 5.12.6. Ramp-Up Procedures. At the start or restart of the use of boomers, sparkers, and/or CHIRPs, a ramp-up procedure (i.e., gradual increase in source level output) must be followed unless the equipment operates on a binary on/off switch. Operators must ramp up sources to half power for 5 minutes and then proceed to full power. Prior to starting a ramp-up procedure, the operator must notify a PSO of the planned start of the ramp-up. This notification time must not be less than 60 minutes prior to the planned ramp-up activities, as all relevant PSOs must use the appropriate 30-minute period to monitor prior to the initiation of ramp-up. Prior to starting ramp-up, visual clearance zones must be fully visible (e.g., not obscured by darkness, rain, fog, etc.), and the operator must receive confirmation from the PSO that the clearance zone is clear of any marine mammals and sea turtles. All ramp-ups must be scheduled to minimize the overall time spent with the source being activated. The ramp-up procedure must be used at the beginning of construction survey activities or after more than a 30-minute break in survey activities using the specified HRG equipment to provide additional protection to marine mammals and sea turtles in or near the survey area by allowing them to vacate the area prior to operation of survey equipment at full power.

- a) The Lessee must not initiate ramp-up until the clearance process has been completed (see 5.12.3). Ramp-up activities must be delayed if a marine mammal(s) enters its respective shutdown zone. Ramp-up must only be reinitiated if the animal(s) has been observed exiting its respective shutdown zone or until additional time has elapsed with no further sighting (i.e., 15 minutes for small odontocetes and seals, and 30 minutes for all other marine mammal species and sea turtles).
 - b) HRG Restart Procedures (Construction). If a boomer, sparker, or CHIRP is shut down for reasons other than mitigation (e.g., mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up only if (1) PSOs have maintained constant observation and (2) no additional detections of any marine mammal or sea turtles occurred within the respective shutdown zones. If a boomer, sparker, or CHIRP was shut down for a period longer than 30 minutes, then all clearance and ramp-up procedures must be initiated.
- 5.12.7. The Lessee must deactivate acoustic sources during periods when no data are being collected, except as determined to be necessary for testing. Any unnecessary use of the acoustic source(s) must be avoided.
- 5.12.8. During daylight hours when survey equipment is not operating, the Lessee must ensure that visual PSOs conduct, as rotation schedules allow, observations for comparison of sighting rates and behavior with and without use of the specified acoustic sources. Off-effort PSO monitoring must be reflected in the monthly PSO monitoring reports.
- 5.13. UXO Detonation Activity Conditions (Construction). The Lessee may detonate a maximum of 13 UXO/MECs of varying sizes. Upon encountering a UXO/MEC of concern, the Lessee may only resort to high-order removal (i.e., detonation) after all other means by which to remove the UXO/MEC have been exhausted. The Lessee must not detonate a UXO/MEC if another means of removal is practicable.
- 5.13.1. The Lessee must submit all required documents related to UXO/MEC activity conditions in Sections 5.13.2 through 5.13.11 to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb with a notification email sent to protectedspecies@bsee.gov, and NMFS GARFO Protected Resources Division at nmfs.gar.incidental-take@noaa.gov.
 - 5.13.2. Seasonal and Daily Restrictions (Construction). UXO detonation is prohibited from December 1 to April 30 to reduce impacts to NARWs during peak migratory periods in the offshore wind area. UXO/MEC detonation must be limited to daylight hours only.
 - 5.13.3. Noise Abatement Systems (Construction). The Lessee must use a dual noise abatement system during all UXO/MEC detonation events and operate that system in a manner that achieves maximum noise attenuation levels practicable,

but, at minimum, results in noise levels equal or less than those modeled assuming 10 dB.

- 5.13.4. Use of PAM and PSO Operators (Construction). The Lessee must monitor the entire (100%) clearance and shutdown zones identified below using at least two visual PSOs on each observing platform (i.e., vessels, plane) and at least one acoustic PSO to monitor for marine mammals in the clearance zones prior to detonation. If the clearance zone is larger than 2 km (based on charge weight), the Lessee must deploy a secondary PSO vessel. If the clearance is larger than 5 km (based on charge weight), an aerial survey must be conducted of the entire clearance zone prior to detonation and immediately after detonation to monitor for marine mammals. Two PSOs must also be on the plane during aerial surveys and must monitor for marine mammals before, during, and after UXO/MEC detonation events. All PSOs must begin monitoring 60 minutes prior to UXO detonation and for 30 minutes after detonation. The Lessee may not detonate UXO/MEC(s) unless the clearance zone is fully visible for at least 60 minutes prior to planned detonation and all marine mammal(s) are visually confirmed to be outside of the clearance zone for at least 30 minutes prior to detonation. PAM must be conducted for at least 60 minutes prior to detonation and for 30 minutes after detonation, and the zone must be acoustically clear of marine mammals during this entire duration. The PAM operator must monitor in and past the clearance zone for large whales.
- 5.13.5. Clearance Zones (Construction). Prior to any detonation activities, the Lessee must clear the zones identified in the Letter of Authorization issued by NMFS under the ITA using both visual and acoustic monitoring methods.
- a) For marine mammals, these zone sizes may be further adjusted based on the SFV and confirmation of UXO/donor charge sizes. If a marine mammal is observed entering or within the clearance zone prior to denotation, the UXO/MEC activity must be delayed. The Lessee may continue with detonation only when the marine mammals have been confirmed to have voluntarily left the clearance zones and visually confirmed to be beyond the clearance zone, or when 60 minutes have elapsed without any redetections for whales (including the NARW) or 15 minutes have elapsed without any redetections of delphinids, harbor porpoises, or seals.
 - b) For sea turtles, the Lessee must establish a clearance zone extending 500 meters around any planned UXO/MEC detonation. The Lessee must maintain the clearance zone for at least 60 minutes prior to any UXO detonation. The Lessee must ensure that there is sufficient PSO coverage to reliably document sea turtle presence within the clearance zone. In the event that a PSO detects a sea turtle inside the 500 meters clearance zone, the Lessee must delay detonation until the sea turtle has not been observed for 30 minutes.
- 5.13.6. Clearance or Shutdown Zone Adjustment After Sound Field Verification. During each UXO/MEC detonation, the Lessee must empirically determine

source levels (peak and cumulative sound exposure level), the ranges to the isopleths corresponding to the Level A harassment and Level B harassment thresholds (for marine mammals) or distances to peak or cumulative injury thresholds for sea turtles, and estimated transmission loss coefficient(s).

- a) If SFV measurements on any of the detonations indicate that the ranges to Level A harassment and Level B harassment thresholds (for marine mammals) or distances to peak or cumulative injury thresholds for sea turtles are larger than those modeled (assuming 10-decibel attenuation), the Lessee must modify the clearance and shutdown zones, with approval from NMFS, and apply additional noise attenuation measures (e.g., improve efficiency of bubble curtain(s), install an additional noise attenuation device) before the next detonation event to reduce noise levels to those modeled assuming 10 decibel attenuation.

5.13.7. Notification (Construction). The Lessee must provide BSEE and NMFS GARFO with notification of planned UXO/MEC detonation as soon as possible, but at least 48 hours prior to the planned detonation, unless this 48-hour notification creates delays to the detonation that result in imminent risk of human life or safety. This notification must include the coordinates of the planned detonation, the estimated charge size, and any other information available on the characteristics of the UXO/MEC. NMFS GARFO will provide alerts to NMFS sea turtle and marine mammal stranding network partners consistent with best practices. The Lessee must provide notification to NMFS GARFO via email to nmfs.gar.incidental-take@noaa.gov, NMFS GARFO Protected Resources Division by phone (978-281-9328), and BSEE via TIMSWeb with email notification to protectedspecies@bsee.gov. See Section 5.14.3(a) for requirements associated with reporting of UXO detonations.

5.14. Reporting.

5.14.1. Reporting of All NARW Detections (Planning) (Construction) (Operations) (Decommissioning).

- a) If a NARW is observed at any time by PSOs or personnel on any project vessels or during any project-related activity (including during vessel transit), the Lessee must immediately report sighting information to BOEM, BSEE, the NMFS hotline (between Maine and Virginia/North Carolina border: 866-755-6622; from North Carolina to Florida: 877-942-5343), the USCG via channel 16, and the WhaleAlert app (<http://www.whalealert.org/>). The Lessee must include in its report the time, location, and number of animals sighted, animal behavior, animal closest point of approach, project activities at time of detection, vessel speed, and any mitigation measures implemented. The Lessee must report the PSO/personnel name, PSO provider (if applicable), and reporter's contact information. Any collected photos and/or videos must be submitted.

- b) If a NARW is detected at any time via PAM, the Lessee must ensure the detection is reported as soon as possible and no longer than 24 hours after the detection to NMFS via the 24-hour North Atlantic right whale Detection Template (<https://www.fisheries.noaa.gov/resource/document/passiveacoustic-reporting-system-templates>). Calling the hotline is not necessary when reporting PAM detections via the template.
 - c) The Lessee must send a summary report within 24 hours to NMFS GARFO (nmfs.gar.incidental-take@noaa.gov) and NMFS OPR (PR.ITP.MonitoringReports@noaa.gov) with the information submitted to the hotline/template and confirmation the sighting/detection was reported to the respective hotline, the vessel/platform from which the sighting/detection was made, activity the vessel/platform was engaged in at time of sighting/detection, project construction and/or survey activity ongoing at time of sighting/detection (e.g., pile driving, cable installation, HRG survey), distance from vessel/platform to animal at time of initial sighting/detection, closest point of approach of whale to vessel/platform, vessel speed, and any mitigation actions taken in response to the sighting.
- 5.14.2. Reporting of ESA-Listed Species within Shutdown Zone During Active Pile Driving (Construction). In the event that any ESA-listed species is observed within the identified shutdown zone during active pile driving, the Lessee must file a report with BOEM, BSEE, and NMFS GARFO within 48 hours of the incident and include the following: duration of pile driving prior to the detection of the animal, location of PSOs and any factors that impaired visibility or detection ability, time of detection of the animal, time the PSO called for shutdown, time the pile driving was stopped, and any measures implemented (e.g., reduced hammer energy) prior to shutdown. The Lessee must include in its report the time that the animal was last detected and any PSO reports on the behavior of the animal. If shutdown was determined not to be feasible, the Lessee report must include an explanation for that determination and the measures that were implemented (e.g., reduced hammer energy).
- 5.14.3. Detected or Impacted Protected Species Reporting (Planning) (Construction) (Operations) (Decommissioning). The Lessee must report within 48 hours all observations or collections of injured or dead whales, sea turtles, or sturgeon to BSEE and NMFS GARFO. The Lessee must ensure its reports reference the Project and include the Take Report Form available on NMFS webpage (<https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%202007162021.pdf?null>). The Lessee must ensure reports of Atlantic sturgeon take include a statement as to whether a fin clip sample for genetic sampling was taken. Fin clip samples are required in all cases with the only exception being when additional handling of the sturgeon may result in an imminent risk of injury to the fish or the PSO. Incidents falling within the exception are expected to be limited to capture and handling of sturgeon in extreme weather. Instructions for fin clips and associated metadata

are available at <https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-take-reporting-programmatics-greater-atlantic> under the “Sturgeon Genetics Sampling” heading.

The Lessee must report any suspected or confirmed vessel strike of a sea turtle or sturgeon by any project vessel in any location, including observation of any injured sea turtle or sturgeon, or sea turtle or sturgeon parts, to BOEM, BSEE, NMFS GARFO, and to appropriate NOAA stranding hotline (for marine mammals between Maine-Virginia, report to 866-755-6622, and from North Carolina-Florida to 877-942-5343 and for sea turtles from Maine-Virginia, report to 866-755-6622, and from North Carolina-Florida to 844-732-8785) as soon as feasible. The Lessee must include in the report the following information: (1) time, date, and location (latitude/longitude) of the incident; (2) species identification (if known) or description of the animal(s) involved; (3) vessel’s speed during and leading up to the incident; (4) vessel’s course and heading, and what operations were being conducted (if applicable); (5) status of all sound sources in use; (6) description of avoidance measures and requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike; (7) environmental conditions (e.g., wind speed and direction, Beaufort scale, cloud cover, visibility) immediately preceding the strike; (8) estimated size and length of animal that was struck; (9) description of the behavior of the animal immediately preceding and following the strike; (10) estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and (11) photographs or video footage of the animal(s), to the extent practicable.

In the event that an injured or dead marine mammal or sea turtle is sighted, the Lessee must report the incident to BOEM, BSEE, NMFS GARFO, and the appropriate hotline (options above), as soon as feasible, but no later than 24 hours from the sighting. The Lessee must include in the report the following information: (1) time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable); (2) species identification (if known) or description of the animal(s) involved; (3) condition of the animal(s) (including carcass condition if the animal is dead); (4) observed behaviors of the animal(s), if alive; (5) photographs or video footage of the animal(s), if available; and (6) general circumstances under which the animal was discovered. The Lessee must follow any instructions provided by staff responding to the hotline call for handling or disposing of any injured or dead animals, which may include coordination of transport to shore, particularly for injured sea turtles.

- a) UXO Detonation Reports (Construction). The Lessee must compile and submit reports following any UXO/MEC detonation that provide details on the UXO/MEC that was detonated (e.g., charge size), location of the detonation, the start and stop of associated observation periods by the PSOs, details on the deployment of PSOs, and a record of all observations of

marine mammals and sea turtles. These reports must include any observations of dead or injured fish or other marine life in the post detonation monitoring period. The Lessee must ensure that the PSO providers submit these reports directly to NMFS GARFO, BSEE, and BOEM within one week of the detonation. The reports may consist of raw data or be made available upon request. The Lessee must also ensure that the PSO providers submit all reports of dead or injured ESA listed species directly to NMFS GARFO, BSEE, and BOEM immediately, but no later than 24 hours following the observation.

- b) Detected or Impacted Dead Non-ESA-Listed Fish (Planning) (Construction) (Operations) (Decommissioning). The Lessee must report any occurrence of at least 10 dead non-ESA-listed fish within established shutdown or monitoring zones to BOEM at renewable_reporting@boem.gov and to BSEE via email to protectedspecies@bsee.gov as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours after the sighting. BOEM or BSEE will notify NMFS GARFO via NMFS.GAR.HESDoffshorewind@noaa.gov. The Lessee must confirm the relevant point of contact prior to reporting and confirm the reporting was received.

5.14.4. SFV Reporting (Construction). The Lessee must submit all SFV reports to: BOEM at renewable_reporting@boem.gov; BSEE via TIMSWeb with a notification email sent to BSEE at protectedspecies@bsee.gov; NMFS GARFO at nmfs.gar.incidental-take@noaa.gov; and NMFS's OPR at pr.itp.monitoringreports@noaa.gov.

- a) SFV Interim Reports for Pile Driving. The Lessee must provide, as soon as they are available but no later than 48 hours after the installation of each of the first three monopiles, the initial results of the SFV measurements in an interim report. If technical or other issues prevent submission within 48 hours, the Lessee must notify NMFS GARFO within that 48-hour period with the reasons for delay and provide an anticipated schedule for submission of the report. This report is required for each of the first three monopiles installed and any additional piles for which SFV is required. The interim report must include data from hydrophones identified for interim reporting in the SFV Plan and include a summary of pile installation activities (pile diameter, pile weight, pile length, water depth, sediment type, hammer type, total strikes, total installation time [start time, end time], duration of pile driving, max single strike energy, NAS deployments), pile location, recorder locations, modeled and measured distances to thresholds, received levels (rms, peak, and SEL) results from Conductivity, Temperature, and Depth (CTD) casts/sound velocity profiles, signal and kurtosis rise times, pile driving plots, activity logs, and weather conditions.
- b) SFV Interim Reports for UXO/MEC Detonation. The Lessee must provide, as soon as they are available but no later than 48 hours after each detonation of a UXO/MEC, the initial results of the SFV measurements in an interim

report. If technical or other issues prevent submission within 48 hours, the Lessee must notify BOEM, BSEE, and NMFS within that 48-hour period with the reasons for delay and provide an anticipated schedule for submission of the report. The interim report must include data from all hydrophones identified for interim reporting in the SFV Plan and include a summary of the UXO/MEC detonation activity (location, water depth, sediment type, charge size, detonation time, etc.), description of the noise attenuation system and its effectiveness (including photos and/or videos of the bubble curtain), UXO/MEC location, recorder locations, modeled and measured distances to thresholds, received levels (rms, peak, and SEL) results from Conductivity, Temperature, and Depth (CTD) casts/sound velocity profiles, and weather conditions.

- c) SFV Final Reports. The final results of SFV for monopile installations must be submitted as soon as possible, but no later than within 90 days following completion of pile driving of the three or more monopiles for which SFV was carried out. The final results of SFV for UXO/MEC detonations must be submitted as soon as possible, but no later than within 90 days following detonation of each device. The final results of SFV monitoring for pile driving and UXO/MEC detonation must include results for all hydrophones.

5.14.5. Weekly Reports (Construction) (Operations) (Decommissioning). The Lessee must compile and submit weekly reports during pile driving that document the start and stop of all pile driving, HRG survey, and UXO/MEC detonation that document pile driving, HRG survey, and detonation activities, including associated PSO, SFV, and noise abatement activities. These weekly reports must be submitted to NMFS GARFO (nmfs.gar.incidental-take@noaa.gov), BOEM (renewable_reporting@boem.gov), and BSEE (protectedspecies@bsee.gov) directly from the PSO providers and may consist of raw data. Weekly reports must be submitted no later than Wednesday for the previous week (Sunday – Saturday). Weekly reports must include:

- a) Summaries of pile driving activities and piles installed, including, start and stop times, pile locations, hammer log (number of strikes, max hammer energy, duration of piling) per pile, any changes to noise attenuation systems and/or hammer schedule;
- b) A summary of SFV and NAS implemented associated with pile driving;
- c) Any UXO/MEC detonation activities;
- d) Which turbines become operational and when (a map must be provided);
- e) Summaries of HRG survey activities;
- f) Vessel operations (including port departures, number of vessels, type of vessel(s), and route);

- g) All protected species detections (including species identification, number of animals, time at initial detection, time at final detection, distance to pile at initial detection, closest point of approach to pile, animal direction of travel relative to pile; description of animal behavior, features used to identify species, and for moving vessels: speed (knots), distance and bearing to animal at initial detection, closest point of approach and bearing to animal, distance and bearing to animal at final detection, and animal direction of travel relative to vessel);
- h) Vessel strike avoidance measures taken; and
- i) Any equipment shutdowns or takes that may have occurred.

5.14.6. Monthly Reports (Construction) (Operations) (Decommissioning). Starting the first month that in-water activities occur on the OCS, the Lessee must compile and submit monthly reports that include a summary of all project activities carried out in the previous month, including fisheries surveys, vessel transits (number, type of vessel, ports used, and route), piles installed, HRG surveys conducted, and UXO/MEC detonations, and all observations of ESA-listed whales, sea turtles, and sturgeon inclusive of any mitigation measures taken as a result of those observations. Sightings/detections must include species ID, time, date, initial detection distance, vessel/platform name, vessel activity, vessel speed, bearing to animal, project activity, and if any, mitigation measures taken. These reports must be submitted to BOEM, BSEE, and NMFS GARFO no later than the 15th of the month for the previous month.

- a) Reporting Instructions for Monthly PSO Pile Driving Monitoring Reports. PSOs must collect data consistent with standard reporting forms, software tools, or electronic data forms authorized by BOEM for the particular activity. PSOs must fill out report forms for each vessel with PSOs aboard. Unfilled cells must be left empty and must not contain "NA." The reports must be submitted in Microsoft Word and Excel formats (not as a PDF). Enter all dates as YYYY-MM-DD. Enter all times in 24 Hour Coordinated Universal Time (UTC) as HH:MM.

Create a new entry on the Effort form each time a pile segment changes or weather conditions change, and at least once an hour as a minimum. Review and revise all forms for completeness and resolve incomplete data fields before submittal. The file name must follow this format: Lease#_ProjectName_PSOData_YearMonthDaytoYearMonthDay.xls. Data fields must be reported in Excel format. Data categories must include Project, Operations, Monitoring Effort, and Detection, as further specified below. All PSO data must be generated through software applications or otherwise recorded electronically by PSOs and provided to BOEM and BSEE in electronic format (CSV files or similar format) and be checked for quality assurance and quality control. Applications developed to record PSO data are encouraged if the data fields listed below can be recorded and exported

into Excel. Alternatively, BOEM has developed an Excel spreadsheet, with all the necessary data fields, that is available upon request.

Required data fields include:

Project Information:

- Project name
- Lease number
- State coastal zones
- PSO contractors
- Vessel names
- Reporting dates (YYYY-MM-DD)
- Visual monitoring equipment used (e.g., bionics, magnification, IR cameras)
- Distance finding method used
- PSO names (Last, First) and training
- Observation height above sea surface

Operations Information:

- Date (YYYY-MM-DD)
- Hammer type used (make and model)
- Greatest hammer power used for each pile
- Pile identifier and pile number for the day (e.g., pile 2 of 3 for the day)
- Pile diameters
- Pile length
- Pile locations (latitude and longitude)
- Number of vessel transits
- Types of vessels used
- Vessel routes used

Monitoring Effort Information:

- Date (YYYY-MM-DD)
- Noise source (ON=Hammer On; OFF=Hammer Off)
- PSO name(s) (Last, First)
- If visual, how many PSOs on watch at one time?
- Time pre-clearance visual monitoring began in UTC (HH:MM)
- Time pre-clearance monitoring ended in UTC (HH:MM)
- Time pre-clearance PAM monitoring began in UTC (HH:MM)
- Time PAM monitoring ended in UTC (HH:MM)
- Duration of pre-clearance PAM and visual monitoring
- Time power-up or ramp-up began
- Time equipment full power was reached
- Duration of power-up or ramp-up

- Time pile driving began (hammer on)
- Time pile driving activity ended (hammer off)
- Duration of activity
- Duration of visual detection
- Wind speed (knots), from direction
- Swell height (meters)
- Water depth (meters)
- Visibility (kilometers)
- Glare severity
- Latitude (decimal degrees), longitude (decimal degrees)
- Compass heading of vessel (degrees)
- Beaufort scale
- Precipitation
- Cloud coverage (%)
- Did a shutdown/power-down occur?
- Time shutdown was called for (UTC)
- Time equipment was shut down (UTC)
- Habitat or prey observations
- Marine debris sighted

Detection Information:

- Date (YYYY-MM-DD)
- Sighting ID (V01, V02, or sequential sighting number for that day; multiple sightings of the same animal or group must use the same ID)
- Date and time at first detection in UTC (YY-MM-DDT HH:MM)
- Time at last detection in UTC (YY-MM-DDT HH:MM)
- PSO name(s) (Last, First)
- Effort (ON=Hammer On; OFF=Hammer Off)
- If visual, how many PSOs on watch at one time?
- Start time of observations
- End time of observations
- Duration of visual observation
- Wind speed (knots), from direction
- Swell height (meters)
- Water depth (meters)
- Visibility (kilometers)
- Glare severity
- Latitude (decimal degrees), longitude (decimal degrees)
- Compass heading of vessel (degrees)
- Beaufort scale
- Precipitation
- Cloud coverage (%)
- Sightings including common name, scientific name, or family

- Percent certainty of identification
- Number of adults
- Number of juveniles
- Total number of animals
- Bearing to animals when first detected (ship heading + clock face)
- Bearing to animals at closest approach (ship heading+ clock face)
- Bearing to animal at final detection (ship heading+ clock face)
- Range from vessel and pile (reticle distance in meters)
- Description (include features such as overall size; shape of head; color and pattern; size, shape, and position of dorsal fin; height, direction, and shape of blow, etc.)
- Detection narrative (note behavior, especially changes in relation to activity and distance from service vessel)
- Direction of animal travel in first approach relative to vessel and pile
- Behaviors observed: indicate behaviors and behavioral changes observed in sequential order (use behavioral codes)
- If any bow-riding behavior observed, record total duration during detection (UTC HH:MM)
- Initial heading of animals (degrees)
- Final heading of animals (degrees)
- Shutdown zone size during detection (meters)
- Was the animal inside the shutdown zone?
- Closest distance to vessel and pile (reticle distance in meters)
- Time at closest approach to vessel and pile (UTC HH:MM)
- Time animal entered shutdown zone (UTC HH:MM)
- Time animal left shutdown zone (UTC HH:MM)
- If observed or detected during ramp-up or power-up: first distance (reticle distance in meters), closest distance (reticle distance in meters), last distance (reticle distance in meters), behavior at final detection
- Did a shutdown/power-down occur?
- Time shutdown was called for (UTC HH:MM)
- Time equipment was shut down (UTC HH:MM)
- Detections with PAM

5.14.7. Annual Reports (Operations) (Decommissioning). Beginning one calendar year after the completion of commissioning activities, the Lessee must compile and submit annual reports that include a summary of all Project activities carried out in the previous year, including vessel transits (number, type of vessel, ports used, and route), repair and maintenance activities, survey activity, and all observations of ESA-listed species. The annual reports must be submitted to BOEM, BSEE, and NMFS GARFO. The Lessee must submit these reports by April 1 of each year for the previous calendar year (i.e., the 2026 report is due by April 1, 2027). Upon mutual agreement of NMFS GARFO, BOEM, and BSEE, the frequency of reports can be changed.

5.14.8. Other Protected Species Conditions (Planning) (Construction) (Operations) (Decommissioning). On July 21, 2023, NMFS issued a BiOp, including an ITS for the Project. The ITS includes reasonable and prudent measures terms and conditions and reasonable and prudent measures that NMFS determined were necessary and appropriate to minimize and monitor the amount or extent of incidental take of species listed as endangered or threatened under the ESA and under NMFS jurisdiction. In order for the ESA exemption from prohibited take provided by the NMFS July 21, 2023 BiOp to be valid, the Lessee must carry out the proposed action in compliance with all avoidance and minimization measures incorporated into the proposed action considered in that consultation and comply with all reasonable and prudent measures and implementing terms and conditions included in the BiOp's ITS that are incorporated by reference in this document.

6. CONDITIONS RELATED TO COMMERCIAL FISHERIES, FOR-HIRE AND RECREATIONAL FISHING

6.1. Fisheries Compensation and Mitigation Funds (Planning) (Construction) (Operations) (Decommissioning). No later than 1 year after the approval of the COP, the Lessee must implement their direct compensation program as determined in 6.1.1 below and augment the program to include reserve funding for shoreside support service revenue loss directly related to the Project, as determined in Section 6.1.2 below. Calculation steps are shown in Section 6.1.3 below.

6.1.1. Direct Compensation Program. The Lessee must ensure that the Direct Compensation Fund includes a reserve amount to be used to pay claims brought by both commercial and for-hire fishermen and must be based, at a minimum, on the annual average commercial fisheries landings values and for-hire fishing revenue stated in FEIS Table 3.9-12 and the annual average revenue across all for-hire fishing operations from 2008 to 2019 (\$43,083, page 3.9-40), respectively, of the Revolution Wind Farm and Revolution Wind Export Cable Project FEIS. The reserve amount must be determined by the formula set out below or any agreements with state programs, whichever is greater (see Section 6.1.1[c] below).

- a) The Lessee must have available, at a minimum, 100 percent of annual revenue exposure during the construction period and (pending BSEE's approval of Lessee's decommissioning application) projected decommissioning period, 100 percent of annual revenue exposure for the first year after construction, 80 percent of revenue exposure 2 years after construction, 70 percent of revenue exposure 3 years after construction, 60 percent after 4 years, and 50 percent after 5 years post-construction. BSEE will evaluate the need for additional compensatory mitigation consistent with the Annual Certification under 30 CFR §285.633(a).
- b) The compensation calculations described above must be normalized using the gross domestic product (GDP) Implicit Price Deflator (U.S. Bureau of Economic Analysis,²² "[Table 1.1.9. Implicit Price Deflators for Gross Domestic Product](#)") once the construction year and 5 years post-construction are known.
- c) In recognition of state agreements, the Lessee must establish the following compensation/mitigation funds for compensation of losses by commercial fishermen directly related to the Project and for mitigation of other impacts, as negotiated by each state. The Lessee must establish the compensation/mitigation funds within 30 days of COP approval. If state agreements for compensation/mitigation listed in this section are greater than the revenue for a certain state as described in Table 3.9-12 in the

²²<https://apps.bea.gov/iTable/?reqid=19&step=3&isuri=1&1921=survey&1903=11#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwYLDMsM10sImRhdGEiOltbIk5JUEFfVGFiVGVfTGZdCiIsIjEzIi0sWjYDYXRIZ29yaWVzIiwuU3VydMv5Ii0sWjJGaXJzdF9ZZWFyIiwuMjAyMjJlFsiTGFzZD9ZZWFyIiwuMjAyMjJlFsiU2NhbGUuLClwIi0sWjJZXJpZXMiLCJBI1dfO==>

Revolution Wind Farm and Revolution Wind Export Cable Project FEIS, that state's revenue may be omitted from the calculation described in BOEM's Fisheries Mitigation Guidance and Section 6.1.3.

- vi. Rhode Island – \$12,000,000 Compensation Fund, \$300,000 Coastal Community Fund, \$333,333 for the “Rhode Island Navigational Enhancement and Training Program,” and \$300,000 in funding for an Impacts Study.
- vii. Massachusetts – \$6,425,000 Compensation Fund, \$400,000 Coastal Community Fund, and up to \$500,000 (the “Navigational Enhancement and Training Funding”) to fund claims made through the Navigational Enhancement and Training Program.

6.1.2. Shoreside Support Services. At least 90 days prior to establishment of the Direct Compensation Program described in Section 6.1.1, the Lessee must submit to BOEM a Shoreside Support Services report for a 60-day review and approval. If a state agreement for compensatory mitigation includes shoreside services, those ports may be removed from this analysis if greater than BOEM's requirements, as described in 6.1.1(c). The report must include a description of the structure of the Fund and an analysis of the impacts of the Project to shoreside support services (such as seafood processing and vessel repair services) within communities near the ports:

- Beaufort, NC
- Chilmark/Menemsha, MA
- Fairhaven, MA
- Fall River, MA
- Hampton, VA
- Little Compton, RI
- Montauk, NJ
- New Bedford, MA
- New London, CT
- Newport News, VA
- Newport, RI
- Point Judith, RI
- Point Pleasant Beach, NJ
- Stonington, CT
- Tiverton, RI
- Westport, MA

6.1.3. Compensation Calculations. Once the values at Sections 6.1.1 and 6.1.2 are determined, the Lessee must use Table 6.1.3-1 and Table 6.1.3-2 to calculate the total reserve fund requirements. The amounts of the reserve fund requirements must be normalized to current real prices from a base year. The Lessee may use the prior year's GDP Implicit Price Deflator to estimate Compensation and Mitigation Fund requirements after COP approval if the

current year is unavailable. As described in 6.1.1(a), the Lessee must ensure the reserve amount allows for, at a minimum, 100 percent of annual revenue exposure during the projected construction years and, pending BSEE approval of decommissioning plan, decommissioning years. The Lessee must use the GDP Implicit Price Deflator to adjust the annual average commercial fisheries landings values and for-hire fishing revenue stated in Table 3.9-12 and the annual average revenue across all for-hire fishing operations from 2008 to 2019 (\$43,083, page 3.9-40), respectively, of the Revolution Wind Farm and Revolution Wind Export Cable Project FEIS.

Before rolling forward any unclaimed funds, the total fund reserve requirements for Construction, Decommissioning, and Operating Years 1–5²³ (as shown in Table 6.1.3-2) is calculated using the following formula:

$$k \left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M) + j \left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M) + \left(\$514,136.83 \times \frac{n_i}{112.318} \right) (1 + M).$$

²³ Rolling forward unclaimed funds from prior years may lower this total value.

Table 6.1.3-1. Calculation Subcomponents for Construction and Decommissioning

Project Status	Base Annual Average Fishing Revenue Exposed to the Wind Farm Area¹	Shoreside Support Services Multiplier²	Exposure Ratio	Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area	Reserve Requirements
Construction	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right)$	M	1	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right)$	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M)$
Decommissioning ³	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right)$	M	1	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right)$	$\left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M)$

Notes:

¹ Inflation-adjusted revenues from FEIS Table 3.9-12 and page 3.9-40. The inflation-adjusted base equation is:

$$\text{Average Annual Fishing Revenue} \times \frac{n_i}{112.318}$$

² The Lessee’s calculations of the Impacts to Shoreside Businesses Multiplier may use BOEM’s draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* or future versions, but BOEM must, in all events, review the calculations.

³ Decommissioning funds may be required pending BSEE’s approval of Lessee’s decommissioning application. If Construction is expected to last *k* years and Decommissioning *j* years, the Lessee must calculate the reserve requirements as follows:

$$k \left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M) + j \left(\$126,083.00 \times \frac{n_i}{112.318} \right) (1 + M)$$

Table 6.1.3-2. Calculation Subcomponents by Operating Year

Project Status	Base Annual Average Fishing Revenue Exposed to the Wind Farm Area¹	Shoreside Support Services Multiplier²	Exposure Ratio	Adjusted Base Annual Average Fishing Revenue Exposed to the Wind Farm Area	Reserve Requirements
Operating Year 1	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	M	1	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)(1 + M)$
Operating Year 2	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	M	0.8	$\left(\$114,252.63 \times \frac{n_i}{112.318}\right)$	$\left(\$114,252.63 \times \frac{n_i}{112.318}\right)(1 + M)$
Operating Year 3	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	M	0.7	$\left(\$99,971.05 \times \frac{n_i}{112.318}\right)$	$\left(\$99,971.05 \times \frac{n_i}{112.318}\right)(1 + M)$
Operating Year 4	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	M	0.6	$\left(\$85,689.47 \times \frac{n_i}{112.318}\right)$	$\left(\$85,689.47 \times \frac{n_i}{112.318}\right)(1 + M)$
Operating Year 5	$\left(\$126,083.00 \times \frac{n_i}{112.318}\right)$	M	0.5	$\left(\$71,407.89 \times \frac{n_i}{112.318}\right)$	$\left(\$71,407.89 \times \frac{n_i}{112.318}\right)(1 + M)$
<i>Operating Total³</i>	-	-	-	$\left(\$514,136.83 \times \frac{n_i}{112.318}\right)$	$\left(\$514,136.83 \times \frac{n_i}{112.318}\right)(1 + M)$

Notes:

¹ Inflation-adjusted revenues from FEIS Table 3.9-12 and page 3.9-40. The inflation-adjusted base equation is:

$$\left(\text{Average Annual Fishing Revenue} \times \frac{n_i}{112.318}\right)$$

² The Lessee's calculations of the Impacts to Shoreside Businesses Multiplier may use BOEM's draft *Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR Part 585* or future versions, but BOEM must, in all events, review the calculations.

³ Rolling forward unclaimed funds from prior years may lower this total value.

- 6.1.4. Reporting. By January 31 of each year, the Lessee must submit to BOEM and BSEE an annual report demonstrating implementation of the Direct Compensation Program. The report must include the following: the Fund charter, including the governance structure, audit and public reporting procedures; documentation regarding the funding account, including the dollar amount, establishment date, financial institution, and owner of the account; and standards for paying compensatory mitigation for impacts to fishers and related shoreside businesses resulting from all phases of the project development on the Lease Area (pre-construction, construction, operation, and decommissioning).
- 6.1.5. Notification. The Lessee must establish the compensation and mitigation funds under the terms above. Specifically, the Lessee must enter into a memorandum of understanding with the States of Massachusetts and Rhode Island to provide appropriate compensation measures for fisheries resources and fishing industry uses impacted by the authorized project. The Lessee must request that the Administrator(s) of the direct compensation program(s) notify BOEM that the direct compensation program(s) has been established and is processing claims. Notification can be accomplished by the Administrator(s) transmitting to BOEM an annual financial statement of the direct compensation program(s). The Administrator(s) must submit the required notification by January 31 of each year, beginning on the second anniversary of the Project's Commercial Operations Date as defined by Addendum "B" of the Lease. The notification must be signed by the Administrator(s).
- 6.2. Fisheries Gear Loss Compensation (Planning) (Construction) (Operations). The Lessee must maintain throughout the life of the Project, a fisheries gear loss claims procedure to implement the financial compensation policy proposed by the Lessee in Appendix EE of the COP, Fisheries Communication and Outreach Plan. The fisheries gear loss claims procedure must be available to all fishermen impacted by Project activities or infrastructure, regardless of homeport.
- 6.3. Federal Survey Mitigation Program (Planning) (Construction) (Operations) (Decommissioning). There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Nine of these surveys overlap with the Project. Consistent with NMFS and BOEM survey mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*,²⁴ within 120 days of COP approval, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement.

If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a Survey Mitigation Plan to BOEM and NMFS that is consistent with the

²⁴ Hare, J.A., Blythe, B.J., Ford, K.H., Godfrey-McKee, S., Hooker, B.R., Jensen, B.M., Lipsky, A., Nachman, C., Pfeiffer, L., Rasser, M. and Renshaw, K., 2022. NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region. NOAA Technical Memorandum 292. Woods Hole, MA. 33 pp.

mitigation activities, actions, and procedures described in Sections 6.3.1 and 6.3.2 below, within 180 days of COP approval. BOEM will review the Survey Mitigation Plan in consultation with NMFS Northeast Fisheries Science Center (NEFSC), and the Lessee must resolve comments to BOEM's satisfaction and must conduct activities in accordance with the plan.

- 6.3.1. As soon as reasonably practicable, but no later than 30 days after the issuance of the Project's COP approval, the Lessee must initiate coordination with NMFS NEFSC to develop the survey mitigation agreement described above. Mitigation activities specified under the agreement must be designed to mitigate the Project impacts on the following NMFS NEFSC surveys: (a) Spring Bottom Trawl survey; (b) Autumn Multi-species Bottom Trawl survey; (c) Ecosystem Monitoring survey; (d) NARW aerial survey; (e) Aerial marine mammal and sea turtle survey; (f) Shipboard marine mammal and sea turtle survey; (g) Atlantic surfclam and ocean quahog survey; (h) Atlantic sea scallop survey; and (i) Seal survey. At a minimum, the survey mitigation agreement must describe actions and the means to address impacts on the affected surveys due to the preclusion of sampling platforms and impacts on statistical designs. NMFS has determined that the project area is a discrete stratum for surveys that use a random stratified design. This agreement may also consider other anticipated Project impacts on NMFS surveys, such as changes in habitat and increased operational costs due to loss of sampling efficiencies.
- 6.3.2. The survey mitigation agreement must identify activities that will result in the generation of data equivalent to data generated by NMFS's affected surveys for the duration of the Project. The survey mitigation agreement must describe the implementation procedures by which the Lessee will work with NEFSC to generate, share, and manage the data required by NEFSC for each of the surveys impacted by the Project, as mutually agreed upon between the Lessee and NMFS NEFSC. The survey mitigation agreement must also describe the Lessee's participation in the NMFS NEFSC Northeast Survey Mitigation Program to support activities that address regional-level impacts for the surveys listed above.
- 6.4. Environmental Data Sharing with Federally Recognized Tribal Nations (Planning) (Construction) (Operations) (Decommissioning). No later than 90 days after COP approval, the Lessee must make a request to the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov to coordinate with federally recognized Tribal Nations on the following: (1) to solicit their interest in participating as active monitors on board vessels during construction and/or maintenance activities, and in postmortem examinations of mortality events as a result of these activities; and (2) provide open access to reports generated as a result of the Fisheries Research and Monitoring Plan; reports of NARW sightings; injured or dead protected species reporting (sea turtles, NARW, sturgeon); NARW PAM monitoring; PSO reports (e.g., pile driving reports); and pile driving schedules and schedule changes. At a minimum, the Lessee must offer access to the following federally recognized Tribal Nations: Delaware Nation, Delaware Tribe of Indians, Mashantucket

(Western) Pequot Tribal Nation, Mashpee Wampanoag Tribe, Mohegan Tribe of Connecticut, Narragansett Indian Tribe, Shinnecock Indian Nation, and Wampanoag Tribe of Gay Head (Aquinnah). The Lessee must provide to any federally recognized Tribal Nation, in a manner suitable to the Tribal Nation, access to nonproprietary, non-confidential business information listed in this paragraph no later than 30 days after the information becomes available.

7. VISUAL AND CULTURAL RESOURCES CONDITIONS

- 7.1. Reporting (Planning) (Construction) (Operations). The Lessee must submit all monitoring, reporting (annual, immediate, or post-discovery), and survey requirements related to cultural resources to BOEM at renewable_reporting@boem.gov and BSEE via TIMSWeb with a notification email sent to env-compliance-arc@bsee.gov.
- 7.2. Avoidance of Known and Potential Shipwrecks, Debris Fields, and Ancient Submerged Landform Features (ASLFs) (Planning) (Construction) (Operations) (Decommissioning). The Lessee must avoid known and potential shipwrecks, potentially significant debris fields, and ASLFs as described below. The Lessee must identify avoidance requirements on proposed anchoring plots, as-placed plats, and drawings associated with seabed disturbances (e.g., relevant FDR/FIR documents for export cables, inter-array cables, ETG, etc.). If the Lessee determines that avoidance is not possible, the Lessee must notify BOEM and BSEE prior to disturbing the seabed in the excluded area. In such instances, BOEM will notify the Lessee of any additional requirements, which may include additional measures to resolve adverse effects. If any vessel conducting work on behalf of the Lessee disturbs the seabed within the avoidance areas noted below, the Lessee must submit an incident report to BOEM and BSEE within 24 hours.
- 7.3. Avoidance of Known Shipwrecks or Sunken Craft Sites and Potentially Significant Debris Fields (Planning) (Construction) (Operations) (Decommissioning). The Lessee must avoid known shipwrecks and potential submerged cultural resources (Target-01 to Target-11 and Target-13 to Target-20 as identified in the Marine Archaeological Resources Assessment [MARA] [COP Appendix M]) by a distance of no less than 50 meters from the known extent of the resource for placement of Project structures and when conducting seabed-disturbing activities. The Lessee must identify avoidance stipulations and requirements on proposed anchoring plots, as-placed plats and drawings associated with seafloor disturbances (e.g., relevant FDR/FIR documents for export cables, inter-array cables, WTG, etc.).
- 7.4. Avoidance of Ancient Submerged Landform Features. (Planning) (Construction) (Operations) (Decommissioning). The Lessee must avoid four ASLFs (Targets 27, 31, 32, and 33, as identified in the MARA [COP Appendix M]). No additional avoidance buffer is required for these ASLFs, because avoidance of the ASLFs is based on the defined spatial extent of each ASLF, which has been determined based on the maximum observed presence of the seismic reflector and unique buffer area designed to account for minimal positioning errors or lack of resolution. The Lessee must identify avoidance stipulations and requirements on proposed anchoring plots, as-placed plats, and drawings associated with seafloor disturbances (e.g., relevant FDR and FIR documents for export cables, inter-array cables, WTG, etc.).
- 7.5. Apply Paint Color No Lighter than RAL (Reichs-Ausschuß für Lieferbedingungen und Gütesicherung) 9010 Pure White and No Darker than RAL 7035 Light Grey to the WTGs (Planning) (Construction) (Operations). The Lessee must color the WTGs an off white/grey color (no lighter than RAL 9010 Pure White and no darker than RAL 7035 Light Grey) prior to installation. The Lessee must confirm the planned paint color as

part of the FDR and confirm the WTG was painted consistent with this condition as part of the final FIR.

- 7.6. Implementation of Minimization and Mitigation Measures to Resolve Adverse Effects to ASLFs (Planning) (Construction). The Lessee must mitigate adverse effects to nine ASLFs (Targets 21–26 and 28–30 as identified in the MARA [COP Appendix M]) that remain in the Area of Potential Effects (APE) and that cannot be avoided. The Lessee must execute all aspects of this condition, consistent with the Section 106 MOA (Stipulation II.A.1; Stipulation III.A.1; Attachment 5 *Mitigation Funding Amounts Proposed by Signatories and Consulting Parties*; and Attachment 6 *ASLF Historic Property Treatment Plan (HPTP) for the Revolution Wind Farm Ancient Submerged Landform Features, Outer Continental Shelf, Federal and Rhode Island Waters of Rhode Island Sound*). The Annual Certification under condition 7.9 must include reporting associated with Section 106 MOA compliance.
- 7.7. Implementation of Minimization and Mitigation Measures to Resolve Adverse Effects to Mill Creek Swamp #1 and Mill Creek Swamp #2 Sites (Planning) (Construction) (Operations). The Lessee must minimize and mitigate adverse effects to Mill Creek Swamp #1 and Mill Creek Swamp #2 sites—as identified in the Terrestrial Archaeological Resource Assessment (TARA) (COP Appendix N)—that are in the terrestrial APE and that cannot be avoided. The Lessee must execute all aspects of this condition of COP approval consistent with the Section 106 MOA (Stipulation II.B; Stipulation III.B; Attachment 5 *Mitigation Funding Amounts Proposed by Signatories and Consulting Parties*; and Attachment 7 *HPTP for the Revolution Wind Farm, the Mill Creek Swamp #1 and #2 Sites, Town of North Kingstown, Washington County, Rhode Island*). The Annual Certification under condition 7.9 must include reporting associated with Section 106 MOA compliance.
- 7.8. Implementation of Minimization and Mitigation Measures to Resolve Visual Adverse Effects to Historic Properties (Planning) (Construction). The Lessee must fund minimization and mitigation measures to resolve the adverse effects to the following 101 historic properties:
- 1) Vineyard Sound and Moshup’s Bridge Traditional Cultural Property, Aquinnah, Dukes County, MA
 - 2) Sakonnet Light Station, Little Compton, Newport, RI
 - 3) Warren Point Historic District, Little Compton, Newport, RI
 - 4) Abbott Phillips House, Little Compton, Newport, RI
 - 5) Flaghole, Chilmark, Dukes County, MA
 - 6) Stone House Inn, Little Compton, Newport, RI
 - 7) Simon Mayhew House, Chilmark, Dukes County, MA
 - 8) 71 Moshup Trail, Aquinnah, Dukes County, MA
 - 9) Vanderhoop, Edwin DeVries Homestead, Aquinnah, Dukes County, MA
 - 10) Gay Head - Aquinnah Shops Area, Aquinnah, Dukes County, MA
 - 11) Flanders, Ernest House, Shop, Barn, Aquinnah, Dukes County, MA
 - 12) 3 Windy Hill Drive, Aquinnah, Dukes County, MA
 - 13) Gay Head Light, Aquinnah, Dukes County, MA
 - 14) Tom Cooper House, Aquinnah, Dukes County, MA

- 15) Leonard Vanderhoop House, Aquinnah, Dukes County, MA
- 16) Theodore Haskins House, Aquinnah, Dukes County, MA
- 17) Gay Head - Aquinnah Coast Guard Station Barracks, Aquinnah, Dukes County, MA
- 18) Gay Head - Aquinnah Town Center Historic District, Aquinnah, Dukes County, MA
- 19) Gooseneck Causeway, Westport, Bristol County, MA
- 20) Gooseberry Neck Observation Towers, Westport, Bristol County, MA
- 21) Spring Street, New Shoreham, Washington County, RI
- 22) Capt. Mark L. Potter House, New Shoreham, Washington County, RI
- 23) Tunipus Goosewing Farm, Little Compton, Newport County, RI
- 24) WWII Lookout Tower – Spring Street, New Shoreham, Washington County, RI
- 25) Westport Harbor, Westport, Bristol County, MA
- 26) Bellevue Avenue Historic District National Historic Landmark (NHL), Newport, Newport County, RI
- 27) Block Island Southeast Lighthouse NHL, New Shoreham, Washington County, RI
- 28) New Shoreham Historic District, New Shoreham, Washington County, RI
- 29) Spring Cottage, New Shoreham, Washington County, RI
- 30) Old Harbor Historic District, New Shoreham, Washington County, RI
- 31) Captain Welcome Dodge Sr., New Shoreham, Washington County, RI
- 32) Caleb W. Dodge Jr. House, New Shoreham, Washington County, RI
- 33) Spring House Hotel, New Shoreham, Washington County, RI
- 34) Pilot Hill Road and Seaweed Lane, New Shoreham, Washington County, RI
- 35) Ocean Drive Historic District NHL, Newport, Newport County, RI
- 36) Marble House NHL, Newport, Newport, RI
- 37) Ochre Point – Cliffs Historic District, Newport, Newport County, RI
- 38) WWII Lookout Tower at Sands Pond, New Shoreham, Washington County, RI
- 39) Sea View Villa, Middletown, Newport County, RI
- 40) Rosecliff/Oelrichs (Hermann) House/Monroe (J. Edgar) House, Newport, Newport County, RI
- 41) The Breakers NHL, Newport, Newport County, RI
- 42) Corn Neck Road, New Shoreham, Washington County, RI
- 43) Clam Shack Restaurant, Westport, Bristol County, MA
- 44) Horseneck Point Lifesaving Station, Westport, Bristol County, MA
- 45) Whetstone, Middletown, Newport County, RI
- 46) The Bluff/John Bancroft Estate, Middletown, Newport County, RI
- 47) Clambake Club of Newport, Middletown, Newport County, RI
- 48) Old Town and Center Roads, New Shoreham, Washington County, RI
- 49) Beach Avenue, New Shoreham, Washington County, RI
- 50) Mitchell Farm, New Shoreham, Washington County, RI
- 51) Indian Head Neck Road, New Shoreham, Washington County, RI
- 52) Westport Pt. Revolutionary War Properties, Westport, Bristol County, MA
- 53) Indian Avenue Historic District, Middletown, Newport County, RI
- 54) St. Georges School, Middletown, Newport County, RI
- 55) Hygeia House, New Shoreham, Washington County, RI
- 56) U.S. Weather Bureau Station, New Shoreham, Washington County, RI

- 57) Miss Abby E. Vaill/1 of 2 Vaill cottages, New Shoreham, Washington County, RI
- 58) Hon. Julius Deming Perkins / "Bayberry Lodge." New Shoreham, Washington County, RI
- 59) Lakeside Drive and Mitchell Lane, New Shoreham, Washington County, RI
- 60) Land Trust Cottages, Middletown, Newport County, RI
- 61) Russell Hancock House, Chilmark, Dukes County, MA
- 62) Westport Point Historic District (1 of 2), Westport, Bristol County, MA
- 63) Westport Point Historic District (2 of 2), Westport, Bristol County, MA
- 64) Mohegan Cottage/Everett D. Barlow House, New Shoreham, Washington County, RI
- 65) Paradise Rocks Historic District, Middletown, Newport County, RI
- 66) Lewis-Dickens Farm, New Shoreham, Washington County, RI
- 67) Island Cemetery/Old Burial Ground, New Shoreham, Washington County, RI
- 68) Kay St.-Catherine St.-Old Beach Rd. Historic District/The Hill, Newport, Newport County, RI
- 69) Beacon Hill Road, New Shoreham, Washington County, RI
- 70) Nathan Mott Park, New Shoreham, Washington County, RI
- 71) Block Island North Lighthouse New Shoreham, Washington County, RI
- 72) Champlin Farm, New Shoreham, Washington County, RI
- 73) Hippocampus/Boy's Camp/Beane Family, New Shoreham, Washington County, RI
- 74) U.S. Lifesaving Station, New Shoreham, Washington County, RI
- 75) U.S. Coast Guard Brick House, New Shoreham, Washington County, RI
- 76) Peleg Champlin House, New Shoreham, Washington County, RI
- 77) Hancock, Captain Samuel - Mitchell, Captain West House; Chilmark, Dukes County, MA
- 78) Scrubby Neck Schoolhouse, West Tisbury, Dukes County, MA
- 79) Point Judith Lighthouse, Narragansett, Washington County, RI
- 80) Bailey Farm, Middletown, Newport County, RI
- 81) Beavertail Light, Jamestown, Newport County, RI
- 82) Horsehead/Marbella, Jamestown, Newport County, RI
- 83) Ocean Road Historic District, Narragansett, Washington County, RI
- 84) Dunmere, Narragansett, Washington County, RI
- 85) Puncatest Neck Historic District, Tiverton, Newport County, RI
- 86) Fort Varnum/Camp Varnum, Narragansett, Washington County, RI
- 87) Salters Point, Dartmouth, Bristol County, MA
- 88) Dunes Club, Narragansett, Washington County, RI
- 89) Life Saving Station at Narragansett Pier, Narragansett, Washington County, RI
- 90) The Towers Historic District, Narragansett, Washington County, RI
- 91) Narragansett Pier Multiple Resource Area, Narragansett, Washington County, RI
- 92) The Towers/Tower Entrance of Narragansett Casino, Narragansett, Washington County, RI
- 93) Chappaquiddick Island Traditional Cultural Property, Edgartown, Dukes County, MA
- 94) Brownings Beach Historic District, South Kingstown, Washington County, RI
- 95) Tarpaulin Cove Light, Gosnold, Dukes County, MA

- 96) Clark's Point Light, New Bedford, Bristol County, MA
- 97) Fort Rodman Historic District, New Bedford, Bristol County, MA
- 98) Fort Taber Historic District, New Bedford, Bristol County, MA
- 99) Butler Flats Light Station, New Bedford, Bristol County, MA
- 100) 744 Sconticut Neck Road, Fairhaven Bristol County, MA
- 101) Nobska Point Lighthouse, Falmouth, Barnstable County, MA

The Lessee must execute all aspects of this condition of COP approval consistent with the Section 106 MOA (Stipulation II.C; Stipulation III.C.1 – 6; Attachment 5 *Mitigation Funding Amounts Proposed by Signatories and Consulting Parties*; Attachments 9 and 10: *The Vineyard Sound & Moshup's Bridge Traditional Cultural Property Dukes County, Massachusetts & Atlantic Outer Continental Shelf for federal Tribal Nations and Consulting Parties*; Attachment 11 *Historic Property Treatment Plan for the Revolution Wind Farm: Documentation of Twenty-Six Historic Properties in Rhode Island*; Attachment 12 *Historic Properties Treatment Plan for the Revolution Wind Farm: Nine Historic Properties, Town of Middletown, Newport County, Rhode Island*; Attachment 13 *Historic Properties Treatment Plan for the Revolution Wind Farm, Nine Historic Properties, Town of Aquinnah, Dukes County, Massachusetts*; and Attachment 14 *Historic Properties Treatment Plan for the Revolution Wind Farm: The Gay Head Lighthouse, Town of Aquinnah, Dukes County*). The Annual Certification under condition 7.9 must include reporting associated with Section 106 MOA compliance.

7.9. Annual Monitoring and Reporting on the Section 106 MOA (Planning) (Construction) (Operations) (Decommissioning). By January 31 of each year, the Lessee must submit for BOEM's review a summary report detailing work undertaken pursuant to the Section 106 MOA during the preceding year. The Lessee must address any BOEM comments and, after BOEM's review and agreement, the Lessee must share the summary report with all participating consulting parties identified in Attachment 4 of the Section 106 MOA. The report must include a description of how the stipulations relating to avoidance and minimization measures (Section 106 MOA Stipulations I and II) were implemented; any scheduling changes proposed; any problems encountered; and any disputes and objections received in BOEM's efforts to carry out the terms of the Section 106 MOA. The Lessee may satisfy this reporting requirement by providing the relevant portions of the Annual Certification required under 30 CFR § 285.633.

7.10. Implementation of Post-Review Discovery Plans (Planning) (Construction) (Operations) (Decommissioning). If properties are discovered that may be historically significant or unanticipated effects on historic properties are found, the Lessee must implement the Post-Review Discovery Plans found in Section 106 MOA Attachment 29 *Revolution Wind Export Cable Onshore Substation and Interconnection Facility, North Kingstown, Rhode Island: Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains* and Attachment 30 *Unanticipated Discoveries Plan for Submerged Archaeological Sites, Historic Properties, and Cultural Resources Including Human Remains: Revolution Wind Farm for Lease Area OCS A-0486 Constructions and Operations Plan*.

7.11. All Post-Review Discoveries (Construction) (Operations) (Decommissioning). In the event of a post-review discovery of a property or unanticipated effects to a historic property prior to or during construction, operation, maintenance, or decommissioning of the Project, the Lessee must implement the following actions:

- 7.11.1. Immediately halt seabed-disturbing activities within the area of discovery.
- 7.11.2. As soon as practicable and no later than 72 hours after the discovery, notify BOEM (at renewable_reporting@boem.gov) and BSEE (at env-compliance-arch@bsee.gov and via TIMSWeb) with a written report, describing the discovery in detail including a narrative description of the manner of discovery (e.g., date, time, heading, weather, information from logs); a narrative description of the potential resource, including measurements; images that may have been captured of the potential resource; portions of raw and processed datasets relevant to the discovery area; and any other information considered by the Lessee to be relevant to DOI's understanding of the potential resource. Provide the notification to BOEM and BSEE within 72 hours of its discovery. BOEM and BSEE may request additional information and/or request revisions to the report.
- 7.11.3. Keep the location of the discovery confidential and take no action that may adversely affect the archaeological resource until BOEM has made an evaluation and instructs the Lessee on how to proceed.
- 7.11.4. Conduct any additional investigations and submit documentation as directed by BOEM to determine if the resource is eligible for listing in the National Register of Historic Places (NRHP) (30 CFR § 585.802(b)). The Lessee must satisfy this requirement only if (1) the site has been impacted by the Lessee's Project activities; and/or (2) impacts to the site or to the APE cannot be avoided. If investigations indicate that the resource is potentially eligible for listing in the NRHP, BOEM will instruct the Lessee how to protect the resource or how to mitigate adverse effects.
- 7.11.5. If there is any evidence that the discovery is from a federally recognized Tribal Nation or appears to be a preserved burial site, the Lessee must contact the federally recognized Tribal Nation as identified in the notification lists included in the Post-Review Discovery Plan within 72 hours of the discovery with details of what is known about the discovery and consult with the federally recognized Tribal Nation pursuant to the Post-Review Discovery Plan.
- 7.11.6. If BOEM incurs costs in addressing the discovery, under Section 110(g) of the NHPA, BOEM may charge the Lessee reasonable costs for carrying out preservation responsibilities under OCSLA (30 CFR § 585.802(c)-(d)).

7.12. No Impact Without Approval Emergency Situations (Planning) (Construction) (Operations) (Decommissioning). In the event of an emergency or disaster that is declared by the President or the Governor of Rhode Island, which represents an imminent threat to public health or safety, or creates a hazardous condition due to

impacts from the Project's infrastructure damaged during the emergency and affecting historic properties in the APEs, BOEM with the assistance of the Lessee will notify the consulting federally recognized Tribal Nations, Rhode Island State Historic Preservation Office (SHPO), Massachusetts SHPO, the Advisory Council on Historic Preservation (ACHP), and BSEE of the condition that has initiated the situation and the measures taken to respond to the emergency or hazardous condition in accordance with the Section 106 MOA. BOEM will make this notification as soon as reasonably possible, but no later than 48 hours from when BOEM becomes aware of the emergency or disaster. Should the consulting federally recognized Tribal Nations, Rhode Island SHPO, Massachusetts SHPO, the ACHP, or BSEE desire to provide technical assistance to BOEM, they will submit comments within 7 days from notification if the nature of the emergency or hazardous condition allows for such coordination.

7.12.1. No Impact Without Approval (Planning) (Construction) (Operations) (Decommissioning). The Lessee may not knowingly impact a potential archaeological resource without BOEM's and BSEE's prior concurrence. If a possible impact to a potential archaeological resource occurs, the Lessee must immediately halt operations; report the incident within 24 hours to BOEM and BSEE; and provide a written report to within 72 hours to BOEM and BSEE.

7.13. PAM Placement Review (Construction) (Operations) (Decommissioning). The Lessee may only place PAM systems in locations where an analysis of the results of geophysical surveys has been completed. This analysis must include a determination by a Qualified Marine Archaeologist as to whether any potential archaeological resources are present in the area. This activity may have been performed already as part of the Lessee's submission of archaeological resources reports in support of its approved COP. Except as allowed by BOEM under Stipulation 4.2.6 of Addendum C of the Lease and Section 7.12.1 above, the PAM placement activities must avoid potential archaeological resources by a minimum of 328 feet (100 meters), and the avoidance distance must be calculated from the maximum discernible extent of the archaeological resource. As-placed PAM system plats must be submitted to BSEE via TIMSWeb within 90 days of placement.

7.13.1. If the placement area was not previously reviewed and certified by a Qualified Marine Archaeologist in support of the Lessee's approved COP, a Qualified Marine Archaeologist must certify in an annual letter to BOEM that the Lessee's PAM placement activities did not impact potential historic properties identified as a result of the Qualified Marine Archaeologist's determination.

7.13.2. If PAM placement activities impact potential historic properties identified in the archaeological surveys without BOEM's prior authorization, the Lessee and the Qualified Marine Archaeologist who prepared the archaeological resources report must provide to BOEM a statement documenting the extent of the impacts. This statement must be made to BOEM and BSEE consistent with Stipulation 4.2.7 of Addendum C of the Lease and Section 7.11 above. BOEM may require the Lessee to implement additional mitigation measures as appropriate based on a review of the results and supporting information.

8. CONDITIONS RELATED TO AIR QUALITY CONDITIONS

- 8.1. Reporting (Construction) (Operations) (Decommissioning). The Lessee must submit all monitoring, reporting, and survey requirements related to air quality to BOEM at renewable_reporting@boem.gov, BSEE via TIMSWeb, and the Environmental Protection Agency (EPA) at Timmermann.Timothy@epa.gov. The Lessee must confirm the relevant point of contact prior to reporting and confirmation of reporting receipt.
- 8.2. Sulfur Hexafluoride (SF₆) Leak Rate Monitoring and Detection (Construction) (Operations) (Decommissioning). The Lessee must adhere to International Electrotechnical Commission and applicable requirements in EPA's OCS air permits for SF₆ leak detection and monitoring requirements. The Lessee must also follow manufacturer recommendations for service and repair of the affected breakers and switches and conduct visual inspections of the switchgear and monitoring equipment according to manufacturer recommendations.
 - 8.2.1. The Lessee must create alarms based on the pressure readings in the breakers and switches, so leaks can be detected when substantial SF₆ leakage occurs. Upon a detectable pressure drop that is greater than 10 percent of the original pressure (accounting for ambient air conditions), the Lessee must perform maintenance to fix seals within 14 days or within EPA permit requirements (whichever is earlier). If an event requires removal of SF₆, the affected major component(s) must be replaced with new component(s).
 - 8.2.2. The Lessee must report any detectable pressure drop that is greater than 10 percent as soon as practicable or as specified in the EPA Title V permit. No later than 72 hours after the discovery, the Lessee must notify BOEM and BSEE and provide an estimated timeframe for maintenance or replacement.
 - 8.2.3. The Lessee must provide a summary in the Lessee's Annual Certification under 30 CFR § 285.633 of observed SF₆ leak rates in the past year and a summary of any leaks greater than 0.5 percent and the associated maintenance or repair actions taken and their timeframe from detection to completion.
- 8.3. Air Quality Impacts and Permitting Requirements (Construction) (Operations). The Lessee is required under Clean Air Act § 328 (42 U.S.C. § 7627) to obtain an OCS air permit for OCS sources and must comply with all applicable regulations and permitting requirements under the OCS permit program at 40 CFR part 55. If any requirement in section 8 of these conditions is inconsistent with the terms of EPA's permit, the language in EPA's permit will prevail.

ATTACHMENT 1: LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
ADLS	Aircraft Detection Lighting System
ALARP	as low as reasonably practical
ANSI	American National Standards Institute
APE	Area of Potential Effects
API	American Petroleum Institute
ASLF	Ancient Submerged Landform Features
ASR	Airport Surveillance Radar
BiOp	Biological Opinion
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CBRA	Cable Burial Risk Assessment
CHIRP	compressed high-intensity radiated pulse
CMR	Collision minimization report
COP	Construction and Operations Plan
CVA	Certified Verification Agent
dB	decibel
DGPS	Differential Global Positioning System
DOD	Department of Defense
DOFS	distributed optical fiber sensing
DOI	Department of the Interior
DON	Department of the Navy
DPS	distinct population segment
DTS	desktop study
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FDR	Facility Design Report
FEIS	Final Environmental Impact Statement
FIR	Fabrication and Installation Report
GARFO	Greater Atlantic Regional Fisheries Office
GDP	gross domestic product
GPS	Global Positioning System
HAT	Highest Astronomical Tide
HESD	Habitat and Ecosystem Services Division
HF	high frequency
HPTP	Historic Preservation Treatment Plan
HRG	high resolution geophysical
IEC	International Electric Code

IC	Incident Commander
IFC	issued for construction
IHA	Incidental Harassment Authorization
IMT	Incident Management Team
IOOS	Integrated Ocean Observing System
IR	infrared
ISO	International Organization for Standardization
ITA	Incidental Take Authorization
ITS	Incidental Take Statement
LERA	least expensive radar
LOI	Letter of Intent
NMS	Noise mitigation systems
LNM	Local Notice to Mariners
MARA	Marine Archaeological Resources Assessment
MEC	munitions and explosives of concern
MOA	Memorandum of Agreement
NARW	North Atlantic right whale
NEFOP	Northeast Fisheries Observer Program
NEFSC	Northeast Fisheries Science Center
NHL	National Historic Landmark
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Aerospace Defense Command
NRHP	National Register of Historic Places
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OEM	Original Equipment Manufacturer
OPR	Office of Protected Resources within NMFS
OSPD	Oil Spill Preparedness Division
OSRO	Oil Spill Removal Organization
OSRP	Oil Spill Response Plan
OSS	offshore substation
PAM	Passive Acoustic Monitoring or Passive Acoustic Monitor(s)
PATON	Private Aids to Navigation
PDM	Pile Driving Monitoring
PIT	passive integrated transponder
POWERON	Partnership for an Offshore Wind Energy Regional Observation Network
PSO	Protected Species Observer
QI	Qualified Individual
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung

RAM	Radar Adverse Impact Management
ROD	Record of Decision
RPM	Reasonable and Prudent Measure
SDS	Safety Data Sheets
SF ₆	sulfur hexafluoride
SFV	sound field verification
SHPO	State Historic Preservation Office
SMS	Safety Management System
SROT	Spill Response Operating Team
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
UTC	Coordinated Universal Time
UXO	unexploded ordnance
VHF	very high frequency
WCD	worst-case discharge
WTG	wind turbine generator

Appendix B. OCSLA Compliance Review of the Construction and Operations Plan for the Revolution Wind Farm and Revolution Wind Export Cable Project



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Information Memorandum

To: Elizabeth Klein
Director, Bureau of Ocean Energy Management

From: Karen Baker
Chief, Office of Renewable Energy Programs

Subject: Compliance Review of the Construction and Operations Plan for the Revolution Wind Farm and Revolution Wind Export Cable Project for Commercial Lease OCS-A 0486

1.0 Summary

Subsection 8(p)(4) of the Outer Continental Shelf (OCS) Lands Act (OCSLA), 43 U.S.C. § 1337(p)(4), requires the Secretary of the Interior (Secretary) to consider 12 enumerated factors before authorizing an activity under subsection 8(p) of OCSLA. This memorandum documents the Bureau of Ocean Energy Management's (BOEM) compliance review of the Construction and Operations Plan (COP) for the Revolution Wind Farm (RWF) and Revolution Wind Export Cable (RWE) Project (hereinafter Project) on Commercial Lease OCS-A 0486, and BOEM's consideration of the 12 factors enumerated in subsection 8(p)(4) of OCSLA (hereinafter 8(p)(4) factors).¹ BOEM has determined that the Project² will comply with the Bureau's regulations and that the proposed activities will be carried out in a manner that provides for safety, protection of the environment, prevention of waste, and the other factors listed in subsection 8(p)(4) of OCSLA.

2.0 Background and Project Overview

The Department of the Interior's (DOI's) efforts to consider whether to lease areas offshore Massachusetts and Rhode Island and assess the feasibility of allowing wind energy activities therein began in 2009, approximately 14 years ago.

¹ See M-Opinion 37067, entitled, "*Secretary's Duties under Subsection 8(p)(4) of the Outer Continental Shelf Lands Act When Authorizing Activities on the Outer Continental Shelf*," which provides that Subsection 8(p)(4) of OCSLA "does not require the Secretary to ensure that the goals are achieved to a particular degree, and she retains wide discretion to determine the appropriate balance between two or more goals that conflict or are otherwise in tension." Solicitors' M-Opinions are legal interpretations that are binding on DOI as a whole. Department of the Interior, Departmental Manual, 209 DM 3.1, 3.2A(11) (2020).

² This memo considers the Project as modified by the preferred alternative in the FEIS, Alternative G. Bureau of Ocean Energy Mgmt., BOEM 2023-0038, Revolution Wind Farm and Revolution Wind Export Cable Project Final Environmental Impact Statement, (2023) [hereinafter FEIS], <https://www.boem.gov/renewable-energy/state-activities/revolutionwindfeisvol1-2>.

Subsection 8 (p) (7) of OCSLA, as amended by the Energy Policy Act of 2005 (EPAAct), directs DOI, through the BOEM, to provide for coordination and consultation with the Governor of any state or the executive of any local government that may be affected by a lease, easement, or right-of-way authorizing renewable energy activities on the OCS. BOEM established the BOEM Rhode Island and Massachusetts Intergovernmental Renewable Energy Task Forces in 2009 to help fulfill this obligation in its consideration of potential leasing activities on the OCS offshore Rhode Island and Massachusetts.

On August 18, 2011, BOEM published a Call for Information and Nominations (Call) for commercial leasing offshore Rhode Island and Massachusetts in the *Federal Register*.³ The Call Area was located off the coasts of Rhode Island and Massachusetts beginning approximately 10 nautical miles (nm) south of Newport, Rhode Island, and extending 20 nm seaward. It was approximately 246 square nm and contained 31 whole OCS lease blocks and 10 partial OCS lease blocks. The Call Area was identified by BOEM in consultation with the State of Rhode Island and the Commonwealth of Massachusetts, and further delineated through consultation with Rhode Island and Massachusetts Intergovernmental Renewable Energy Task Forces. The area under consideration for the Call was located on the OCS off the coast of Rhode Island and Massachusetts within the Area of Mutual Interest, as described by a Memorandum of Understanding between the Governors of Rhode Island and Massachusetts. The Call Area was divided into two areas separated by an existing Traffic Separation Scheme, which was excluded from leasing consideration. Additionally, BOEM excluded partial OCS blocks 6867, 6917, and 6918 from leasing consideration in the Call because of unexploded ordnances in the area.

On August 18, 2011, BOEM also published a Notice of Intent (NOI) in the *Federal Register*⁴ to prepare an Environmental Assessment (EA) for Commercial Wind Leasing and Site Assessment Activities on the Atlantic OCS Offshore Rhode Island and Massachusetts. The NOI requested public comments on important environmental issues and alternatives to be considered in the EA; measures (e.g., limitations on activities based on technology, distance from shore, or timing) that would minimize impacts to environmental resources; and socioeconomic conditions that could result from site characterization and site assessment in and around the lease area.

BOEM met three times during 2011 and 2012 with state-led working groups established to facilitate non-governmental consultation: the Rhode Island Fisheries Advisory Board and the Rhode Island Habitat Advisory Board. As a result of the Request for Interest, Call for Information and Nominations, and Area Identification processes, BOEM removed high value fishing areas off of Cox Ledge from the originally identified area in order to avoid specific areas, including shipping lanes and traffic separation schemes, and commercial and recreational fishing areas of interest.

On February 24, 2012, BOEM publicly announced the resulting Wind Energy Area (WEA).⁵ BOEM considered numerous other OCS uses to minimize or eliminate interference to develop the WEA offshore Rhode Island and Massachusetts. BOEM excluded from leasing consideration partial OCS

³ Commercial Leasing for Wind Power on the Outer Continental Shelf (OCS) Offshore Rhode Island and Massachusetts—Call for Information and Nominations (Call), 76 Fed. Reg. 51,383 (Aug. 18, 2011).

⁴ Commercial Wind Lease Issuance and Site Characterization Activities on the Atlantic Outer Continental Shelf (OCS) Offshore Rhode Island and Massachusetts, 76 Fed. Reg. 51,391 (Aug. 18, 2011).

⁵ See Announcement of Area Identification, Commercial Wind Energy Leasing on the Outer Continental Shelf Offshore Rhode Island and Massachusetts (Feb. 24, 2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/AreaID_Announcement_022312.pdf.

blocks with targeted fishing grounds important for commercial fishing in blocks 6914, 6915, 6916, 6964, 6966, 6970, 6971, 7014–7021, 7065–7068, 7070, and 7071. Other key issues identified during the Task Force meetings and the Call and NOI comment period, including North Atlantic right whales, visual and cultural resources, telecommunication cables, and vessel traffic, were analyzed in the EA.

In July 2012, BOEM published a Notice of Availability (NOA) for the EA, which assessed reasonably foreseeable impacts resulting from site characterization activities (including geophysical, geotechnical, archaeological, and biological surveys) and site assessment activities (i.e., meteorological towers and buoys) in the WEA on the OCS offshore Rhode Island and Massachusetts.⁶ BOEM considered the comments received on the EA and, on June 5, 2013, published in the *Federal Register* an NOA for a Revised EA and Finding of No Significant Impact (FONSI).⁷ For a more detailed discussion of the leasing process for Lease OCS-A 0486 and the environmental consultations performed, see Section 1.5 of the Revised EA. The Revised EA explained that BOEM would prepare a separate site-and project-specific National Environmental Policy Act (NEPA) analysis of a proposed project when a lessee submitted a COP.

As a result of these efforts, BOEM held a competitive lease sale in July 2013, pursuant to 30 CFR § 585.211, for certain lease areas within the Rhode Island/Massachusetts WEA.

This lease sale resulted in BOEM's issuance of Commercial Lease OCS-A 0486 to Deepwater Wind New England, LLC. Lease OCS-A 0486 became effective on October 1, 2013, and contains 97,498 acres. On January 16, 2020, BOEM received an application from Deepwater Wind New England, LLC to (1) assign 13,700 acres of OCS-A 0486 to Deepwater Wind South Fork, LLC, which subsequently changed its name to South Fork Wind, LLC (South Fork) and (2) assign Lease OCS-A 0486 to DWW Rev 1, LLC. BOEM approved the lease assignment, which became effective on March 23, 2020, and segregated South Fork to the new lease number OCS-A 0517. On March 24, 2020, DWW Rev 1, LLC, which subsequently changed its name to Revolution Wind, LLC (Revolution Wind), was assigned Lease OCS-A 0486 and retained 83,798 acres from the original lease. Lease OCS-A 0486 does not authorize Revolution Wind to conduct construction activities within the leased area. Under Lease OCS-A 0486 and 30 CFR part 585, Revolution Wind must first submit and receive approval of a COP before any construction activities may take place on the OCS.⁸ Submittal and processing of the COP is governed by the provisions set forth in 30 CFR §§ 585.620 through 585.629.

On March 13, 2020, Revolution Wind submitted a COP to BOEM for review and approval. The COP proposes the development of an offshore wind energy project limited to an area within Lease

⁶ Environmental Assessment for Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Rhode Island and Mass., 77 Fed. Reg. 39,508 (July 3, 2012). The EA did not analyze the development and operation of a wind energy facility since Lease OCS-A-0486 did not authorize the construction of an OCS facility and, at the time the EA was prepared, there was no proposal for a wind energy project that could be meaningfully evaluated under NEPA.

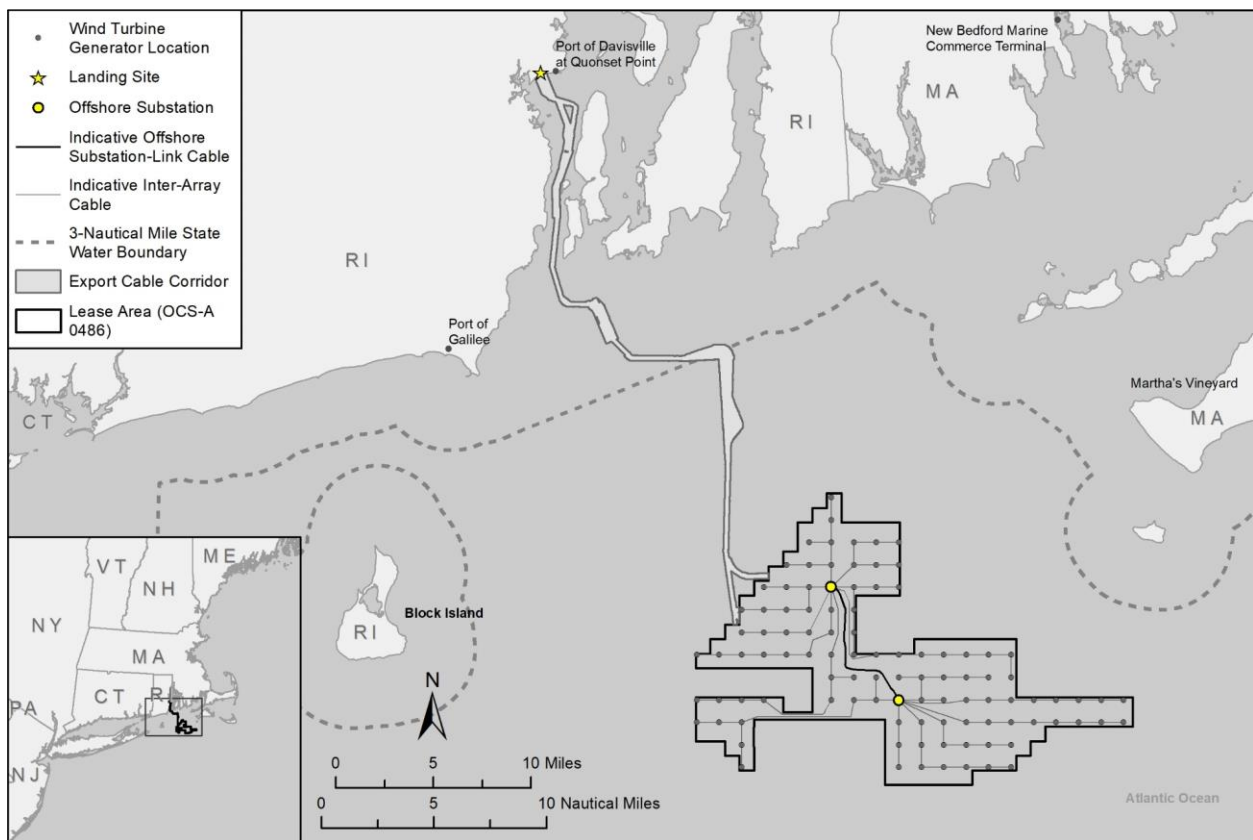
⁷ Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf (OCS) Offshore Rhode Island and Mass., 78 Fed. Reg. 33,908 (June 5, 2013). The revised EA and FONSI are available at https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/BOEM%20RI_M A_Revised%20EA_22May2013.pdf.

⁸ See 30 CFR § 585.600(b).

OCS-A 0486 (Proposed Project), as shown in Figure 1 below. The Proposed Project area is the Lease Area and consists of 83,798 acres.⁹

Revolution Wind has proposed the Project using a Project Design Envelope (PDE) framework, under which multiple aspects of the Project are potentially variable but would remain within the limits defined in the PDE. Within this PDE framework, the Proposed Project (Proposed Action in the Final Environmental Impact Statement [FEIS]) consists of up to 100 wind turbine generators (WTGs), each of which would have an 8-to-12-megawatt (MW) generation capacity, and up to two offshore substations (OSSs). The WTGs will be placed in a grid-like array (with WTGs in rows oriented northeast-southwest and northwest-southeast) within the Lease Area, with spacing between WTGs of 1 nautical mile (nm). An export cable will make landfall in North Kingstown, Rhode Island, connecting to the existing Davisville Substation. The Revolution Wind COP details the proposed construction, operation, and eventual decommissioning of the WTGs, OSS, and associated inter-array and export cabling to shore for the Project, as well as biological and physical survey information.

FIGURE 1 – Proposed Project Area



⁹ 30 CFR § 585.113 defines "Project area" as "the geographic surface leased, or granted, for the purpose of a specific project. If OCS acreage is granted for a project under some form of agreement other than a lease (i.e., a ROW or RUE), the Federal acreage granted would be considered the project area. To avoid distortions in the calculation of the geometric center of the project area, project easements issued under this part are not considered part of the qualified project's area." However, note that the entirety of the Lease Area OCS-A 0486 consists of approximately 83,798 acres.

Alternative G, which fits within the PDE, differs from the Proposed Project in that DOI will allow up to 79 possible positions for the installation of 65 WTGs, which would range in nameplate capacity of 8 to 12 MW. In addition, the turbine layout would include a north-south/east-west orientation with a spacing of 1 nm between turbines, consistent with the United States Coast Guard's (USCG's) recommendations in the Final Massachusetts and Rhode Island Port Access Route Study (MARIPARS).¹⁰ Under Alternative G, the export cable would still make landfall in North Kingston, Rhode Island.

The regulations at 30 CFR § 585.200(b) entitle a lessee to one or more project easements, without further competition, for the purpose of installing transmission and distribution cables and appurtenances on the OCS as necessary for the full enjoyment of the lease. In accordance with 30 CFR § 585.622(b), Revolution Wind requested a Project easement for each export cable as part of its COP on June 30, 2023. The requested Project easement for each cable would pass through approximately 13.6 statute miles on the OCS. The remainder of the RWEC would pass through approximately 21.8 statute miles of state waters. The total length, from Lease OCS-A 0486 to shore, would measure approximately 35.4 statute miles.

3.0 Section 585.628 Review

As noted in Section 2, the regulations at 30 CFR §§ 585.620 through 585.629 govern BOEM's review and processing of COPs. The regulations at 30 C.F.R § 585.628 require BOEM to review the COP and all information provided therein pursuant to 30 CFR §§ 585.626 and 585.627, to determine whether the COP contains all the information necessary to be considered complete and sufficient for BOEM to conduct technical and environmental reviews. Once BOEM determines that the COP is complete and sufficient, BOEM and the Bureau of Safety and Environmental Enforcement (BSEE) conduct a technical review, and BOEM conducts an environmental review. As described below, BOEM's Office of Renewable Energy Programs (OREP) has completed the sufficiency, technical, and environmental reviews of the Revolution Wind COP.

3.1 Completeness and Sufficiency Review

With regard to the regulations pertaining to COPs, 30 CFR § 585.620 provides the general requirements of what must be described in a COP,¹¹ while 30 CFR § 585.621 sets forth what a COP must demonstrate. The regulation at 30 CFR § 585.626 describes what specific information must be included in the COP, including the results of required surveys, as well as other project-specific information, including financial assurance. Pursuant to 30 CFR § 585.627, the Lessee must submit information and certifications necessary for BOEM to comply with NEPA¹² and other relevant laws.

On March 31, 2020, Revolution Wind requested a regulatory departure from the requirements at 30 CFR § 585.626(a)(4)(ii)–(iii) to provide detailed in situ geotechnical data at each proposed foundation location and a minimum of one deep boring (with soil sampling and testing) at each edge

¹⁰ U.S. Coast Guard, USCG 2019-0131, The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study (2020), https://www.navcen.uscg.gov/pdf/PARS/FINAL_REPORT_PARS_May_14_2020.pdf.

¹¹ Section 585.620 provides that a COP must contain information describing all planned facilities that a lessee proposes to construct and use for its project, along with all proposed activities including the proposed construction, operations, and conceptual decommissioning plans, including the anticipated project easement(s); and describe all planned facilities to be constructed and used for the project, including onshore support facilities. *See also* Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Information Guidelines for a Renewable Energy Construction and Operations Plan (2020).

¹² 42 U.S.C. §§ 4321 *et seq.*

of the Project Area at the time of COP submittal. Instead of submitting the in situ geotechnical data with the COP, Revolution Wind proposed to provide the data no later than with its submittal of the Facility Design Report (FDR). OREP's Projects and Coordination Branch (PCB) evaluated the departure request and coordinated BOEM's review. On December 3, 2020, BOEM approved the departure request. The geotechnical information submitted by Revolution Wind at this point was sufficient to allow for review of the COP. Therefore, BOEM approved the departure request, allowing Revolution Wind to submit geotechnical investigations at final foundation locations with or prior to the FDR along with results of geotechnical analyses and foundation design parameters.

On March 13, 2020, Revolution Wind submitted a COP to BOEM for review and approval. On June 24, 2020, PCB verified that the COP included an adequate level of information required in 30 CFR §§ 585.626 and 585.627 for BOEM to begin reviewing the sufficiency of that information. PCB managed BOEM's sufficiency review of the Revolution Wind COP.

OREP has determined that the COP includes all the information required in 30 CFR §§ 585.626 and 585.627 for the Proposed Project, excepting the information described in 30 CFR § 585.626(a)(4), for which BOEM has approved a regulatory departure. If the Proposed Project is approved as modified by Alternative G, then Revolution Wind must submit the following information no later than when it submits its FDR:

- Updated information required in 30 CFR § 585.626(a)(4) geotechnical survey results of the sediment testing program including (1) the results of adequate in situ testing, boring, and sampling at each foundation location, and (2) the results of deep borings within the Project Area, as needed.

3.2 Technical Review

OREP's Engineering and Technical Review Branch (ETRB) reviewed the proposed facilities, Project design, Project activities, shallow hazards, geological conditions, physical and oceanographic conditions, cables, and fabrication and installation details in the COP, and coordinated with the following agencies:

- BSEE, for safety (Safety Management System [SMS]) and Oil Spill Response Plan;
- Federal Aviation Administration (FAA) and National Oceanic and Atmospheric Administration (NOAA), for aviation and radar interference; and
- USCG, for vessel navigation.

Furthermore, ETRB and BSEE reviewed the statement of work and qualification submitted in the COP for the Certified Verification Agent (CVA) nomination. On June 10, 2021, BOEM approved the nomination of DNV GL Denmark A/S (now DNV) to be the CVA for the Project. DNV will review and certify that the Project facilities are designed, fabricated, and installed in conformance with accepted engineering practices, as described in the FDR and the Fabrication and Installation Report (FIR), to be submitted by Revolution Wind if BOEM approves the COP.

As a result of these reviews, ETRB has determined that both the technical information and supporting data provided with the COP meet the requirements of 30 CFR § 585.626 and are sufficient to allow for the safe installation of the Project on the OCS. ETRB has also concluded that the COP proposes the use of properly trained personnel and the best available and safest technology,

pursuant to 30 CFR § 585.621. ETRB provided a memorandum (ETRB Review Memo; Appendix B.1 to the Record of Decision [ROD]), which recommends the approval of the COP subject to ETRB’s proposed conditions (Anticipated Terms and Conditions of COP Approval; Appendix A to the ROD).

On November 3, 2022, Revolution Wind submitted a memorandum to provide information to BOEM regarding key layout feasibility factors, including geotechnical feasibility and the electrical system design. Revolution Wind concluded that 21 of the 100 WTG positions were infeasible due to the number and size of surface boulders in the installation footprint. BOEM conducted an independent review of the information—including engagements with the National Renewable Energy Laboratory (NREL), ETRB, and BOEM’s Economics Division—and determined that the 21 WTG positions identified by Revolution Wind are technically and economically infeasible for use in the RWF.

3.3 Environmental Review

OREP’s Environment Branch for Renewable Energy conducted an environmental review of the COP. On April 30, 2021, BOEM published the NOI to prepare an environmental impact statement (EIS) for Revolution Wind’s COP,¹³ which started BOEM’s formal scoping process pursuant to NEPA. On June 4, 2021, BOEM issued a correction to the NOI with a reopening of the public scoping period through June 11, 2021.¹⁴ The correction addressed and clarified two statements in the NOI regarding the energy capacity of the proposed wind farm and its distance from shore. The NOA of the Draft EIS (DEIS) for the Project was published on September 2, 2022.¹⁵ The U.S. Army Corps of Engineers (USACE), the National Marine Fisheries Service (NMFS), BSEE, USCG, and the U.S. Environmental Protection Agency (USEPA) were cooperating agencies during the development and review of the FEIS. Cooperating state agencies included the Massachusetts Office of Coastal Zone Management, the Rhode Island Coastal Resources Management Council, and the Rhode Island Department of Environmental Management.¹⁶

On July 21, 2023, BOEM published the NOA of the FEIS in the *Federal Register*.¹⁷ The FEIS identified Alternative G as the preferred alternative and included BOEM’s responses to comments on the DEIS in Appendix L. The FEIS found that Alternative G would have negligible to moderate adverse impacts on most resources, including marine mammals. Alternative G would have the potential for major adverse impacts on commercial fisheries and for-hire recreational fishing (depending on the specific type of gear utilized and thus specific type of fisherman affected); cultural resources (depending on the specific resource affected); other uses: scientific research and surveys; and visual resources (depending on the specific resource affected).¹⁸ The FEIS also found that the Project could have, to some extent, beneficial impacts on the following resources: air quality; benthic habitat and invertebrates and cumulative impacts; commercial fisheries and for-hire recreational fishing; demographics, employment, and economics and cumulative impacts; environmental justice; finfish and essential fish habitat and cumulative impacts; land use and coastal infrastructure;

¹³ Notice of Intent to Prepare an Env’t Impact Statement, 86 Fed. Reg. 22,972 (Apr. 30, 2021).

¹⁴ Notice; Reopening of Comment Period & Corrections, 86 Fed. Reg. 30,068 (June 4, 2021).

¹⁵ Notice of Availability of a Draft Env’t Impact Statement, 87 Fed. Reg. 54,248 (Sept. 2, 2022).

¹⁶ For more details, *see* FEIS.

¹⁷ Notice of Availability of a Final Env’t Impact Statement, 88 Fed. Reg. 47,171 (July 21, 2023).

¹⁸ FEIS, Exec. Summary, at ES-9-ES-13 specifics in Ch 3 Affected Environment and Environmental Consequences.

recreation and tourism cumulative impacts; and sea turtles. The 30-day waiting period for the FEIS closes on August 21, 2023.

Several consultations were conducted as part of the environmental review process. On July 21, 2023, NMFS issued a Biological Opinion (BiOp) for the Project under Section 7 of the Endangered Species Act (ESA).¹⁹ The BiOp concluded that the proposed activity is not likely to jeopardize the continued existence of any ESA-listed species under NMFS' jurisdiction. To minimize impacts on ESA-listed species, NMFS provided several Reasonable and Prudent Measures that must be made conditions of approval if the COP is approved.²⁰ BOEM also completed a formal consultation with the U.S. Fish and Wildlife Service (USFWS).²¹ On May 30, 2023, USFWS issued a BiOp for the Proposed Project under Section 7 of the ESA. Using the best available information, the USFWS concurred with BOEM's determination that approval of the COP may affect, but is not likely to adversely affect, federally endangered or threatened northern long eared bat and roseate tern. A jeopardy analysis was conducted for piping plover and rufa red knot and the USFWS issued BiOp concluded "that construction, operation, and decommissioning of the Revolution Wind offshore wind energy project, as proposed, is not likely to jeopardize the continued existence of the Atlantic Coast piping plover or the rufa red knot." BOEM also completed Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and received conservation recommendations for consideration in the FEIS and ROD.²² BOEM also consulted under Section 106 and Section 110(f) of the National Historic Preservation Act (NHPA) and, through that consultation, identified historic properties, including National Historic Landmarks, that may be adversely affected by COP approval, as well as measures to resolve those effects. Consultation under Section 106 of the NHPA concluded with the execution of the Memorandum of Agreement (MOA) on August 18, 2023, among BOEM, Revolution Wind, the Connecticut State Historic Preservation Officer, Rhode Island State Historic Preservation Officer, the New York State Historic Preservation Officer, Massachusetts State Historic Preservation Officer, and the Advisory Council on Historic Preservation. The Tribal Nations invited to sign the MOA as invited signatories include Wampanoag Tribe of Gay Head (Aquinnah), Mashpee Wampanoag Tribe, and Mashantucket Pequot Tribal Nation. The Tribal Nations invited to sign the MOA as Concurring Parties include Shinnecock Indian Nation, Mohegan Tribe of Indians of Connecticut, Narragansett Indian Tribe, The Delaware Tribe of Indians, The Delaware Nation.

Revolution Wind submitted consistency certifications to the States of Rhode Island and Massachusetts under the Coastal Zone Management Act (CZMA).²³ The coastal management programs for Rhode Island and Massachusetts concurred with Revolution Wind's consistency certification, finding that the Proposed Project is consistent to the maximum extent practicable with the enforceable policies of each state's coastal management plan. On May 10, 2023, the

¹⁹ See BiOp Letter from Michael Pentony, Regional Administrator, US Dept of Commerce National Oceanic and Atmospheric Administration NMFS GARFO, to Karen Baker, Chief Office of Renewable Energy Programs, BOEM, Re: Endangered Species Act Section 7 Consultation (July 21, 2023), <https://www.boem.gov/renewable-energy/state-activities/nmfs-esa-consultations> [hereinafter NMFS BiOp].

²⁰ See NMFS BiOp, Section 11.3.

²¹ See BiOp Letter from Audrey Mayer, Field Supervisor New England Field Office, Fish and Wildlife Serv., to Katherine Segarra, BOEM. (May 30, 2023), <https://www.boem.gov/renewable-energy/state-activities/fws-esa-consultations> [hereinafter USFWS BiOp].

²² See EFH Letter from Louis A. Chiarella, Assistant Regional Administrator For Habitat and Ecosystem Services, US Dept of Commerce National Oceanic and Atmospheric Administration NMFS GARFO, to Jessica Stromberg, BOEM (June 16, 2023), <https://www.boem.gov/renewable-energy/state-activities/nmfs-efh-letter-revolution-wind> [hereinafter EFH Letter].

²³ 16 U.S.C. §§ 1451 *et seq.*

Massachusetts Office of Coastal Zone Management's (CZM's) Federal Consistency Review concurrence for the RWF project was issued (CZM # 3121). On May 12, 2023, the Rhode Island Coastal Resources Management Council's (CRMC) issued its CZMA consistency concurrence regarding the RWF Project, subject to mutually agreed-upon conditions (CRMC File No. 2021-06-029).²⁴

4.0 Compliance Review²⁵

The regulations at 30 CFR part 585 set forth responsibilities for both BOEM and Revolution Wind that are similar to those imposed by the 8(p)(4) factors.²⁶ The regulations at 30 CFR § 585.102 require BOEM to ensure that any activities authorized under part 585 are carried out in a manner that provides for 12 enumerated goals. Similarly, 30 CFR § 585.621 requires the COP to demonstrate that Revolution Wind has planned and is prepared to conduct the proposed activities in a manner that conforms to its responsibilities listed in 30 CFR § 585.105(a), as well as seven other goals listed therein. BOEM and Revolution Wind share some of the responsibilities (e.g., ensuring that activities are carried out in a safe manner), while others are the responsibility of either BOEM (e.g., ensuring a fair return to the United States) or Revolution Wind (e.g., using properly trained personnel). The discussion in the following Sections 4.1 to 4.12 provides an overview of how BOEM has assessed the Project in accordance with the 8(p)(4) factors and the regulations at 30 CFR part 585. Because many of these goals are related to the same topic or overlap one another, some are analyzed together.

4.1 Conforms to All Applicable Laws, Regulations, and Lease Provisions of Revolution Wind's Commercial Lease²⁷

Consultations and reviews for the Project under NEPA, ESA, MSA, CZMA, and NHPA have been completed.²⁸ Further, BOEM's conditions of approval for the COP would prohibit Revolution Wind from performing construction activities before obtaining the necessary permits and authorizations, including permits under Section 404 of the Clean Water Act Section and Section 10 of the Rivers and Harbors Act from the USACE and an Incidental Harassment Authorization from NMFS. Section 1.3 of the COP (Regulatory Framework) lists all expected Federal, state, regional (county), and local-level reviews and permits for the Proposed Project.²⁹

4.2 Safety, Best Available and Safest Technology, Best Management Practices, and Properly Trained Personnel³⁰

The Revolution Wind COP proposed the following major offshore components:

- Up to 100 WTGs with nameplate capacity of 8–12 MW;
- Each WTG would be supported by a monopile foundation;
- A network of 72 kilovolt (kV) AC inter-array cables;
- Up to two offshore substations on monopile foundations; and

²⁴ See FEIS, Appendix A (discussing Coastal Zone Management Act concurrences).

²⁵ See 43 U.S.C. § 1337(p)(4) (OCSLA Subsection 8(p)(4)); 30 CFR §§ 585.102, 585.621.

²⁶ See 30 CFR §§ 585.102, 585.621.

²⁷ See *id.* §§ 585.102(b), 585.621(a).

²⁸ See discussion *supra* sec. 3.3.

²⁹ See *also* FEIS.

³⁰ See 43 U.S.C. § 1337(p)(4)(A); 30 CFR §§ 585.102(a)(1), 585.621(b), 585.621(e)–(g).

- Up to two 275-kV HVAC export cables with target burial depth of 4 to 6 ft (1.2 to 1.8 m).

BSEE and the CVA will verify that all major components of the Project, and all planning, design, and construction activities, meet or exceed industry standards and certifications at the FDR/FIR stage, as proposed in the COP.³¹

ETRB determined that the information provided in the COP was sufficient to determine that the Proposed Project uses best available and safest technology, pursuant to 30 CFR § 585.621(e), with the understanding that this determination will be confirmed through agency review of the FDR, FIR, and the SMS.

Safety concern comments (including risk of hurricanes) received on the DEIS are captured in Appendix L of the FEIS. In Section 3.4 of the FEIS (Air Quality), hurricane risk details are explained:

“[t]he Project would be designed in accordance with the International Electrotechnical Commission 61400-1 and 61400-3 standards. These standards require designs to withstand forces based on site-specific conditions for a 50-year return interval (2% chance occurrence in a single year) for the WTGs, which corresponds to a Category 3 hurricane in this area (International Electrotechnical Commission 2019a). This means that the WTGs are designed not merely for average conditions but for the higher end event that is reasonably likely to occur. The newly revised International Electrotechnical Commission 61400-3 standard now also recommends a robustness load case for extreme metocean conditions, where the WTG support structures are checked for a 500-year event (0.2% chance occurrence in a single year), which corresponds to wind gusts at the strength of a Category 5 hurricane, to ensure that the appropriate level of safety is maintained in case of a less likely event (International Electrotechnical Commission 2019b). The Project would be constructed using a certified verification agent to ensure that all design specifications are met. The Project would also be designed in alignment with the findings of the NYSERDA: Offshore Wind Climate Adaptation and Resilience Study (New York State Energy Research and Development Authority [NYSERDA] 2021). It is possible that severe weather could cause blades to fail, but because of the construction design, it is highly unlikely that the towers would topple.”

Furthermore, OREP consulted with BSEE and the USCG on safety requirements during the COP review process. BSEE’s recommendations and relevant requirements have been incorporated into the anticipated terms and conditions of approval for the COP to ensure that this Project is carried out in a safe manner.³² Additionally, oversight of the review of future submissions (e.g., FDR and FIR activities) will allow BSEE to ensure that the “facilities are designed, fabricated, and installed in conformance with accepted engineering practices.”³³

The COP also provides a description of its proposed SMS,³⁴ as required by 30 CFR § 585.627(d). The proposed SMS, which will be finalized following any COP approval, includes a description of the processes and procedures listed in 30 CFR § 285.810(a)–(f), and Revolution Wind’s proposed

³¹ 30 CFR § 285.115(a) (incorporating by reference Am. Petroleum Inst., API RP 2A-WSD, Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms—Working Stress Design (21st ed. 2000); Errata and Supplement 1 (2002); Errata and Supplement 2 (2005); Errata and Supplement 3 (2007)).

³² See *infra*. *Anticipated Terms and Conditions of COP Approval*, Appendix A to the ROD.

³³ See 30 CFR § 285.705(a)(1).

³⁴ See COP vol. I, Appendix E.

implementation thereof. BSEE determined that Revolution Wind's proposals are consistent with acceptable industry practices and standards. Specifically, the SMS provides that all contractors will be fully qualified to perform the roles for which they are contracted, including any prescribed safety standards and awareness training.

Additionally, as discussed in Section 4.9, approval of Alternative G would require, to the extent possible, the design of the Project to be compliant with applicable marking and lighting guidelines issued by the USCG and recommended by BOEM.

4.3 Protection of the Environment and Prevention of Undue Harm or Damage to Natural Resources; Life (Including Human and Wildlife); Property; the Marine, Coastal, or Human Environment; or Sites, Structures, or Objects of Historical or Archaeological Significance³⁵

Minimizing environmental impacts through the assessment of environmental resources is integral to BOEM's planning and leasing phase of offshore wind development. The FEIS determined that the majority of the potential adverse impacts are negligible to moderate. The FEIS concluded that the Project itself would result in major impacts to commercial fisheries and for-hire recreational fishing; cultural resources; other marine uses: scientific research and surveys; and visual resources.³⁶ The FEIS concluded that the Project would result in cumulative major impacts to commercial fisheries and for-hire recreational fishing; cultural resources; demographics, employment, and economics; environmental justice; other marine uses: scientific research and surveys; and visual resources. For all adverse impacts, environmental protection measures and or mitigation measures were identified and will be incorporated in the conditions of COP approval, including measures identified during consultations.

BOEM's efforts to protect the environment and prevent undue harm to the resources listed herein began before Lease OCS-A 0486 was issued to Revolution Wind.³⁷ As described in Section 3.3 above, BOEM analyzed in the FEIS the potential environmental effects of the proposed activities described in the COP. Appendix F of the FEIS specifically references measures to be taken or mitigation measures recommended to protect the environment. BOEM has also engaged in consultations under the ESA, MSA, and NHPA. As a result of the ESA consultation, NMFS issued the BiOp for the Proposed Project on July 21, 2023. The BiOp concluded that approval of the COP is not likely to jeopardize the continued existence of any ESA-listed species or result in the destruction or adverse modification of any critical habitat. NMFS concluded the proposed action may adversely affect but is not likely to jeopardize the continued existence of blue, fin, sei, sperm, and North Atlantic right whales, the Northwest Atlantic distinct population segment (DPS) of loggerhead sea turtles, North Atlantic DPS of green sea turtles, Kemp's ridley, and leatherback sea turtles, shortnose sturgeon, and the five DPS of Atlantic sturgeon. NMFS concluded that the proposed action is not likely to adversely affect giant manta rays, hawksbill sea turtles, Rice's whale, or critical habitat designated for the New York Bight DPS of Atlantic sturgeon. NMFS determined that the project will have no effect on any species of ESA-listed corals, the Gulf of Maine DPS of Atlantic salmon, Gulf sturgeon, Nassau Grouper, the Northeast Atlantic DPS of loggerhead sea turtles, Oceanic whitetip

³⁵ See 43 U.S.C. § 1337(p)(4)(B); 30 CFR §§ 585.102(a)(2), 585.621(d).

³⁶ FEIS, Exec. Summary, at ES-9-ES-13.

³⁷ See *supra* Section 2.0.

shark, smalltooth sawfish, or critical habitat designated for the North Atlantic right whale, or the Northwest Atlantic DPS of loggerhead sea turtles.³⁸

In response to BOEM's formal ESA consultation with USFWS, the service issued a BiOp dated May 30, 2023, concurring with BOEM's determination that the Proposed Project may affect, but is not likely to adversely affect, federally endangered or threatened northern long eared bat and roseate tern. A jeopardy analysis was conducted for piping plover and rufa red knot, and the USFWS issued BiOp concluded "that construction, operation, and decommissioning of the Revolution Wind offshore wind energy project, as proposed, is not likely to jeopardize the continued existence of the Atlantic Coast piping plover or the rufa red knot."³⁹

BOEM also conducted an EFH consultation with NMFS to analyze potential adverse impacts of the Project on EFH.⁴⁰ BOEM analyzed potential adverse impacts of the Project on EFH in an EFH Assessment deemed complete by NMFS on March 23, 2023. NMFS issued a response letter on June 16, 2023, in which they provided conservation recommendations to avoid and minimize impacts from the Proposed Project. BOEM provided a detailed response to NMFS via letter dated August 7, 2023, regarding how each of the conservation recommendations would be applied for the Proposed Project. BOEM fully or partially adopted 19 of the 22 recommended measures. As described in that letter, BOEM did not adopt measures that relate solely to activity that does not require any authorization under OCSLA, as they are beyond BOEM's regulatory authority. Likewise, BOEM did not fully adopt, or only partially adopted, some measures based on technical and economic feasibility concerns.

BOEM initiated Section 106 consultation on April 2, 2021, and implemented the NEPA substitution process being used to fulfill Section 106 obligations pursuant to the 36 CFR 800.8(c). As part of this consultation BOEM invited Federally Recognized Tribes and Consulting Parties to the Section 106 Consultation. BOEM engaged in consultation under Section 106 of the NHPA with 44 consulting parties, including the Advisory Council on Historic Preservation; the State Historic Preservation Officers for Connecticut, New York, Massachusetts, and Rhode Island; the National Park Service; eight federally recognized Tribal Nations (Mashpee Wampanoag Tribe, Shinnecock Indian Nation, Mashantucket Pequot Tribal Nation, Wampanoag Tribe of Gay Head [Aquinnah], Mohegan Tribe of Indians of Connecticut, Narragansett Indian Tribe, Delaware Tribe of Indians, and the Delaware Nation); USACE; Revolution Wind; and several organizations with a demonstrated interest in the affected historic properties.⁴¹ Tribal Government-to-Government meetings were held April 9, 2021; August 2, 2021; August 13, 2021; February 3, 2022; May 2, 2022; June 1, 2022; June 2, 2022; January 24, 2023; and February 2, 2023, as requested by Aquinnah, Mashpee Wampanoag Tribe, and Mashantucket (Western) Pequot Tribal Nation. BOEM staff also met with the Mashpee Wampanoag Tribe, Mashantucket (Western) Pequot Tribal Nation, and the Wampanoag Tribe of Gay Head (Aquinnah) in seven separate meetings (June 28, June 30, July 5, July 7, July 13, July 14, and July 18, 2023). Through those meetings and an additional five consulting party meetings, BOEM

³⁸ See NMFS BiOp, Section 10.

³⁹ See USFWS BiOp, Conclusion.

⁴⁰ EFH Letter from Louis Chiarella, Assistant Regional Administrator For Habitat and Ecosystem Services, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, to Jessica Stromberg, Chief Environmental Branch for Renewable Energy, Bureau of Ocean Energy Mgmt. (June 16, 2023), <https://www.boem.gov/renewable-energy/state-activities/nmfs-efh> [hereinafter EFH Letter].

⁴¹ For a full list of consulting parties, see Attachment 4 of the Section 106 MOA.

identified historic properties that may be adversely affected by activities resulting from COP approval and developed the MOA with measures to resolve those effects.

The COP proposed impact avoidance, minimization, and mitigation measures, which BOEM included as elements of the Project in its environmental analysis and consultations. Measures proposed by Revolution Wind can be found in Section 4.7 of the COP and include measures to avoid, minimize, and mitigate impacts to resources such as air quality, birds, and bats, among others.⁴² If BOEM approves the COP, BOEM will incorporate Revolution Wind’s proposed measures as COP conditions of approval and require Revolution Wind to comply with all measures and commitments resulting from state consistency determinations.

Alternative G also includes mitigation and monitoring measures to avoid or reduce impacts on existing ocean uses and on environmental and socioeconomic resources associated with construction, operation, and maintenance activities across the various resource areas analyzed in the FEIS. Tables F-2 and F-3 in Appendix F of the FEIS contains resource-by-resource details on mitigation and monitoring measures considered for Alternative G.

4.4 Prevention of Waste and Conservation of Natural Resources⁴³

Natural resources are defined in 30 CFR § 585.113 to “include, without limiting the generality thereof, renewable energy, oil, gas, and all other minerals (as defined in Section 2(q) of OCSLA), and marine animal and marine plant life.” In this Section 4.4 analysis, BOEM is focused on the prevention of waste and conservation of natural resources only in the context of *wind energy resources, oil and gas, and marine minerals*. While reviewing this COP, BOEM considered how the Proposed Project would prevent waste by considering the location, installation, and operation of wind energy facilities proposed in the COP. Discussion of the conservation of *marine animal and plant life* can be found in Sections 3.3 and 4.3 of the Revolution Wind COP and the FEIS (Section 3, Affected Environment and Environmental Consequences), both of which consider how BOEM addresses the Project’s impacts on the marine environment. BOEM determined that the Project conserves natural marine animal and plant life consistent with 43 U.S.C. § 1337(p)(4)(B), 30 CFR §§ 585.102(a)(2) and 585.621(d). See Section 4.3, above.

Lease OCS-A 0486 was the result of a comprehensive planning process, as discussed in Section 1.1 and Appendix A of the FEIS. The multiple stages of the planning process evaluated natural resources in the region and removed from consideration areas that would be incompatible with renewable energy activities in the area covered by Lease OCS-A 0486.⁴⁴ The analysis conducted in Appendix E (E-17) and Appendix E1 (E1-146 through E1-150) of the FEIS concluded that the Project would result in negligible impacts on non-energy marine minerals (primarily sand and gravel) because the Project would avoid mineral leases, sand and gravel leases and borrow areas, and ocean disposal areas. There are no existing oil and gas leases in the Atlantic OCS at this time, and the Atlantic is no longer under consideration for leasing in BOEM’s ongoing process to develop the next national OCS

⁴² COP vol. I, § 4.7; Construction and Operations Plan Revolution Wind Farm (March 1, 2023), <https://www.boem.gov/revolution-wind-cop-volume-i>.

⁴³ See 43 U.S.C. §§ 1337(p)(4)(C)–(D); 30 CFR §§ 585.102(a)(3)–(4), 585.105(a).

⁴⁴ See Announcement of Area Identification, Commercial Wind Energy Leasing on the Outer Continental Shelf Offshore Rhode Island and Massachusetts (Feb. 24, 2012), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/AreaID_Announcement_022312.pdf.

oil and gas leasing program (per the proposed program announced on July 1, 2022). Therefore, there is no evidence that the Project will waste oil, gas, or other mineral resources.

The proposed COP reflects current industry practices (e.g., equipment, design, and orientation) for the region in which the Project will be located. The mitigation measures to be adopted with the selection of Alternative G strike a rational balance between deconflicting OCS uses and maximizing the harvesting of the wind energy resource in the area where the Project is proposed to be located. Indeed, Alternative G is consistent with the “developers’ agreement” (discussed further in Section 4.7), in which Revolution Wind proposed 1 x 1-nm spacing in an east-west/north-south formation to prevent irregular transit corridors, despite significant reductions in their resulting area available for offshore wind development.⁴⁵

4.5 Coordination with Relevant Federal Agencies⁴⁶

Throughout BOEM’s regulatory process, BOEM engaged with relevant Federal agencies to obtain expert advice, comply with regulatory requirements, and ensure proper coordination. Documentation of this coordination with Federal agencies through BOEM’s Intergovernmental Renewable Energy Task Force meetings, Habitat Working Groups, Fisheries Working Groups, and public meetings from the early pre-lease planning stages to the Area Identification process (which resulted in the final WEA and, in turn, the Lease Area for the RWF Project) can be found in Sections 1.1 through 1.5 and Appendix A of the FEIS. Throughout the environmental and technical review of the COP, BOEM contacted and met with various Federal agencies, including BSEE, the Department of Defense (DOD), the Department of the Navy (DON), EPA, USACE, USFWS, NOAA, the North American Aerospace Defense Command (NORAD), the United States Air Force (USAF), USCG, the Federal Aviation Administration (FAA), and the National Park Service (NPS). During the EIS process, BOEM met with the Cooperating and Participating agencies monthly as part of the Offshore Wind Permitting Subgroup meeting, as well as other individual agency meetings. In addition, BOEM hosted three virtual public scoping meetings and a total of five public hearings (three in-person and two virtual public hearings) for the DEIS (<https://www.boem.gov/renewable-energy/state-activities/revolution-wind>).⁴⁷ Furthermore, both NOAA and the USACE have extensively participated in the preparation of the FEIS and have indicated their intention to adopt the FEIS and sign a joint ROD with BOEM.

4.6 Protection of National Security Interests of the United States⁴⁸

At each stage of the regulatory process involving Lease OCS-A 0486, BOEM has consulted with the DOD for the purposes of assessing national security considerations in its decision-making processes. On August 18, 2011, BOEM published a “Call for Information and Nominations for Commercial Leasing for Wind Power on the OCS Offshore Rhode Island and Massachusetts” in the *Federal Register* (under Docket ID: BOEM-2011-0049) to help BOEM determine whether competitive interest exists in the identified Call Area offshore Rhode Island and Massachusetts. The Call also requested information from the public on issues relevant to BOEM’s review of nominations for potential leasing in the area. The Call Area was identified through consultation with BOEM’s Rhode

⁴⁵ See Letter from Equinor Wind US, Eversource Energy, Mayflower Wind, Orsted North America Inc., and Vineyard Wind LLC, to Michael Emerson, Director, Marine Transportation Systems (CG-5PW), U.S. Coast Guard (Nov. 1, 2019).

⁴⁶ See 43 U.S.C. § 1337(p)(4)(E); 30 CFR § 585.102(a)(5).

⁴⁷ See FEIS, Appendix A (detailing consultation and coordination process with other Federal and state agencies).

⁴⁸ See 43 U.S.C. § 1337(p)(4)(F); 30 CFR §§ 585.102(a)(6), 585.621(c).

Island and Massachusetts Renewable Energy Task Forces (which includes Federal, state, and Tribal government partners, including DOD, NMFS, and the States of Massachusetts and Rhode Island) and using information gathered by the State of Rhode Island in its Special Area Management Plan. Furthermore, BOEM consulted with DOD on the Revised EA (described above in Section 4.3), which examined the potential environmental effects of issuing commercial wind energy leases and approving site assessment activities in the Rhode Island/Massachusetts WEA. Section 4.1.3.2 of the EA discusses military activities and aviation within the WEA. Following BOEM's consultation with the DOD on the Proposed Action to issue leases in the entire WEA, the DOD concluded that site-specific stipulations, designed in consultation with the DOD, could mitigate the impact of site characterization surveys and the installation, operation, and decommissioning of meteorological towers and buoys on the Navy's training areas and other DOD activities in the WEA. Therefore, when addressed through coordination with the DOD, impacts would be negligible and avoidable.⁴⁹

While reviewing the COP, BOEM coordinated with DOD to develop measures necessary to safeguard against potential liabilities and impacts on DOD activities. BOEM requested that the Military Aviation and Installation Assurance Siting Clearinghouse (DOD Clearinghouse) coordinate within the DOD a review of the COP. As a result of this review, DOD identified impacts to the mission of NORAD's radar operations. BOEM and the DOD Clearinghouse coordinated to address these concerns and to avoid or mitigate them. The DOD Clearinghouse requested the specific mitigation measures listed below to be accomplished by the Lessee via entering into an agreement with the DOD with the following conditions:

- 1) The Lessee will notify NORAD 30–60 days ahead of Project completion and when the Project is complete and operational for Radar Adverse Impact Management (RAM) scheduling;
- 2) The Lessee will contribute \$80,000 towards the execution of the RAM;
- 3) To mitigate potential impacts on the DON's operations, the Lessee must coordinate with the DOD/DON on any proposal to utilize distributed fiber-optic sensing technology as part of the Project or associated transmission cables; and
- 4) Before entering any designated defense operating area, warning area, or water test area for the purpose of carrying out any survey activities under the approved COP, the Lessee must enter into an agreement with the commander of the appropriate command headquarters to coordinate the electromagnetic emissions associated with such survey activities. The Lessee must ensure that all electromagnetic emissions associated with such survey activities are controlled as directed by the commander of the appropriate command headquarters. The Lessee must provide BOEM with a copy of the agreement within 15 calendar days of the start of the agreement.

To protect the security interests of the United States, BOEM has included these measures as conditions of approval in Appendix A of the ROD.

⁴⁹ See Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, OCS EIS/EA BOEM 2013-1131, Com. Wind Lease Issuance and Site Assessment Activities on the Atl. Outer Continental Shelf Offshore Rhode Island and Mass: Revised Env't Assessment (2013), https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Renewable_Energy_Program/State_Activities/BOEM%20RI_M_A_Revised%20EA_22May2013.pdf.

The Lessee's lease also includes a provision allowing for BOEM to suspend operations in accordance with Suspension of Operations for National Security or Defense Purposes as described in Section 3.2 of Lease OCS-A 0486.⁵⁰

4.7 Protection of the Rights of Other Authorized Users of the OCS⁵¹

BOEM must ensure that activities authorized by the COP provide for protection of the rights of other authorized users of the OCS. "Authorized users of the OCS" means other users authorized by BOEM to conduct OCS activities pursuant to any OCS lease, easement or grant, including those authorized for renewable energy, oil and gas, and marine minerals.⁵² BOEM's regulatory authority allows the agency to protect the rights of other authorized users by virtue of its right to determine the location of leases, easements, and grants issued and, thereafter, to approve, disapprove, or require modification of plans to conduct activities on such leases, easements, and grants. Approval of Alternative G, including the Project easement, will not result in adverse impacts to rights granted by BOEM pursuant to any other OCS lease or grant, including leases or grants for renewable energy, oil and gas, or marine minerals. The activities that would be authorized by the COP do not restrict equitable access and sharing of the seabed in a manner that significantly interferes with those parties' authorized uses.

Specifically, there are no nearby oil and gas leases or grants or deposits of sand, gravel, and shell resources subject to 43 U.S.C. § 1337(k)(2) (OCSLA) that would be affected by the activities proposed in the COP. Though there are eight adjacent and nearby wind energy leases comprising the Massachusetts and the Rhode Island/Massachusetts WEAs, the five New England offshore wind leaseholders holding these leases (including Revolution Wind) entered into the developers' agreement to establish a regional 1 x 1-nm wind turbine layout across their respective leases. This layout is consistent with Alternative G and would arrange the WTGs in an east-west/north-south orientation and require a minimum spacing of 1 nm between the WTGs.

4.8 A Fair Return to the United States⁵³

BOEM has determined that the high bid resulting from the lease auction and terms of the lease provide a fair return to the United States.

On July 31, 2013, BOEM auctioned the Rhode Island/Massachusetts WEA, which represented the nation's first competitive offshore wind lease sale. BOEM auctioned the area as two leases, referred to as the North Lease Area (Lease OCS-A 0486) and the South Lease Area (Lease OCS-A 0487). The North Lease Area consisted of about 97,500 acres, and the South Lease Area consisted of about 67,250 acres. Deepwater Wind New England LLC was the winner of both lease areas because they submitted the bid with the highest As-Bid Price. The auction received \$3,838,288 in high bids and lasted one day, consisting of 11 rounds. This amount included \$748,827 in non-monetary credit and \$3,089,461 in cash bid for both lease areas. At the time of the lease sale, BOEM determined that the minimum bid for these lease areas constituted a fair return to the United States, in addition to

⁵⁰ Commercial Wind Lease OCS-A 0486, <https://www.boem.gov/Renewable-Energy-Program/State-Activities/RI/Executed-Lease-OCS-A-0486.aspx>.

⁵¹ See 43 U.S.C. § 1337(p)(4)(G); 30 CFR § 585.102(a)(7).

⁵² BOEM's Marine Minerals Program manages Outer Continental Shelf mineral leasing (primarily sand and gravel) for coastal restoration, and commercial leasing of gold, manganese, and other hard minerals.

⁵³ See 43 U.S.C. § 1337(p)(4)(H); 30 CFR § 585.102(a)(8).

allowing for non-monetary factors to be considered. As published in the *Federal Register* notice for this lease sale,⁵⁴ the minimum bid for the South Lease Area was \$1 per acre, or \$67,252. The minimum bid for the North Lease Area was \$2 per acre, or \$194,996. Deepwater Wind New England's winning monetary bid exceeded these minimum bids at \$18.75 per acre across both lease areas, and thereby exceeded fair return for the United States on that basis alone. This monetary return is in addition to the non-monetary factors.⁵⁵

Lease payments are enumerated in Lease OCS-A 0486. Addendum "B" of Lease OCS-A 0486 requires payment of annual rent calculated per acre or fraction thereof. Rental payments compensate the public for lease development rights and serve as an incentive to timely develop the lease during the period before operations. The annual rent for 83,798 acres is \$251,394. Once a project begins commercial generation of electricity, the Lessee must pay an operating fee, calculated in accordance with the formula found in Addendum "B" of Lease OCS-A-0486 and BOEM's regulations.⁵⁶ The operating fee compensates the public for offshore wind development on OCS submerged lands and the associated electricity generated and sold. Upon COP approval and annually thereafter, Revolution Wind would be required to submit its first project-easement rent payment, calculated based on the acreage of the easement and the formula provided at 30 CFR § 585.500(c)(5).

4.9 Prevention of Interference with Reasonable Uses of the OCS, the Exclusive Economic Zone, the High Seas, and the Territorial Seas; Does Not Unreasonably Interfere with Other Uses of the OCS, Including National Security and Defense⁵⁷

Under OCSLA and its implementing regulations, the Secretary ensures that any authorized activities are carried out in a manner that provides for the prevention of interference with reasonable uses (as determined by the Secretary) of the exclusive economic zone, the high seas, and the territorial seas;⁵⁸ and that activities authorized by the Secretary will "not unreasonably interfere with other uses of the OCS."⁵⁹

Throughout the planning and leasing process for Lease OCS-A 0486, as well as the NEPA process for the COP review, BOEM considered numerous other OCS uses in order to minimize or eliminate interference. To develop the Rhode Island/Massachusetts WEA, BOEM worked closely with the Joint Rhode Island/Massachusetts Intergovernmental Task Force, Federal agencies, federally recognized Tribes, the public, and other stakeholders between November 2009 and January 2013. As a result, BOEM selected a lease area that struck a rational balance between identifying an area suitable for wind energy development and preventing interference with other reasonable uses of the OCS. Moreover, BOEM specifically selected the Lease Area "to reduce potential use conflicts between the wind energy industry and fishermen[,] since the area does not have high revenue

⁵⁴ See Atlantic Wind Lease Sale 2 (ATLW2) Commercial Leasing for Wind Power on the Outer Continental Shelf Offshore Rhode Island and Massachusetts—Final Sale Notice, 78 Fed. Reg. 33,898 (June 5, 2013).

⁵⁵ The Final Sale Notice for Sale number ATL W-2 included two options for non-monetary credits. A Power Purchase Agreement of 30 MW was eligible for up to a 25% credit and a Joint Development Agreement was eligible for a 20% credit. The credit was only applicable to the bid for the highest price lease area. In the case of Deepwater Wind New England's winning bid, non-monetary credits totaling \$748,827 (20% of \$3,744,135) were applied.

⁵⁶ 30 CFR § 585.506.

⁵⁷ See 43 U.S.C. § 1337(p)(4)(I); 30 CFR §§ 585.102(a)(9), 585.621(c). It is worth noting that approval of a COP would not restrict the legal rights of others to conduct reasonable uses of the exclusive economic zone, the high seas, and the territorial sea (e.g., innocent passage, fishing).

⁵⁸ See 43 U.S.C. § 1337(p)(4)(I); 30 CFR § 585.102(a)(9).

⁵⁹ See 30 CFR § 585.621(c).

intensity compared to nearby waters.⁶⁰ As part of the scoping comments received for the EIS, reduction of visual impacts was a concern identified by Tribes and led to multiple alternatives developed and analyzed in the EIS, as described in Sections 2 and Appendix K of the FEIS.

During the NEPA process for the COP, BOEM assessed alternatives and mitigation measures that could further avoid, minimize, or mitigate impacts to other OCS uses—including sea lanes and navigation, aviation, fishing activities, and NOAA scientific research and surveys—as well as visual and cultural impacts. The discussion below summarizes how BOEM considered these other OCS uses in the Lease Area and the actions taken to ensure that the proposed activities, if approved, would be carried out in a manner that provides for the prevention of interference with those uses.

- **Navigation and Vessel Traffic.**⁶¹ The major ports in the vicinity of the Proposed Project include the Port of New London, New Bedford, Paulsboro Marine Terminal, Port of Brooklyn, Port of Providence, Port of Davisville, Port of Newport, and Port of Norfolk (COP Table 3.3.10-1 and FEIS Table 3.11-1). These ports serve the commercial fishing industry, passenger cruise lines, cargo, and other maritime activities. The proposed construction hub for components of the Proposed Project or operations and maintenance include the Port of Montauk, Port Jefferson, Port of Brooklyn, Port of Davisville and Quonset Point, and Cashman Shipyard (COP Table 3.3.10-1). The primary vessel traffic and commercial shipping lanes to these ports are outside the Project Area.

The navigation risk assessment prepared for the Project in Appendix R of the COP shows that it is technically feasible to navigate and maneuver fishing vessels and mobile gear through the Lease Area.⁶² The foregoing is consistent with USCG’s determination that, if the Massachusetts/Rhode Island WEA turbine layout is developed along a standard and uniform grid pattern, formal or informal vessel routing measures would not be required, and, as such, a grid pattern will result in the functional equivalent of numerous navigation corridors that can safely accommodate both transits through and fishing within the WEA.⁶³ In addition, the USCG’s Final MARIPARS evaluated vessel traffic through the lease areas and concluded that: “(1) lanes for vessel transit should be oriented in a northwest to southeast direction, 0.6 [nautical miles] NM to 0.8 NM wide. This width will allow vessels the ability to maneuver in accordance with the International Regulations for Preventing Collisions at Sea while transiting through the Rhode Island/Massachusetts WEA; (2) lanes for commercial fishing vessels actively engaged in fishing should be oriented in an east to west direction, 1 nm. wide; and (3) lanes for USCG search and rescue operations should be oriented in a north to south and east to west direction, 1 NM wide. This will ensure two lines of orientation for USCG helicopters to conduct search and rescue operations.”⁶⁴

⁶⁰ See FEIS, Section 3.9.2.

⁶¹ See FEIS, Section 3.16.

⁶² See FEIS, Section 3.16.

⁶³ See Port Access Route Study: The Areas Offshore of Mass. and R.I., Notice of Availability, 85 Fed. Reg. 31,792 (May 27, 2020) (MARIPARS). By letter dated June 29, 2020, the Responsible Offshore Development Alliance (RODA) requested corrections to MARIPARS, citing five perceived errors in the study. The USCG reviewed RODA’s request for corrections and, by letter dated October 27, 2020, advised RODA of its conclusion that neither retraction nor correction of information was warranted. BOEM’s subject matter expert reviewed the USCG response and observed no facial errors that would indicate that the USCG was incorrect. Therefore, BOEM has no reason to believe that the conclusions in MARIPARS are incorrect.

⁶⁴ U.S. Coast Guard, USCG 2019-0131, The Areas Offshore of Massachusetts and Rhode Island Port Access Route Study (2020), https://www.navcen.uscg.gov/pdf/PARS/FINAL_REPORT_PARS_May_14_2020.pdf.

As described in the FEIS alternatives, Revolution Wind has committed to developing a mariner communication plan to inform the USCG, harbor masters, commercial and recreational fisheries, among others, of construction and maintenance activities and vessel movement.⁶⁵ If the COP is approved, BOEM will require Revolution Wind to (1) obtain USCG approval for private aids to navigation to be installed and (2) coordinate with the USCG District 1 so that, to the extent possible, the FDR is consistent with the recommendations provided in the marking and lighting guidelines published by the USCG District 1⁶⁶ and BOEM⁶⁷ and in chapter 4, section G of *Aids to Navigation Manual (COMDTINST Manual (CIM 16500.7A))*.

- **Aviation and Air Traffic.**⁶⁸ Alternative G would allow the installation of 65 WTGs with maximum blade tip heights of up to 853 feet above mean sea level to the area. The addition of these structures would increase navigational complexity and could change aircraft navigation patterns for aircraft flying at low altitudes and for airports in the vicinity, increasing collision risks for some aircraft during the Proposed Action's operational timeframe. However, more than 90% of existing air traffic in the analysis area would occur at altitudes that would not be impacted by the presence of WTGs. Major airports serving the region include Boston Logan International Airport, located approximately 100 miles northeast of the Project; T.F. Green Airport in Providence, Rhode Island, located approximately 50 miles north of the Project; and Montauk Airport in Montauk, New York, approximately 30 miles west of the RWF and 9 miles north of the offshore RWEC. The closest public airports to the Project are Nantucket Memorial Airport, approximately 55 miles east on Nantucket; Martha's Vineyard Airport, approximately 32 miles northeast on Martha's Vineyard; Block Island State Airport, approximately 20 miles west on Block Island; and Quonset State Airport, approximately 2,600 ft east of the southeast corner of the landfall envelope.

The FAA has established methods for marking potential obstructions, mitigating potential impacts, and notifying aviation interests about any changes to airspace management. Implementation of these standard procedures is required within FAA jurisdiction and would reduce risks associated with impacts from structures on aviation and air traffic. As stated in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*, BOEM recommends consistency with FAA conditions for WTGs beyond FAA jurisdiction. If the COP is approved, BOEM would require, to the extent possible, Revolution Wind's FDR to be consistent with the recommendations in the *Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development*.⁶⁹

⁶⁵ See FEIS, Section 3.16.2.

⁶⁶ Dep't of Homeland Sec., U.S. Coast Guard, Local Notice to Mariners, Dist. 1, Week 15/21, Coastal Waters from Eastport, Me. to Shrewsbury, N.J., <https://www.navcen.uscg.gov/pdf/lnms/lnm01152021.pdf>.

⁶⁷ Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Dev. (2021), <https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf>.

⁶⁸ See FEIS, Appendix E2, Section 3.17.

⁶⁹ Bureau of Ocean Energy Mgmt., Office of Renewable Energy Programs, Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Dev. (2021), <https://www.boem.gov/sites/default/files/documents/renewable-energy/2021-Lighting-and-Marking-Guidelines.pdf>.

- **Commercial Fisheries and For-Hire Recreational Fishing.**⁷⁰ Federally permitted fishing occurs in the RWF and RWEC. NMFS has issued permits for approximately 4,300 vessels that are currently engaged in various commercial and for-hire recreational fisheries in the Northeast Region (Virginia to Maine). Of these federally permitted vessels, an average of 288 per year (approximately 7 percent of vessels) have reported fishing in the RWF.⁷¹ NMFS data from 2008 to 2019 shows that most fisheries source less than 1 percent of their income from the Project Area, with exception of the skate fishery which sources 1.3%.⁷² Tables G-CF59 through G-CF67 in Appendix G of the FEIS present commercial fishing revenue information for (1) the Lease Area and (2) the Lease Area and along the RWEC under Alternative G based on the data for 2008–2019 and 2008–2021. The FEIS found that Alternative G would result in short term to long term and negligible to major adverse impacts, with the duration and intensity of impacts varying by Project phase and fishery and fishing operations due to differences in target species, gear type, and predominant location of fishing activity.⁷³ The FEIS also found that impacts from climate change trends, fisheries management activities, and the presence of offshore structures would result in long-term major impacts to commercial fisheries and for-hire recreational fishing.⁷⁴ The offshore wind factors that contributed to these impact determinations were mainly driven by the presence of structures and the resulting navigational hazards, space-use conflicts, and gear loss and damage.

It is important to clarify that approval of the Proposed Project would not limit the right to navigate or fish within the Project Area. That said, some Project activities and components (e.g., foundations, cable protection measures) are expected to impact some types of fishing within the RWF.⁷⁵ For example, temporary safety zones may be established in coordination with the USCG around active construction for the safety of the Project and the public. During this time, all fishing and transit would need to avoid the construction zone. During the operational period, fishing and transit would be permitted; however, some larger vessel size classes and/or vessels towing fishing gear may choose to avoid foundations due to operational concerns. It is anticipated that vessel operators that choose to avoid the area will fish or transit in other locations. Static gear fishing—including hook and line, lobster and crab traps, and gillnets—are not anticipated to have the same operational constraints as mobile gear fishing, although fishing methodology (e.g., direction of setting the gear and/or length of set gear) may need to be adjusted for fishing within the Project Area.

While BOEM expects that, with time, many fishermen will adapt to the spacing and be able to fish successfully in the RWF, BOEM has identified several ways to reduce the level of interference that the Project would have with commercial fisheries. For instance, Alternative G will require an east-west/north-south project layout with 1 nm between WTGs. This layout reduces interference with commercial fisheries, since the layout is representative of the traditional fishing arrangements in the area (e.g., mobile gear and fixed gear fishermen would fish in a nearly east-west orientation along alternating latitudinal lines).⁷⁶ In addition,

⁷⁰ See FEIS, Section 3.9.

⁷¹ See FEIS, Appendix G, Table G-CF2.

⁷² See FEIS, Appendix G, Table G-CF59.

⁷³ See FEIS, Section 3.9.2.5.

⁷⁴ See FEIS, Section 3.9.2.5.

⁷⁵ See FEIS, Section 3.9.2.5.

⁷⁶ See FEIS, Section 3.9.2.2.2.

Revolution Wind would develop a mariner communication plan, limit construction activities to periods of good weather conditions, and request the USCG implement temporary safety zones around the locations with active construction.

Concerning potential loss of revenues, it should be noted that Revolution Wind will be establishing the following compensation/mitigation funds to address expected impacts to fisheries:⁷⁷

- A gear loss and revenue compensation fund for fishing interests over the 25-year operations term and 5-year decommissioning period of the Project as directed in the ROD Appendix A. The calculations are included in the ROD Appendix A and are based on NOAA data from the years 2008–2018, except where state-negotiated funds, listed below, are greater than BOEM’s requirements. In that case, the state’s revenue may be omitted from the calculation described in BOEM’s Fisheries Mitigation Guidance and Section 6.1.3 of the Terms and Conditions of COP approval.
 - Rhode Island – \$12,000,000 Compensation Fund; \$300,000 Coastal Community Fund; \$333,333 for the “Rhode Island Navigational Enhancement and Training Program;” and \$300,000 in funding for an impacts study.
 - Massachusetts – \$6,425,000 Compensation Fund; \$400,000 Coastal Community Fund; and up to \$500,000 for “Navigational Enhancement and Training Funding” to fund claims made through the Navigational Enhancement and Training Program.

These funds generally cover two areas: (1) financial compensation for lost income and gear loss as a result of the Project’s construction and operation; and (2) programs to support future compatibility of offshore wind facilities and fishing activity.

Including all the measures described above would mitigate impacts the Project is expected to have on commercial fisheries and for-hire fisherman and will prevent unreasonable interference with said fishing interests.

- **Other marine uses, scientific research and surveys.**⁷⁸ As described in Section 3.17.1.4 of the FEIS, the Revolution Wind Lease Area overlaps with current fisheries management, protected species, and ecosystem monitoring surveys conducted by or in coordination with NOAA’s Northeast Fisheries Science Center. NOAA Fisheries and BOEM have developed the NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region (Hare et al. 2022) to address these adverse impacts. As described in section 3.17.2, the Project will have major adverse impacts on NMFS scientific surveys.

⁷⁷ As applicable, these compensation/mitigation funds must also be established in accordance with consistency certifications issued for the Project under the Coastal Zone Management Act. Revolution Wind must submit annual certifications to BOEM, beginning on the second anniversary of the Project’s commercial operation date. The certification must attest that the compensation/mitigation funds have been established and are currently processing claims/providing assistance to mitigate impacts to fisheries. The certification must be signed by Revolution Wind’s Lease Representative.

⁷⁸ See FEIS, Section 3.17.1.4.

There are 14 NMFS scientific surveys that overlap with wind energy development in the northeast region. Nine of these surveys overlap with the Project. BOEM is including condition 6.3 in ROD Appendix A to address this issue. Consistent with NMFS and BOEM Survey Mitigation strategy actions 1.3.1, 1.3.2, 2.1.1, and 2.1.2 in the *NOAA Fisheries and BOEM Federal Survey Mitigation Implementation Strategy - Northeast US Region*, the Lessee must submit to BOEM a survey mitigation agreement between NMFS and the Lessee. The survey mitigation agreement must describe how the Lessee will mitigate the Project impacts on the nine NMFS surveys. The Lessee must conduct activities in accordance with such agreement. If the Lessee and NMFS fail to reach a survey mitigation agreement, then the Lessee must submit a survey mitigation plan to BOEM.

- **National Security and Defense.** As explained in Section 4.6, BOEM has consulted extensively with the DOD. If BOEM approves the COP, BOEM will include in any COP approval the mitigation measures identified as a result of said consultations.

4.10 Consideration of (1) the Location of, and Any Schedule Relating to, a Lease or Grant Under This Part for an Area of the OCS, and (2) Any Other Use of the Sea or Seabed, Including Use for a Fishery, a Sealane, a Potential Site of a Deepwater Port, Navigation⁷⁹

For a discussion on how BOEM selected the Lease Area, see Section 1.1. Approval of the COP is not expected to adversely affect the development of adjoining lease areas. Also, as noted above, Alternative G is consistent with the “developers’ agreement,” which proposed 1 x 1-nm spacing in an east-west/north-south formation to prevent irregular transit corridors.⁸⁰ Further, there are currently no scheduled lease sales or deepwater ports proposed in the vicinity of the Project Area.

For a discussion on how BOEM considered potential conflicts with fisheries, sealanes, navigation, and aviation, see Section 4.9.

4.11 Public Notice and Comment on Any Proposal Submitted for a Lease or Easement⁸¹

For a detailed discussion on public notice and comment opportunities associated with the issuance of the lease, see Section 1.1 and Appendix A of the FEIS.

Prior to preparation of the DEIS, BOEM held three public scoping meetings near the Proposed Project area to solicit feedback and to identify issues and potential alternatives for consideration. On September 2, 2022, BOEM published an NOA for the DEIS consistent with the regulations implementing NEPA to assess the potential impacts of the Proposed Action and alternatives.⁸² The NOA commenced the 45-day public review and comment period of the DEIS. BOEM held three in-person public hearings on October 4, 5, and 6, 2022, and two virtual public hearings on September 29 and October 11, 2022, to solicit feedback and identify issues for consideration in preparing the FEIS. Throughout the public review and comment period, Federal agencies; state, local, and Tribal governments; and the general public had the opportunity to provide comments on the DEIS. The

⁷⁹ See 43 U.S.C. § 1337(p)(4)(J); 30 CFR § 585.102(a)(10).

⁸⁰ See Letter from Equinor Wind US, Eversource Energy, Mayflower Wind, Orsted North America Inc., and Vineyard Wind LLC, to Michael Emerson, Director, Marine Transportation Systems (CG-5PW), U.S. Coast Guard (Nov. 1, 2019).

⁸¹ See 43 U.S.C. § 1337(p)(4)(K); 30 CFR § 585.102(a)(11).

⁸² Notice of Availability of a Draft Env’t Impact Statement, 87 Fed. Reg. 54,248 (Sept. 2, 2022).

topics most referenced during the DEIS comment period included climate change, commercial fisheries and for-hire recreational fishing, mitigation, finfish, invertebrates, EFH, and whales.

On July 21, 2023, BOEM published an NOA for the FEIS in the *Federal Register*.⁸³ The FEIS was also made available in electronic form at <https://www.boem.gov/renewable-energy/state-activities/revolution-wind>. BOEM's 30-day waiting period for the FEIS closed on August 21, 2023. BOEM's responses to comments on the DEIS are included in Appendix L of the FEIS.

4.12 Oversight, Inspection, Research, Monitoring, and Enforcement Relating to a Lease, Easement, or Right-of-Way⁸⁴

Secretary's Order 3299, which established BOEM and BSEE, assigned safety and environmental oversight for the OCS renewable energy program to BOEM until such time as the Assistant Secretary - Land and Minerals Management (ASLM) determined that an increase in activity justified the transfer of those functions to BSEE. In December 2020, the Principal Deputy Assistant Secretary - Land and Minerals Management, acting with the authority of the ASLM, directed the transfer of safety and environmental oversight for the OCS renewable energy program from BOEM to BSEE due to increased wind energy activity.⁸⁵ On September 14, 2022, DOI delegated relevant authorities to BSEE and BOEM in Departmental Manual part 219, chapter 1, and part 218, chapter 1, respectively.

On January 31, 2023, DOI published a final rule in the *Federal Register* (88 Fed. Reg. 6376) that moved portions of the existing OCS renewable energy regulations, consistent with the Secretary's order and the Departmental Manual. Following approval of the COP, BSEE maintains the authority to perform oversight, inspection, research, monitoring, and enforcement relating to Lease OCS-A 0486, as authorized under the lease, OCSLA, and its implementing regulations. BOEM will still retain its authority for enforcing compliance, including safety and environmental compliance, with all applicable laws, regulations, leases, grants, and approved plans through notices of noncompliance, cessation orders, civil penalties, and other appropriate means.

Under these authorities, BSEE and BOEM will ensure that offshore renewable energy development in Lease OCS-A 0486 is conducted safely and maintains regulatory compliance. BSEE has reviewed the proposed COP and recommended technical conditions for the design, construction, operation, maintenance, and monitoring of the Project, and for periodic review and reporting. These proposed technical conditions are included as Appendix A of the ROD and will be included as COP conditions of approval.

5.0 Status of the Lease

Revolution Wind is currently in compliance with the terms of Lease OCS-A 0486. Revolution Wind has maintained the lease in full force and effect by virtue of annual rent payments, all of which have been timely paid by Revolution Wind and received by BOEM.

⁸³ Notice of Availability of a Final Env't Impact Statement, 88 Fed. Reg. 47,171 (July 21, 2023).

⁸⁴ See 43 U.S.C. § 1337(p)(4)(L); 30 CFR § 585.102(a)(12).

⁸⁵ "Memorandum from Principal Deputy Assistant Secretary - Land and Minerals Management on the Department of the Interior's Offshore Renewable Energy Program Roles and Responsibilities," December 22, 2020.

6.0 Financial Assurance

As required by 30 CFR § 585.625(b)(19), Section 1.62 of the COP contains Revolution Wind's statement attesting that the activities and facilities proposed in the COP are or will be covered by an appropriate bond or security as required by 30 CFR §§ 585.515 and 585.516. Revolution Wind has provided and currently maintains two Irrevocable Standby Letters of Credit, No. SBY59638 in the amount of \$100,000 and SBY59350 in the amount of \$347,394, to meet the initial lease-specific and Site Assessment Plan supplemental financial assurance requirements on Lease OCS-A 0486 to guarantee compliance with all terms and obligations of the lease. BOEM's regulations at 30 CFR § 585.516(a)(3) provide that, before BOEM will approve a COP, a lessee must provide a supplemental bond or other financial assurance in an amount determined by BOEM based on the complexity, number, and location of all facilities in the lessee's planned activities and commercial operation. Revolution Wind must provide supplemental financial assurance to cover the additional annual rental amount for the Project easement where transmission lines to shore will be located. In addition, BOEM may increase the amount of supplemental financial assurance at any time if BOEM determines it is necessary to guarantee compliance with the terms and conditions of the lease.⁸⁶

7.0 Conclusion

Minimizing environmental impacts and interference with other uses of the OCS is integral to OCS wind energy planning, leasing, and development. Over many years, the United States Government, on behalf of the American people has, through the DOI, BOEM, and other agencies, devoted significant time and resources to identifying, analyzing, and developing strategies to avoid and mitigate potential environmental impacts and interference with other OCS uses. In 2009, OREP established and began meeting with an Intergovernmental Renewable Energy Task Force, as well as with other stakeholders and ocean users, to identify areas of interest for wind energy offshore Massachusetts and Rhode Island, as well as areas that were less suitable. OREP then prepared an EA and issued a FONSI, which concluded that reasonably foreseeable environmental effects associated with lease issuance, including those resulting from site characterization surveys in the WEA and the deployment of meteorological towers or buoys, would not significantly impact the environment.

After Revolution Wind submitted its proposed COP in 2020, BOEM conducted a project-specific NEPA analysis, as well as other environmental consultations required by the ESA, MSA, and NHPA. Throughout its environmental and technical review of the COP, BOEM also coordinated with Tribal Nations and various Federal agencies, including BSEE, DOD, DON, USEPA, USACE, NPS, FAA, USFWS, NOAA, NORAD, USAF, and USCG. All of those reviews, consultations, and coordination efforts enabled BOEM to assess whether approval of Alternative G conforms with the 8(p)(4) factors and implementing regulations.

Alternative G, plus the mitigation measures discussed in Section 4.9 of this memorandum, balance the need to prevent interference with OCS uses with BOEM's duty to further the U.S. policy to make OCS energy resources available for expeditious and orderly development, subject to environmental safeguards, including the consideration of natural resources and existing ocean uses.⁸⁷ The FEIS shows that approving the Project as modified by Alternative G will have negligible to moderate adverse impacts on most resources. Alternative G is expected to have major impacts to commercial

⁸⁶ See 30 CFR § 585.517.

⁸⁷ 43 U.S.C. § 1332(3).

fisheries and for-hire recreational fishing; cultural resources; other marine uses: scientific research and surveys; and visual resources. Alternative G would also result in cumulative major impacts to commercial fisheries and for-hire recreational fishing; cultural resources; demographics, employment, and economics; environmental justice; other marine uses: scientific research and surveys; and visual resources.⁸⁸ However, Alternative G could also have beneficial impacts on the following resources: air quality; benthic habitat and invertebrates; commercial fisheries and for-hire recreational fishing; demographics, employment, and economics; environmental justice; finfish and essential fish habitat; land use and coastal infrastructure; marine mammals; recreation and tourism; and sea turtles.

The numerous consultations performed under various Federal statutes, as well as the analysis in the FEIS and the mitigation measures included with the ROD, indicate that approval of Alternative G would not result in undue harm to resources of interest or in unreasonable interference with other OCS uses.

Moreover, approval of Alternative G would further some of the goals stated in Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, by increasing renewable energy production on the OCS, “with the goal of doubling offshore wind by 2030 while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs.”

In conclusion, OREP has evaluated all the information that Revolution Wind provided in its COP and has assessed it in relation to the enumerated factors in OCSLA subsection 8(p)(4) and BOEM’s implementing regulations at 30 CFR part 585. In the Office of Renewable Energy Program’s view, approval of the COP—as modified by Alternative G and the proposed technical, and navigational and aviation safety terms and conditions included with the ROD—would be in accordance with the regulations at 30 CFR part 585 and would ensure that all the activities on the OCS are carried out in a manner that provides for the factors in subsection 8(p)(4) of OCSLA.

⁸⁸ FEIS, Exec. Summary, at ES-9-ES-13.

Appendix B.1. ETRB Review Memorandum



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Memorandum

To: David MacDuffee
Chief, Projects and Coordination Branch

From: Marilyn Sauls
Chief, Engineering and Technical Review Branch

MARILYN
SAULS

Digitally signed by MARILYN
SAULS
Date: 2023.08.15 12:05:51
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Subject: Review of the Revolution Wind Offshore Wind Farm Construction and Operations Plan (COP) for Commercial Lease OCS-A 0486

Revolution Wind submitted a COP to the Bureau of Ocean Energy Management (BOEM) on March 13, 2020, for lease OCS-A 0486. The COP for the Revolution Wind Offshore Wind Farm project proposes the installation of the following major offshore components:

- Up to 100 WTGs with nameplate capacity of 8-12 MW;
- Each WTG would be supported by a monopile foundation;
- A network of 72 kV AC inter-array cables
- Up to two offshore substations on a monopile foundations; and
- Up to two 275-kV HVAC export cables with target burial depth of 4 to 6 feet (1.2 to 1.8 m).

The Engineering and Technical Review Branch (ETRB) subject matter experts (SME) reviewed the proposed facilities, project design, project activities, and fabrication and installation details in the COP and coordinated with the following agencies:

- Bureau of Safety and Environmental Enforcement (BSEE), for safety;
- Federal Aviation Administration (FAA) and National Oceanic and Atmospheric Administration (NOAA), for radar interference; and
- The United States Coast Guard (USCG), for vessel navigation.

The SME comments and the responses from Revolution Wind are logged in the COP review matrix on the Office of Renewable Energy Programs' shared drive AEAU: S:\State of Rhode Island\DWW Rev I, LLC\COP (Revolution Wind Farm).

On June 10, 2021, BOEM approved the nomination of DNV, to be the Certified Verification Agent for the Revolution Wind project, to review and to certify that the facilities would be designed, fabricated and installed in conformance with accepted engineering practices as described in the Facility Design Report and the Fabrication and Installation Report, pursuant to 30 CFR 585.705.

In review of the COP, ETRB SMEs used their knowledge and experience gained from past project reviews, research funded by BOEM, BSEE, and others, past projects built and operating in Europe, and individual expertise to assess the information provided in the COP. ETRB determined that the technical information and supporting data submitted by Revolution Wind meets the requirements of 30 CFR 585.626 and is sufficient to allow the safe installation of the proposed project on the Outer Continental Shelf (OCS), does not unreasonably interfere with other uses of the OCS, and uses properly trained personnel, pursuant to 30 CFR 585.621. ETRB determined that the information provided in the COP was sufficient to make an initial determination that the proposed project uses best available and safest technology, pursuant to 30 CFR 585.621(e), with the expectation that this determination will be confirmed through agency review of the Facility Design Report, Fabrication and Installation Report, and the Safety Management System.

ETRB recommends approval of the COP, along with the inclusion of the following terms and conditions (T&C), provided as Appendix A to the Record of Decision (ROD), developed in consultation with BSEE, FAA, NOAA, and USCG. The T&C are derived from the review of the information requirements in BOEM’s regulations and the relevant mitigation measures identified in Appendix H of the Final Environmental Impact Statement (FEIS). The table below provides a cross-reference.

#	Terms and Conditions	Regulation	Information Requirement
2.1	MEC/UXO Survey Results Implementation	§585.627(a)(1)	Hazard information – manmade hazards
2.2	MEC/UXO ALARP Certification	§585.627(a)(1)	Hazard information – manmade hazards
2.3	MEC/UXO Discovery Notification	§585.627(a)(1)	Hazard information – manmade hazards
2.4	Munitions Response Plan for Confirmed MEC/UXO	§585.627(a)(1)	Hazard information – manmade hazards
2.5	Munitions Response After Action Report	§585.627(a)(1)	Hazard information – manmade hazards
2.6	Safety Management System	§585.627(d)	Safety Management System
2.7	Emergency Response Plan	§585.626(b)(12)(ii)	Operating procedures – accidents or emergencies
2.8	Oil Spill Response Plan	§585.627(c)	Oil Spill Response Plan
2.9	Cable Routings	§585.626(b)(7)	Cables
2.10	Cable Burial	§585.626(b)(7)	Cables
2.11	Cable Protection Measures	§585.626(b)(7)	Cables
2.12	Crossing Agreements	§585.626(b)(7)	Cables
2.13	Post-Installation Cable Monitoring	§585.626(b)(7)	Cables
2.14	WTG and OSS Foundation Depths	§585.626(a)(4)	Geotechnical survey

2.15	Structural Integrity Monitoring	§585.626(b)(12) §285.824	Operating procedures, self-inspections
2.16	Foundation Scour Protection Monitoring	§585.626(a)(6)	Overall site investigation – scouring of the seabed
2.17	Post-Storm Monitoring Plan	§585.627(a)(1)	Hazard information – meteorology, oceanography
2.18	High Frequency Radar Interference Analysis and Mitigation	§585.626(b)(23); FEIS	Other information as required by BOEM
2.19	Critical Safety Systems	§585.626(b)(20);	CVA nomination and reports
2.20	Engineering Drawings	§585.626(b)(20);	CVA nomination and reports
2.21	Construction Status	§585.626(b)(21);	Construction Schedule
2.22	Maintenance Schedule	§585.626(b)(12);	Operating procedures
2.23	Pre-lay Grapple Run Plan	§585.626(b)(7); §585.626(b)(15)	Cables; Environmental Impacts
3	Navigational and Aviation Safety Conditions	§585.626(b)(23)	Other information as required by BOEM
5.6.3	Micrositing Plan	§585.626(b)(15)	Environmental Impacts
5.6.6	Boulder Identification and Relocation Plan	§585.627(a)(1); §585.626(b)(15)	Hazard Information- Shallow Geological Hazards; Environmental Impacts
5.7.3	Boulder Relocation	§585.627(a)(1); §585.626(b)(15)	Hazard Information- Shallow Geological Hazards; Environmental Impacts
5.7.4	Boulder Relocation Report	§585.627(a)(1); §585.626(b)(15)	Hazard Information- Shallow Geological Hazards; Environmental Impacts