UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

SouthCoast Wind Project
Letter of Authorization

SouthCoast Wind Energy, LLC (SouthCoast Wind) and those persons it authorizes or funds to conduct activities on its behalf in the specified geographical region (see **Specified Geographical Region** section and Figure 1 below), are authorized to take marine mammals incidental to construction of the SouthCoast Wind Project (hereafter known as the "Project"), located in state and Federal waters offshore Massachusetts, subject to the provisions of the Marine Mammal Protection Act (16 USC 1361 *et seq*.; MMPA) of 1972, as amended, and the applicable regulations (see 50 CFR §§ 217.330 - 217.339), provided they are in compliance with all terms, conditions, and requirements described herein.

Effective Dates

This Letter of Authorization (LOA) is effective for a period of five years, from April 1, 2027 through March 31, 2032.

Specified Geographical Region

The specified geographical region is the Mid-Atlantic Bight and vessel transit routes to marshaling ports in Charleston, South Carolina and Sheet Harbor, Canada. The Mid-Atlantic Bight extends between Cape Hatteras, North Carolina and Martha's Vineyard, Massachusetts, extending westward into the Atlantic to the 100-m isobath and includes, but is not limited to, the Bureau of Ocean Energy Management (BOEM) Lease Area Outer Continental Shelf (OCS)-A-0521 Commercial Lease of Submerged Lands for Renewable Energy Development, two export cable routes, and two sea-to-shore transition point at Brayton Point in Somerset, Massachusetts and Falmouth, Massachusetts.

Specified Activities

The specified activities are impact and vibratory pile driving to install wind turbine generator (WTG) and offshore substation platform (OSP) foundations; high-resolution geophysical (HRG) site characterization surveys; detonation of unexploded ordnances or munitions and explosives of concern (UXOs/MECs); fisheries and benthic monitoring surveys; placement of scour protection; sand leveling; dredging; trenching, laying, and burial activities associated with the installation of the export cable from the OSP to shore based converter stations and inter-array cables between WTG foundations; vessel transit within the specified geographical region to transport crew, supplies, and materials; and WTG operations.

1. Permissible Methods of Taking

SouthCoast Wind may incidentally, but not intentionally, take marine mammals within the specified geographical region in the course of conducting the specified activities, provided SouthCoast Wind is in compliance with all terms, conditions, and requirements described herein.

(a) Permissible methods of taking consist of:

(1) Level B harassment associated with the acoustic disturbance of marine mammals by impact and vibratory pile driving of WTG and OSP foundations, UXO/MEC detonations, and HRG site characterization surveys; and

(2) Level A harassment associated with impact pile driving of WTG and OSP foundations and UXO/MEC detonations.

(b) The incidental taking of marine mammals by the specified activities described in paragraph (a) of this section is limited to the species and stocks found in Table 1.

2. Prohibitions

Except for the takings described under **Permissible Methods of Taking**, it is unlawful for any person to do any of the following in connection with the specified activities described herein:

(a) Violate or fail to comply with the terms, conditions, and requirements of this LOA or the regulations;

(b) Take any marine mammal not specified in Table 1;

(c) Take any marine mammal in Table 1 in any manner other than specified in the **Permissible Methods of Taking** section or number greater than those specified in Table 1; and

(d) Take any marine mammal in Table 1 after NMFS determines such takings results in more than a negligible impact on the species or stocks.

Pursuant to 16 USC § 1371(a)(5)(B), NMFS shall withdraw or suspend this authorization to take marine mammals, if, after notice and opportunity for public comment[1], it finds that:

(1) The methods of taking or the mitigation, monitoring, or reporting measures are not being substantially complied with, or

(2) The taking authorized in the regulations and this LOA is having, or may have, more than a negligible impact on an affected species or stock.

[1] If NMFS determines an emergency exists that poses a significant risk to the well-being of a species or stock, the notice and comment requirement is waived (see 16 USC 1371(a)(5)(C)(i)).

3. Mitigation Requirements

When conducting the specified activities in the specified geographic region, SouthCoast Wind must implement the following mitigation measures:

(a) *General conditions.* SouthCoast Wind must comply with the following general measures:

(1) A copy of any issued LOA must be in the possession of SouthCoast Wind and its designees, all vessel operators, visual protected species observers (PSOs), passive acoustic monitoring (PAM) operators, pile driver operators, and any other relevant designees operating under the authority of the issued LOA;

(2) SouthCoast Wind must conduct training for construction supervisors, construction crews, and the PSO and PAM team prior to the start of all construction activities and when new personnel join the work in order to explain responsibilities, communication procedures, marine mammal monitoring and reporting protocols, and operational procedures. A description of the training program must be provided to NMFS at least 60 days prior to the initial training before in-water activities begin. Confirmation of all required training must be documented on a training course log sheet and reported to NMFS Office of Protected Resources prior to initiating project activities;

(3) SouthCoast Wind is required to use available sources of information on North Atlantic right whale presence to aid in monitoring efforts. These include daily monitoring of the Right Whale Sighting Advisory System, consulting of the WhaleAlert app, and monitoring of the Coast Guard's Very High Frequency (VHF) Channel 16 to receive notifications of marine mammal sightings and information associated with any Dynamic Management Areas (DMA) and Slow Zones;

(4) Any marine mammal observation by project personnel must be immediately communicated to any on-duty PSOs and PAM operator(s). Any large whale observation or acoustic detection by any project personnel must be conveyed to all vessel captains;

(5) If an individual from a species for which authorization has not been granted or a species for which authorization has been granted but the authorized take number has been met is observed entering or within the relevant clearance zone prior to beginning a specified activity, the activity must be delayed. If an activity is ongoing and an individual from a species for which authorization has not been granted or a species for which authorization has been granted but the authorized take number has been met is observed entering or within the relevant shutdown zone, the activity must be shut down (*i.e.*, cease) immediately unless shutdown would result in imminent risk of injury or loss of life to an individual, pile refusal, or pile instability. The activity must not commence or resume until the animal(s) has been confirmed to have left the clearance or shutdown zones and is on a path away from the applicable zone or after 30 minutes for all baleen whale species and sperm whales, and 15 minutes for all other species;

(6) In the event that a large whale is sighted or acoustically detected that cannot be confirmed as a non-North Atlantic right whale, it must be treated as if it were a North Atlantic right whale for purposes of mitigation;

(7) For in-water construction heavy machinery activities listed in section 1(a), if a marine mammal is detected within or about to enter 10 meters (m) (32.8 feet (ft)) of equipment, SouthCoast Wind must cease operations until the marine mammal has moved more than 10 m on a path away from the activity to avoid direct interaction with equipment;

(8) All vessels must be equipped with a properly installed, operational Automatic Identification System (AIS) device and SouthCoast Wind must report all Maritime Mobile Service Identify (MMSI) numbers to NMFS Office of Protected Resources prior to use of any project vessels;

(9) By accepting a LOA, SouthCoast Wind consents to on-site observation and inspections by Federal agency personnel (including NOAA personnel) during activities described in this subpart, for the purposes of evaluating the implementation and effectiveness of measures contained within this LOA; and

(10) It is prohibited to assault, harm, harass (including sexually harass), oppose, impede, intimidate, impair, or in any way influence or interfere with a PSO, PAM operator, or vessel crew member acting as an observer, or attempt the same. This prohibition includes, but is not limited to, any action that interferes with an observer's responsibilities or that creates an intimidating, hostile, or offensive environment. Personnel may report any violations to the NMFS Office of Law Enforcement.

(b) *Vessel strike avoidance measures*[2]. SouthCoast Wind must comply with the following vessel strike avoidance measures while in the specific geographic region unless a deviation is necessary to maintain safe maneuvering speed and justified because the vessel is in an area where oceanographic, hydrographic, and/or meteorological conditions severely restrict the maneuverability of the vessel; an emergency situation presents a threat to the health, safety, life of a person; or when a vessel is actively engaged in emergency rescue or response duties, including vessel-in distress or environmental crisis response. An emergency is defined as a serious event that occurs without warning and requires immediate action to avert, control, or remedy harm. Speed over ground will be used to measure all vessel speeds:

(1) Prior to the start of the Project's activities involving vessels, all vessel personnel must receive a protected species training that covers, at a minimum, identification of marine mammals that have the potential to occur in the specified geographical region; detection and observation methods in both good weather conditions (*i.e.*, clear visibility, low winds, low sea states) and bad weather conditions (*i.e.*, fog, high winds, high sea states, with glare); sighting communication protocols; all vessel strike avoidance mitigation requirements; and information and resources available to the

[2] In the event that there is a conflict between the vessel strike measures in this LOA and other implementing vessel/marine mammal regulations (*e.g.*, 50 CFR 224.103, 50 CFR 224.105), SouthCoast Wind must follow the more protective measures.

project personnel regarding the applicability of Federal laws and regulations for protected species. This training must be repeated for any new vessel personnel who join the project. Confirmation of the vessel personnel training and understanding of the LOA requirements must be documented on a training course log sheet and reported to NMFS within 30 days of completion of training, prior to personnel joining vessel operations;

(2) All vessel operators, operating at any speed and regardless of their vessel's size, and dedicated visual observers must maintain a vigilant watch for all marine mammals and operators must slow down, stop their vessel, or alter course to avoid striking any marine mammal;

(3) All transiting vessels operating at any speed must have a dedicated visual observer on duty at all times to monitor for marine mammals within a 180 degrees (°) direction of the forward path of the vessel (90° port to 90° starboard) located at an appropriate vantage point for ensuring vessels are maintaining required separation distances. Dedicated visual observers may be PSOs or crew members, but crew members responsible for these duties must be provided sufficient training by SouthCoast Wind to distinguish marine mammals from other phenomena and must be able to identify a marine mammal as a North Atlantic right whale, other large whale (defined in this context as sperm whales or baleen whales other than North Atlantic right whales), or other marine mammals. Dedicated visual observers must be equipped with alternative monitoring technology (*e.g.,* night vision devices, infrared cameras) for periods of low visibility (*e.g.*, darkness, rain, fog, *etc*.). The dedicated visual observer must not have any other duties while observing and must receive prior training on protected species detection and identification, vessel strike avoidance procedures, how and when to communicate with the vessel captain, and reporting requirements in this subsection and LOA;

(4) At the onset of transiting and continuously thereafter, vessel operators and dedicated visual observers must monitor the U.S. Coast Guard VHF Channel 16, over which North Atlantic right whale sightings are broadcasted. At the onset of transiting and at least once every 4 hours, vessel operators and/or trained crew member(s) must also monitor the project's Situational Awareness System (if applicable), WhaleAlert, and relevant NOAA information systems such as the Right Whale Sighting Advisory System (RWSAS) for the presence of North Atlantic right whales;

(5) Prior to transit, vessel operators must check for information regarding the establishment of Seasonal and Dynamic Management Areas, Slow Zones, and any information regarding North Atlantic right whale sighting locations;

(6) All vessel operators must abide by vessel speed regulations (50 CFR 224.105). Nothing in this subsection exempts vessels from any other applicable marine mammal speed or approach regulations;

(7) All vessel operators, regardless of their vessel's size, must immediately reduce vessel speed to 10 knots (11.5 mph) or less for at least 24 hours when a North Atlantic right whale is sighted at any distance by any project-related personnel or acoustically

detected by any project-related PAM system. Each subsequent observation or acoustic detection in the Project area shall trigger an additional 24-hour period. If a North Atlantic right whale is reported by project personnel or via any of the monitoring systems (see paragraph (b)(4)) within 10 km of a transiting vessel, that vessel must operate at 10 knots (11.5 mph) or less for 24 hours following the reported detection;

(8) In the event that a DMA or Slow Zone is established that overlaps with an area where a project-associated vessel is operating, that vessel, regardless of size, must transit that area at 10 knots (11.5 mph) or less;

(9) Between November 1st and April 30th, all vessels, regardless of size, must operate at 10 knots (11.5 mph) or less in the specified geographical region, except for vessels while transiting in Narragansett Bay or Long Island Sound;

(10) All vessels, regardless of size, must immediately reduce speed to 10 knots (11.5 mph) or less when any large whale (other than a North Atlantic right whale), mother/calf pairs, or large assemblages of non-delphinid cetaceans are observed within 500 m (0.31 mi) of a transiting vessel;

(11) If a vessel is traveling at any speed greater than 10 knots (11.5 mph) (*i.e.*, no speed restrictions are enacted) in the transit corridor (defined as from a port to the Lease Area or return), in addition to the required dedicated visual observer, SouthCoast Wind must monitor the transit corridor in real-time with PAM prior to and during transits. If a North Atlantic right whale is detected via visual observation or PAM within or approaching the transit corridor, all vessels in the transit corridor must travel at 10 knots (11.5 mph) or less for 24 hours following the detection. Each subsequent detection shall trigger a 24-hour reset. A slowdown in the transit corridor expires when there has been no further North Atlantic right whale visual or acoustic detection in the transit corridor in the past 24 hours;

(12) All vessels must maintain a minimum separation distance of 500 m from North Atlantic right whales. If underway, all vessels must steer a course away from any sighted North Atlantic right whale at 10 knots (11.5 mph) or less such that the 500-m minimum separation distance requirement is not violated. If a North Atlantic right whale is sighted within 500 m of an underway vessel, that vessel must turn away from the whale(s), reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m;

(13) All vessels must maintain a minimum separation distance of 100 m (328 ft) from sperm whales and non-North Atlantic right whale baleen whales. If one of these species is sighted within 100 m (328 ft) of an underway vessel, the vessel must turn away from the whale(s), reduce speed, and shift the engine(s) to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 100 m (328 ft);

(14) All vessels must maintain a minimum separation distance of 50 m (164 ft) from all delphinid cetaceans and pinnipeds with an exception made for those that approach the

vessel (*e.g.*, bow-riding dolphins). If a delphinid cetacean or pinniped is sighted within 50 m (164 ft) of a transiting vessel, that vessel must turn away from the animal(s), reduce speed, and shift the engine to neutral, with an exception made for those that approach the vessel (*e.g.*, bow-riding dolphins). Engines must not be engaged until the animal(s) has moved outside of the vessel's path and beyond 50 m (164 ft);

(15) All vessels underway must not divert or alter course to approach any marine mammal; and

(16) SouthCoast Wind must submit a Marine Mammal Vessel Strike Avoidance Plan 180 days prior to the planned start of vessel activity that provides details on all relevant mitigation and monitoring measures for marine mammals, vessel speeds and transit protocols from all planned ports, vessel-based observer protocols for transiting vessels, communication and reporting plans, and proposed alternative monitoring equipment in varying weather conditions, darkness, sea states, and in consideration of the use of artificial lighting. If SouthCoast Wind plans to implement PAM in any transit corridor to allow vessel transit above 10 knots (11.5 mph), the plan must describe how PAM, in combination with visual observations, will be conducted. If a plan is not submitted and approved by NMFS prior to vessel operations, all project vessels must travel at speeds of 10 knots (11.5 mph) or less. SouthCoast Wind must comply with any approved Marine Mammal Vessel Strike Avoidance Plan.

(c) *Wind turbine generator (WTG) and offshore substation platform (OSP) foundation installation*. The following requirements apply to vibratory and impact pile driving activities associated with the installation of WTG and OSP foundations:

(1) Foundation pile driving activities must not occur January 1 through May 15 throughout the Lease Area. From October 16 through May 31, impact and vibratory pile driving must not occur at locations in SouthCoast's Lease Area within the North Atlantic right whale Enhanced Mitigation Area (NARW EMA; defined as 20 km (12.4 mi) of the 30-m (98-ft) isobath on the west side of Nantucket Shoals);

(2) Outside of the NARW EMA, foundation pile driving must not be planned for December; however, it may occur only if necessary to complete planned pile driving within a given year and with prior approval by NMFS and implementation of enhanced mitigation and monitoring in accordance with an approved Enhanced Mitigation and Monitoring Plan. SouthCoast Wind must notify NMFS in writing by September 1 of that year if circumstances are expected to necessitate pile driving in December;

(3) In the NARW EMA, SouthCoast must install foundations as quickly as possible and sequence them from the northeast corner of the Lease Area to the southwest corner such that foundation installation in positions closest to Nantucket Shoals are completed during the period of lowest North Atlantic right whale occurrence in that area;

(4) Monopiles must be no larger than a tapered 9/16-m diameter monopile design and pin piles must be no larger than 4.5-m diameter design. The minimum amount of hammer energy necessary to effectively and safely install and maintain the integrity of the piles must be used. Impact hammer energies must not exceed 6,600 kilojoules (kJ) for monopile installations and 3,500 kJ for pin pile installations;

(5) SouthCoast must not initiate pile driving earlier than 1 hour after civil sunrise or later than 1.5 hours prior to civil sunset unless SouthCoast submits and NMFS approves a Nighttime Pile Driving Monitoring Plan that demonstrates the efficacy of their low-visibility visual monitoring technology (*e.g.*, night vision devices, Infrared (IR) cameras) to effectively monitor the mitigation zones in low visibility conditions. SouthCoast must submit this plan or plans (if separate Daytime Reduced Visibility and Nighttime Monitoring Plans are prepared) at least 180 calendar days before foundation installation is planned to begin. SouthCoast must submit a separate Plan describing daytime reduced visibility monitoring if the information in the Nighttime Monitoring Plan does not sufficiently apply to all low-visibility monitoring.

(6) SouthCoast Wind must utilize a soft-start protocol at the beginning of foundation installation for each impact pile driving event and at any time following a cessation of impact pile driving for 30 minutes or longer;

(7) SouthCoast Wind must deploy, at minimum, a double bubble curtain during all foundation pile driving;

(i) The double bubble curtain must distribute air bubbles using an air flow rate of at least 0.5 m^3/(min*m). The double bubble curtain 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 adjustments to the air supply and operating pressure such that the maximum possible sound attenuation performance of the bubble curtain(s) is achieved.

(ii) The lowest bubble ring must be in contact with the seafloor for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seafloor contact.

(iii) No parts of the ring or other objects may prevent full seafloor contact with a bubble curtain ring.

(iv) SouthCoast Wind must inspect and carry out maintenance on the noise attenuation systems prior to every pile driving event and prepare and submit a Noise Attenuation System (NAS) inspection/performance report. For piles for which Thorough SFV (T-SFV) is carried out, this report must be submitted no later than when the interim T-SFV report is submitted for the respective pile. Performance reports for all Abbreviated SFV (A-SFV) conducted for subsequent piles must be submitted with the weekly pile driving reports. All reports must be submitted by email to *pr.itp.monitoringreports@noaa.gov*.

(8) SouthCoast Wind must utilize PSOs. Each monitoring platform must have at least three on-duty PSOs. PSOs must be located on the pile driving vessel as well as on a minimum of three PSO-dedicated vessels inside the NARW EMA June 1 through July 31 and outside the NARW EMA June 1 through November 30, and a minimum of four PSO-dedicated vessels within the NARW EMA August 1-October 15 and throughout the Lease Area May 16-31 and December 1-31 (if pile driving in December is deemed necessary and approved by NMFS);

(9) Concurrent with visual monitoring, SouthCoast Wind must utilize PAM operator(s), as described in a NMFS-approved PAM Plan, who must conduct real-time acoustic monitoring of marine mammals for 60 minutes before, during, and 30 minutes after completion of impact and vibratory pile driving for each pile. PAM operators must immediately communicate all detections of marine mammals to the Lead PSO, including any determination regarding species identification, distance, and bearing and the degree of confidence in the determination;

(10) To increase situational awareness prior to pile driving, the PAM operator must review PAM data collected within the 24 hours prior to a pile installation;

(11) The PAM system must be able to detect marine mammal vocalizations, maximize baleen whale detections, and detect North Atlantic right whale vocalizations up to a distance of 10 km (6.2 mi) and 15 km (9.3mi) during pin pile and monopile installation, respectively. NMFS recognizes that detectability of each species' vocalizations will vary based on vocalization characteristics (e.g., frequency content, source level), acoustic propagation conditions, and competing noise sources), such that other marine mammal species (*e.g.,* harbor porpoise) may not be detected out to 10 km (6.2 mi) or 15 km (9.3 mi);

(12) SouthCoast Wind must submit a Passive Acoustic Monitoring Plan (PAM Plan) to NMFS Office of Protected Resources for review and approval at least 180 days prior to the planned start of foundation installation activities and abide by the Plan, if approved.

(13) SouthCoast Wind must establish clearance and shutdown zones, which must be measured using the radial distance from the pile being driven. All clearance zones must be monitored by PSOs for at least 60 minutes prior to monitoring prior to, during, and 30 minutes after each foundation installation and must be confirmed to be free of marine mammals for 30 minutes immediately prior to the beginning of soft-start procedures or vibratory pile driving. If a marine mammal (other than a North Atlantic right whale) is detected within or about to enter the applicable clearance zones during this 30-minute time period, vibratory and 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. The specific time periods are 30 minutes for all baleen whale species and sperm whales and 15 minutes for all other species;

(14) For North Atlantic right whales, any visual observation by a PSO at any distance, or acoustic detection within the 10-km (6.2-mi) (pin pile) and 15-km (9.32-mi)

(monopile) PAM clearance and shutdown zones must trigger a delay to the commencement or shutdown of pile driving. Within the NARW EMA August 1-October 15 and throughout the Lease Area May 16-31 and December 1-31 (if pile driving in December is deemed necessary and approved by NMFS), for any acoustic detection within the North Atlantic right whale PAM clearance and shutdown zones or sighting of 1 or 2 North Atlantic right whales, SouthCoast Wind must delay commencement of or shutdown pile driving for 24 hours. For any sighting of 3 or more North Atlantic right whales, SouthCoast Wind must delay commencement of or shutdown pile driving for 48 hours. Prior to beginning clearance at the pile driving location after these periods, SouthCoast must conduct a vessel-based survey to visually clear the 10-km (6.2-mi) zone, if installing pin piles that day, or 15-km (9.32-mi) zone, if installing monopiles;

(15) If visibility decreases such that the entire clearance zone is not visible, at minimum, PSOs must be able to visually clear (*i.e.*, confirm no marine mammals are present) the minimum visibility zone. The entire minimum visibility zone must be visible (*i.e.*, not obscured by dark, rain, fog, *etc*.) for the full 60 minutes immediately prior to commencing impact and vibratory pile driving;

(16) If a marine mammal is detected (visually or acoustically) entering or within the respective shutdown zone after pile driving has begun, the PSO or PAM operator must call for a shutdown of pile driving and SouthCoast Wind must stop pile driving immediately, unless shutdown is not practicable due to imminent risk of injury or loss of life to an individual or risk of damage to a vessel that creates risk of injury or loss of life for individuals, or the lead engineer determines there is risk of pile refusal or pile instability. If pile driving is not shut down due to one of these situations, SouthCoast Wind must reduce hammer energy to the lowest level practicable to maintain stability;

(17) If pile driving has been shut down due to the presence of a marine mammal other than a North Atlantic right whale, pile driving must not restart until either the marine mammal(s) has voluntarily left the species-specific clearance zone 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. The specific time periods are 30 minutes for all non-North Atlantic right whale baleen whale species and sperm whales and 15 minutes for all other species. In cases where these criteria are not met, pile driving may restart only if necessary to maintain pile stability at which time SouthCoast Wind must use the lowest hammer energy practicable to maintain stability;

(18) SouthCoast Wind must submit a Pile Driving Marine Mammal Monitoring Plan to NMFS Office of Protected Resources for review and approval at least 180 days prior to planned start of foundation pile driving and abide by the Plan, if approved. SouthCoast Wind must obtain both NMFS Office of Protected Resources and NMFS Greater Atlantic Regional Fisheries Office Protected Resources Division's concurrence with this Plan prior to the start of any pile driving;

(19) SouthCoast Wind must perform T-SFV measurements during installation of, at minimum, the first three WTG monopile foundations, first four WTG pin piles, and all OSP jacket foundation pin piles;

(20) T-SFV measurements must continue until T-SFV of at least three consecutive monopiles or four consecutive pin piles demonstrate noise levels are at or below those modeled, assuming 10 decibels (dB) of attenuation. Subsequent T-SFV measurements are also required should larger piles be installed or if additional monopiles or pin piles supporting jacket foundations are driven that may produce louder sound fields than those previously measured (*e.g.*, from higher hammer energy, greater number of strikes);

(i) T-SFV measurements must be made at a minimum of four distances from the pile(s) being driven along a single transect in the direction of lowest transmission loss (*i.e.*, projected lowest transmission loss coefficient), including, but not limited to, 750 m (2,460 ft) and three additional ranges selected such that measurement of modeled Level A harassment and Level B harassment isopleths are accurate, feasible, and avoids extrapolation (*i.e.*, recorder spacing is approximately logarithmic and significant gaps near expected isopleths are avoided). At least one additional measurement at an azimuth 90 degrees from the transect array at 750 m (2,460 ft) must be made. At each location, there must be a near bottom and mid-water column hydrophone (acoustic recorder);

(ii) If any of the T-SFV results indicate that distances to harassment isopleths were exceeded, then SouthCoast Wind must implement additional measures for all subsequent foundation installations to ensure the measured distances to the Level A harassment and Level B harassment threshold isopleths do not exceed those modeled assuming 10-dB attenuation. SouthCoast Wind must also increase clearance, shutdown, and/or Level B harassment zone sizes to those identified by NMFS until T-SFV measurements on at least three additional monopiles or four pin piles demonstrate distances to harassment threshold isopleths meet or are less than those modeled assuming 10-dB of attenuation. For every 1,500 m (4,900 ft) that a marine mammal clearance or shutdown zone is expanded, additional PSOs must be deployed from additional platforms/vessels to ensure adequate and complete monitoring of the expanded clearance and/or shutdown zone(s), with each PSO responsible for scanning no more than 120 degrees (°) out to a radius no greater than 1,500 m (4,900 ft). SouthCoast Wind must optimize the sound attenuation systems (*e.g.*, ensure hose maintenance, pressure testing) to, at least, meet noise levels modeled, assuming 10-dB attenuation, within three monopiles or four pin piles, or else foundation installation activities must cease until NMFS and SouthCoast Wind can evaluate potential reasons for louder than anticipated noise levels. Alternatively, if SouthCoast determines T-SFV results demonstrate noise levels are within those modeled assuming 10-dB

attenuation, SouthCoast may proceed to the next pile after submitting the interim report to NMFS;

(21) SouthCoast Wind also must conduct A-SFV, using at least one acoustic recorder (consisting of a bottom and mid-water column hydrophone) for every foundation for which T-SFV monitoring is not conducted. All A-SFV data must be included in weekly reports. Any indication that distances to the identified Level A harassment and Level B harassment threshold isopleths for marine mammals may be exceeded based on this abbreviated monitoring must be addressed by SouthCoast Wind in the weekly report, including an explanation of factors that contributed to the exceedance and corrective actions that were taken to avoid exceedance on subsequent foundations. SouthCoast Wind must meet with NMFS within two business days of SouthCoast Wind's submission of a report that includes an exceedance to discuss if any additional action is necessary;

(22) The SFV measurement systems must have a sensitivity for the expected sound levels from pile driving received at the nominal ranges throughout the installation of the pile. The frequency range of SFV measurement systems must cover the range of at least 20 hertz (Hz) to 20 kilohertz (kHz). The SFV measurement systems must be designed to have omnidirectional sensitivity so that the broadband received level of all pile driving exceeds the system noise floor by at least 10 dB. The dynamic range of the SFV measurement system must be sufficient such that signals are detected at each location, and the signals avoid poor signal-to-noise ratios for low amplitude signals and avoid clipping, nonlinearity, and saturation for high amplitude signals;

(23) SouthCoast must ensure that all hydrophones used in SFV measurements systems have undergone a full system, traceable laboratory calibration conforming to International Electrotechnical Commission (IEC) 60565, or an equivalent standard procedure from a factory or accredited source, at a date not to exceed 2 years before deployment, to guarantee each hydrophone receives accurate sound levels. Additional *in situ* calibration checks using a pistonphone must be performed before and after each hydrophone deployment. If the measurement system employs filters via hardware or software (*e.g.*, high-pass, low-pass), which is not already accounted for by the calibration, the filter performance (*i.e.*, the filter's frequency response) must be known, reported, and the data corrected for the filter's effect before analysis;

(24) SouthCoast Wind must be prepared with additional equipment (*e.g.*, hydrophones, recording devices, hydrophone calibrators, cables, batteries), which exceeds the amount of equipment necessary to perform the measurements, such that technical issues can be mitigated before measurement;

(25) If any of the SFV measurements from any pile indicate that the distance to any isopleth of concern is greater than those modeled assuming 10-dB attenuation, before the next pile is installed, SouthCoast Wind must implement the following measures, as applicable: identify and propose for review and concurrence; additional, modified, and/or alternative noise attenuation measures or operational changes that present a reasonable likelihood of reducing sound levels to the modeled distances; provide a written explanation to NMFS Office of Protected Resources supporting that

determination, and request concurrence to proceed; and, following NMFS Office of Protected Resources' concurrence, deploy those additional measures on any subsequent piles that are installed (*e.g.*, if threshold distances are exceeded on pile 1, then additional measures must be deployed before installing pile 2);

(26) If SFV measurements indicate that ranges to isopleths corresponding to the Level A harassment and Level B harassment thresholds are less than the ranges predicted by modeling (assuming 10-dB attenuation) for three consecutive monopiles or four consecutive pin piles, SouthCoast Wind may submit a request to NMFS Office of Protected Resources for a modification of the mitigation zones for non-North Atlantic right whale species. Mitigation zones for North Atlantic right whales cannot be decreased;

(27) SouthCoast must measure background noise (*i.e.*, noise absent pile driving) for 30 minutes before and after each pile installation;

(28) SouthCoast must conduct SFV measurements during turbine operations to estimate turbine operation source levels, in accordance with a NMFS-approved WTG Operational SFV Plan; and

(29) SouthCoast Wind must submit SFV Plans for T-SFV and A-SFV for foundation installation to NMFS Office of Protected Resources for review and approval at least 180 days prior to planned start of foundation installation activities and abide by the Plan if approved. Pile driving may not occur until NMFS provides SouthCoast concurrence that implementation of the Foundation Installation SFV Plan meets the requirements in the LOA.

(d) *UXO/MEC detonation*. The following requirements apply to Unexploded Ordnances and Munitions and Explosives of Concern (UXO/MEC) detonation:

(1) Upon encountering a UXO/MEC, SouthCoast Wind can only resort to high-order removal (*i.e.*, detonation) if all other means of removal are impracticable (*i.e.*, As Low As Reasonably Practicable (ALARP) risk mitigation procedure)) and this determination must be documented and submitted to NMFS;

(2) UXO/MEC detonations must not occur December 1 through April 30;

(3) UXO/MEC detonations must only occur during daylight hours (1 hour after civil sunrise through 1.5 hours prior to civil sunset;

(4) No more than one detonation can occur within a 24-hour period. No more than 10 detonations may occur throughout the effective period of the LOA;

(5) SouthCoast Wind must deploy, at minimum, a double bubble curtain during all UXO/MEC detonations and comply with the following requirements related to noise abatement;

(i) The bubble curtain(s) must distribute air bubbles using an air flow rate of at least 0.5 m^3/(min*m). The bubble curtain(s) must surround 100 percent

of the UXO/MEC detonation 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 adjustments to the air supply and operating pressure such that the maximum possible noise attenuation performance of the bubble curtain(s) is achieved;

(ii) The lowest bubble ring must be in contact with the seafloor for the full circumference of the ring, and the weights attached to the bottom ring must ensure 100-percent seafloor contact;

(iii) No parts of the ring or other objects may prevent full seafloor contact;

(iv) Construction contractors must train personnel in the proper balancing of airflow to the ring. Construction contractors must submit an inspection/performance report for approval by SouthCoast Wind within 72 hours following the performance test. SouthCoast Wind must then submit that report to NMFS Office of Protected Resources;

(v) Corrections to the bubble ring(s) to meet the performance standards in this paragraph (5) must occur prior to UXO/MEC detonations. If SouthCoast Wind uses a noise mitigation device in addition to the bubble curtain, SouthCoast Wind must maintain similar quality control measures as described in this paragraph (5); and

(vi) SouthCoast Wind must inspect and carry out maintenance on the noise attenuation system prior to every UXO/MEC detonation and prepare and submit a Noise Attenuation System (NAS) inspection/performance report as soon as it is available to NMFS Office of Protected Resources.

(6) SouthCoast Wind must conduct SFV during all UXO/MEC detonations at a minimum of three locations (with hydrophones at two water depths at each location) along a transect from each detonation site in a direction toward deeper water, in accordance with the following requirements:

(i) SouthCoast Wind must empirically determine source levels (peak and cumulative sound exposure level), the ranges to the Level A harassment and Level B harassment threshold isopleths and the transmission loss coefficient(s). SouthCoast Wind may estimate ranges to the Level A harassment and Level B harassment isopleths by extrapolating from *in situ* measurements conducted at several distances from the detonation location;

(ii) The SFV measurement systems must have a sensitivity for the expected sound levels from detonations received at the nominal ranges throughout the detonation. The dynamic range of the SFV measurement systems must be sufficient such that at each location, the signals avoid poor signal-to-noise ratios for low amplitude signals and the signals avoid clipping, nonlinearity, and saturation for high amplitude signals;

(iii) All hydrophones used for SFV measurements are required to have undergone a full system, traceable laboratory calibration conforming to International Electrotechnical Commission (IEC) 60565, or an equivalent standard procedure, from a factory or accredited source to ensure the hydrophone receives accurate sound levels, at a date not to exceed 2 years before deployment. Additional *in-situ* calibration checks using a pistonphone are required to be performed before and after each hydrophone deployment. If the measurement system employs filters via hardware or software (*e.g.,* high-pass, low-pass, *etc.*), which is not already accounted for by the calibration, the filter performance (*i.e*., the filter's frequency response) must be known, reported, and the data corrected before analysis;

(iv) SouthCoast Wind must be prepared with additional equipment *(e.g.*, hydrophones, recording devices, hydrophone calibrators, cables, batteries, *etc*.), which exceeds the amount of equipment necessary to perform the measurements, such that technical issues can be mitigated before measurement;

(v) SouthCoast Wind must submit SFV reports within 72 hours after each UXO/MEC detonation;

(vi) If SFV measurements collected for a UXO/MEC detonation event indicate ranges to the isopleths, corresponding to Level A harassment and Level B harassment thresholds, are greater than the ranges predicted by modeling (assuming 10 dB attenuation), SouthCoast Wind must implement additional noise mitigation measures prior to the next UXO/MEC detonation. SouthCoast Wind must provide written notification to NMFS Office of Protected Resources of the changes planned for the next detonation within 24 hours prior to implementation. Subsequent UXO/MEC detonation activities must not occur until NMFS and SouthCoast Wind can evaluate the situation and ensure future detonations will not exceed noise levels modeled assuming 10-dB attenuation; and

(vii) SouthCoast Wind must optimize the noise attenuation systems (*e.g*., ensure hose maintenance, pressure testing) to, at least, meet noise levels modeled, assuming 10-dB attenuation.

(7) SouthCoast Wind must establish and implement clearance zones for UXO/MEC detonations using both visual and acoustic monitoring. UXO/MEC clearance zones are specific to the known charge weight size of the UXO/MEC to be detonated; if charge weight is unknown or uncertain then the clearance zone identified for the largest charge weight (*i.e*., E12) must be implemented;

(8) At least three on-duty PSOs must be stationed on each monitoring platform and monitoring for 60 minutes prior to, during, and 30 minutes after each UXO/MEC detonation. The number of platforms is contingent upon the size of the UXO/MEC detonation and must be sufficient such that PSOs are able to visually clear the entire

clearance zone. Concurrently, at least one PAM operator must be actively monitoring for marine mammals with PAM 60 minutes before, during, and 30 minutes after detonation. SouthCoast must identify the number of platforms planned for each size class and describe all monitoring protocols in the UXO/MEC Detonation Marine Mammal Monitoring Plan; and

(9) All clearance zones must be confirmed to be acoustically free of marine mammals for 30 minutes prior to a detonation. If a marine mammal is observed entering or within the relevant clearance zone prior to the initiation of a detonation, detonation must be delayed and must not begin until either the marine mammal(s) has voluntarily left the specific clearance zones and have been visually and acoustically confirmed beyond that clearance zone, or, when specific time periods have elapsed with no further sightings or acoustic detections. The specific time periods are 30 minutes for all baleen whale species and sperm whales and 15 minutes for all other species.

(e) *HRG surveys*. The following requirements apply to HRG surveys operating sub-bottom profilers (SBPs) (*e.g.*, boomers, sparkers, and Compressed High Intensity Radiated Pulse (CHIRPS)) (hereinafter referred to as "acoustic sources"):

(1) SouthCoast Wind must establish and implement clearance and shutdown zones for HRG surveys using visual monitoring. These zones must be measured using the radial distance(s) from the acoustic source(s) currently in use;

(2) SouthCoast must utilize PSO(s), as described in Section 4(a). Visual monitoring must begin no less than 30 minutes prior to initiation of specified acoustic sources and must continue until 30 minutes after use of specified acoustic sources ceases. Any PSO on duty has the authority to delay the start of survey operations or shutdown operations if a marine mammal is detected within the applicable zones. When delay or shutdown is instructed by a PSO, the mitigative action must be taken and any dispute resolved only following deactivation;

(3) Prior to starting the survey and after receiving confirmation from the PSOs that the clearance zone is clear of any marine mammals, SouthCoast Wind is required to ramp-up acoustic sources to half power for 5 minutes prior to commencing full power, unless the equipment operates on a binary on/off switch (in which case ramp-up is not required). Any ramp-up of acoustic sources may only commence when visual clearance zones are fully visible (*e.g.*, not obscured by darkness, rain, fog, *etc*.) and clear of marine mammals, as determined by the Lead PSO, for at least 30 minutes immediately prior to the initiation of survey activities using a specified acoustic source. Ramp-ups must be scheduled so as to minimize the time spent with the source activated;

(4) Prior to a ramp-up procedure starting, the acoustic source operator must notify the Lead PSO of the planned start of ramp-up. The notification time must not be less than 60 minutes prior to the planned ramp-up or activation in order to allow the PSO(s) time to monitor the clearance zone(s) for 30 minutes prior to the initiation of ramp-up or activation (pre-start clearance). During this 30-minute clearance period, the entire applicable clearance zones must be visible;

(5) A PSO conducting clearance observations must be notified again immediately prior to reinitiating ramp-up procedures and the operator must receive confirmation from the PSO to proceed.

(6) If a marine mammal is observed within a clearance zone during the 30 minute clearance period, ramp-up or acoustic surveys may not begin until the animal(s) has been observed voluntarily exiting its respective clearance zone or until a specific time period has elapsed with no further sighting. The specific time periods are 30 minutes for all baleen whale species and sperm whales and 15 minutes for all other species;

(7) In any case when the clearance process has begun in conditions with good visibility, including via the use of night vision/reduced visibility monitoring 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) despite periods of inclement weather and/or loss of daylight. Ramp-up may occur at times of poor visibility, including nighttime, if required visual monitoring has occurred with no detections of marine mammals in the 30 minutes prior to beginning ramp-up;

(8) Once the survey has commenced, SouthCoast Wind must shut down acoustic sources if a marine mammal enters a respective shutdown zone. In cases when the shutdown zones become obscured for brief periods (less than 30 minutes) due to inclement weather, survey operations would be allowed to continue (*i.e.*, no shutdown is required) so long as no marine mammals have been detected. The shutdown requirement does not apply to small delphinids of the following genera: *Delphinus, Stenella, Lagenorhynchus,* and *Tursiops*. If there is uncertainty regarding the identification of a marine mammal species (*i.e.*, whether the observed marine mammal 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. Shutdown is required if a delphinid that belongs to a genus other than those specified in this paragraph of this section is detected in the shutdown zone;

(9) If an acoustic source has been shut down due to the presence of a marine mammal, the use of an acoustic source may not commence or resume until the animal(s) has been confirmed to have left the Level B harassment zone or until a full 30 minutes for all baleen whale species and sperm whales and 15 minutes for all other species have elapsed with no further sighting. If an acoustic source 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 PSOs have maintained constant observation and no additional detections of any marine mammal occurred within the respective shutdown zones. If an acoustic source is shut down for a period longer than 30 minutes, then all clearance and ramp-up procedures must be initiated;

(10) If multiple HRG vessels are operating concurrently, any observations of marine mammals must be communicated to PSOs on all nearby survey vessels; and

(11) Should an autonomous survey vehicle (ASV) be used during HRG surveys, the ASV must remain with 800 m (2,635 ft) of the primary vessel while conducting survey

operations; two PSOs must be stationed on the mother vessel at the best vantage points to monitor the clearance and shutdown zones around the ASV; at least one PSO must monitor the output of a thermal high-definition camera installed on the mother vessel to monitor the field-of-view around the ASV using a hand-held tablet, and during periods of reduced visibility (*e.g.*, darkness, rain, or fog), PSOs must use night-vision goggles with thermal clip-ons and a hand-held spotlight to monitor the clearance and shutdown zones around the ASV.

(f) *Fisheries Monitoring Surveys*. The following measures apply during fisheries monitoring surveys and must be implemented by SouthCoast Wind:

(1) Marine mammal monitoring must be conducted within 1 nmi (1.85 km) from the planned survey location by the trained captain and/or a member of the scientific crew for 15 minutes prior to deploying gear, throughout gear deployment and use, and for 15 minutes after haul back;

(2) All captains and crew conducting fishery surveys must be trained in marine mammal detection and identification;

(3) Gear must not be deployed if there is a risk of interaction with marine mammals. Gear must not be deployed until a minimum of 15 consecutive minutes have elapsed during which no marine mammal sightings within 1 nmi (1,852 m) of the sampling station have occurred;

(4) If marine mammals are sighted within 1 nm of the planned location (*i.e.,* station) within the 15 minutes prior to gear deployment, then SouthCoast Wind must move the vessel away from the marine mammal to a different section of the sampling area. If, after moving on, marine mammals are still visible from the vessel, SouthCoast Wind must move again to an area visibly clear of marine mammals or skip the station;

(5) If a marine mammal is at risk of interacting with deployed gear or set, all gear must be immediately removed from the water. If marine mammals are sighted before the gear is fully removed from the water, the vessel must slow its speed and maneuver the vessel away from the animals to minimize potential interactions with the observed animal;

(6) Survey gear must be deployed as soon as possible once the vessel arrives on station and after fulfilling the requirements in (f)(1) and (f)(3);

(7) SouthCoast Wind must maintain visual marine mammal monitoring effort during the entire period of time that gear is in the water (*i.e.,* throughout gear deployment, fishing, and retrieval). If marine mammals are sighted before the gear is fully removed from the water, SouthCoast Wind will take the most appropriate action to avoid marine mammal interaction;

(8) All fisheries monitoring gear must be fully cleaned and repaired (if damaged) before each use/deployment;

(9) SouthCoast Wind's fixed gear must comply with the Atlantic Large Whale Take Reduction Plan regulations at 50 CFR 229.32 during fisheries monitoring surveys;

(10) Trawl tows must be limited to a maximum of 20 minute trawl-time and trawl tows must not exceed at a speed of 3.0 knots (3.5 mph);

(11) All gear must be emptied as close to the deck/sorting area and as quickly as possible after retrieval;

(12) During trawl surveys, vessel or scientific crew must open the cod end of the trawl net close to the deck in order to avoid injury to animals that may be caught in the gear;

(13) All fishery survey-related lines must include the breaking strength of all lines being less than 1,700 pounds (lbs; 771 kilograms (kg)). This may be accomplished by using whole buoy line that has a breaking strength of 1,700 lbs (771 kg); or buoy line with weak inserts that result in line having an overall breaking strength of 1,700 lbs (771 kg);

(14) During any survey that uses vertical lines, buoy lines must be weighted and must not float at the surface of the water. All groundlines must be composed entirely of sinking lines. Buoy lines must utilize weak links. Weak links must break cleanly leaving behind the bitter end of the line. The bitter end of the line must be free of any knots when the weak link breaks. Splices are not considered to be knots. The attachment of buoys, toggles, or other floatation devices to groundlines is prohibited;

(15) All in-water survey gear, including buoys, must be properly labeled with the scientific permit number or identification as SouthCoast Wind's research gear. All labels and markings on the gear, buoys, and buoy lines must also be compliant with the applicable regulations, and all buoy markings must comply with instructions received by the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division;

(16) All survey gear must be removed from the water whenever not in active survey use (*i.e.*, no wet storage);

(17) All reasonable efforts that do not compromise human safety must be undertaken to recover gear;

(18) Any lost gear associated with the fishery surveys must be reported to the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division within 24 hours.

4. Monitoring and Reporting Requirements

When conducting the specified activities in the specified geographic region, SouthCoast Wind must implement the following monitoring and reporting measures:

(a) *Protected species observer (PSO) and passive acoustic monitoring (PAM) operator qualifications.* SouthCoast Wind must implement the following measures applicable to PSOs and PAM operators:

(1) SouthCoast Wind must use NMFS-approved PSOs and PAM operators that are employed by a third-party observer provider. PSOs and PAM operators must have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant personnel regarding the presence of marine mammals and mitigation requirements;

(2) All PSOs and PAM operators must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences. The educational requirements may be waived if the PSO or PAM operator has acquired the relevant experience and skills for visually and/or acoustically detecting marine mammals in a range of environmental conditions (*e.g.*, sea state, visibility) within zone sizes equivalent to the clearance and shutdown zones required by these regulations. Requests for such a waiver must be submitted to NMFS Office of Protected Resources prior to or when SouthCoast Wind requests PSO and PAM operator approvals and must include written justification describing alternative experience. Alternate experience that may be considered includes, but is not limited to, conducting academic, commercial, or government-sponsored marine mammal visual and/or acoustic surveys or previous work experience as a PSO/PAM operator. All PSO's and PAM operators should demonstrate good standing and consistently good performance of all assigned duties;

(3) PSOs must have visual acuity in both eyes (with correction of vision being permissible) sufficient enough to discern moving targets on the water's surface with the ability to estimate the target size and distance (binocular use is allowable); ability to conduct field observations and collect data according to the assigned protocols, writing skills sufficient to document observations and the ability to communicate orally by radio or in-person with project personnel to provide real-time information on marine mammals observed in the area;

(4) All PSOs must be trained in northwestern Atlantic Ocean marine mammal identification and behaviors and must be able to conduct field observations and collect data according to assigned protocols. Additionally, PSOs must have the ability to work with all required and relevant software and equipment necessary during observations (as described in paragraphs (b)(2) and (b)(3) of this section);

(5) All PSOs and PAM operators must have successfully completed a PSO, PAM, or refresher training course within the last 5 years and obtained a certificate of course completion that must be submitted to NMFS. This requirement is waived for any PSOs and PAM operators that completed a relevant training course more than five years prior to seeking approval but have been working consistently as a PSO or PAM operator within the past five years;

(6) At least one on-duty PSO and PAM operator, where applicable, per platform must be designated as a Lead during each of the specified activities;

(7) PSOs are responsible for obtaining NMFS' approval. NMFS may approve PSOs as conditional or unconditional. An unconditionally approved PSO is one who has completed training within the last 5 years and attained the experience (*i.e.*, demonstrate experience with monitoring for marine mammals at clearance and shutdown zone sizes similar to those produced during the respective activity) or for PSOs who completed training more than five years previously and have worked in the specified role consistently for at least the past 5 years. A conditionally-approved PSO may be one who has completed training in the last 5 years but has not yet attained the requisite field experience. To qualify as a Lead PSO, the person must be unconditionally approved and demonstrate that they have a minimum of 90 days of at-sea experience in the specific role, with the conclusion of the most recent relevant experience not more than 18 months previous to deployment and must also have experience specifically monitoring baleen whale species;

(8) PSOs for HRG surveys may be unconditionally or conditionally approved. A conditionally approved PSO for HRG surveys must be paired with an unconditionally approved PSO;

(9) PSOs and PAM operators for foundation installation and UXO detonation must be unconditionally approved;

(10) For all prospective project PSOs and PAM operators, SouthCoast Wind must submit resumes, NMFS approval letters, and certificates of completion of NMFS-approved PSO and/or PAM training/courses to NMFS' Office of Protected Resources for review and confirmation of their approval for specific roles at least 90 days prior to commencement of the activities requiring PSOs/PAM operators, or at least 30 days prior to when new PSOs/PAM operators are required after activities have commenced. Resumes must include information related to relevant education, experience, and training, including role, deployment dates and duration (*i.e.*, number of days as a PSO or PAM operator per project), location and description of each prior PSO or PAM operator experience (i.e., zone sizes monitored, how monitoring supported mitigation, PAM system/software utilized);

(11) For prospective PSOs and PAM operators not previously approved by NMFS or for PSOs and PAM operators whose approval is not current (*i.e.*, approval date is more than 5 years prior to the start of monitoring duties), SouthCoast Wind must submit the list of pre-approved PSOs and PAM operators for qualification verification at least 60 days prior to PSO and PAM operator use. Resumes must include information detailed in 217.335(a)(9). Resumes must be accompanied by certificate of completion of a NMFS-approved PSO and/or PAM training/course

(12) PAM operators are responsible for obtaining NMFS' approval. To be approved as a PAM operator, the person must meet the following qualifications: the PAM operator must have completed a PAM Operator training course, and demonstrate

prior experience using PAM software, equipment, and real-time acoustic detection systems. They must demonstrate that they have prior experience independently analyzing archived and/or real-time PAM data to identify and classify baleen whale and other marine mammal vocalizations by species, including North Atlantic right whale and humpback whale vocalizations, and experience with deconflicting multiple species' vocalizations that are similar and/or received concurrently. PAM operators must be independent observers (*i.e.*, not construction personnel), trained to use relevant project-specific PAM software and equipment, and must also be able to test software and hardware functionality prior to beginning real-time monitoring. The PAM operator must be able to identify and classify marine mammal acoustic detections by species in real-time (prioritizing North Atlantic right whales and noting other marine mammal vocalizations, when detected). At a minimum, for each acoustic detection, the PAM operator must be able to categorically determine whether a North Atlantic right whale is detected, possibly detected, or not detected, and notify the Lead PSO of any confirmed or possible detections, including baleen whale detections that cannot be identified to species. If the PAM software is capable of localization of sounds or deriving bearings and distance, the PAM operators must demonstrate experience using this technique;

(13) PSOs may work as PAM operators and vice versa if NMFS approves each individual for both roles; however, they may only perform one role at any one time and must not exceed work time restrictions, which must be tallied cumulatively; and

(14) All PSOs and PAM operators must complete a Permits and Environmental Compliance Plan training that must be held by the Project compliance representative(s) prior to the start of in-water project activities and whenever new PSOs and PAM operators join the marine mammal monitoring team. PSOs and PAM operators must also complete training and orientation with the construction operation to provide for personal safety.

(b) *General PSO and PAM operator requirements.* The following measures apply to PSOs and PAM operators and must be implemented by SouthCoast Wind:

(1) All PSOs must be located at the best vantage point(s) on any platform, as determined by the Lead PSO, in order to collectively obtain 360-degree visual coverage of the entire clearance and shutdown zones around the activity area and as much of the Level B harassment zone as possible. PAM operators may be located on a vessel or remotely on-shore but must have a computer station equipped with a data collection software system and acoustic data analysis software available wherever they are stationed, and data or data products must be streamed in real-time or in near real-time to allow PAM operators to provide assistance to on-duty PSOs in determining if mitigation is required (i.e., delay or shutdown);

(2) PSOs must use high magnification (25x) binoculars, standard handheld (7x) binoculars, and the naked eye to search continuously for marine mammals during

visual monitoring. During foundation installation, at least three PSOs on each dedicated PSO vessel must be equipped with functional Big Eye binoculars (*e.g.*, 25 x 150; 2.7 view angle; individual ocular focus; height control). These must be pedestal mounted on the deck at the best vantage point that provides for optimal sea surface observation and PSO safety. PAM operators must use a NMFS-approved PAM system to conduct acoustic monitoring;

(3) During periods of low visibility (*e.g.*, darkness, rain, fog, poor weather conditions, *etc*.), PSOs must use alternative technology (*e.g.*, infrared or thermal cameras) to monitor the mitigation zones;

(4) PSOs and PAM operators must not exceed 4 consecutive watch hours on duty at any time, must have a 2-hour (minimum) break between watches, and must not exceed a combined watch schedule of more than 12 hours in a 24-hour period; and

(5) SouthCoast Wind must ensure that 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 PSO monitoring reports;

(c) *Reporting*. SouthCoast Wind must comply with the following reporting measures:

(1) Prior to initiation of project activities, SouthCoast Wind must demonstrate in a report submitted to NMFS Office of Protected Resources (*pr.itp.monitoringreports@noaa.gov*) that all required training for SouthCoast Wind personnel, including the vessel crews, vessel captains, PSOs, and PAM operators has been completed;

(2) SouthCoast Wind must use a standardized reporting system. All data collected related to the Project must be recorded using industry-standard software that is installed on field laptops and/or tablets. Unless stated otherwise, all reports must be submitted to NMFS Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov*), dates must be in MM/DD/YYYY format, and location information must be provided in Decimal Degrees and with the coordinate system information (*e.g.*, NAD83, WGS84);

(3) For all visual monitoring efforts and marine mammal sightings, the following information must be collected and reported to NMFS Office of Protected Resources: the date and time that monitored activity begins or ends; the construction activities occurring during each observation period; the watch status (*i.e.*, sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform); the PSO who sighted the animal; the time of sighting; the weather parameters (*e.g.*, wind speed, percent cloud cover, visibility) and water conditions (*e.g.*, Beaufort sea state, tide state, water depth); all marine mammal sightings, regardless of distance from the construction activity; species (or lowest possible taxonomic level possible); the pace of the animal(s); the estimated number of animals (minimum/maximum/high/low/best); the estimated number of

animals by cohort (*e.g.*, adults, yearlings, juveniles, calves, group composition, *etc*.); the description (*i.e.*, as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics); the description of any marine mammal behavioral observations (*e.g.*, feeding or traveling), definitions of any behavioral categories used (*e.g*., travel means directed movement at moderate speed), and observed changes in behavior, including an assessment of behavioral responses thought to have resulted from the specific activity; the animal's closest distance (*i.e.,* closest point of approach) and bearing from the pile being driven, UXO/MEC detonation site, or specified HRG equipment; estimated time entered or spent within the Level A harassment and/or Level B harassment zone(s); status of any noise attenuation device(s) at time of sighting (e.g., double bubble curtain on); specific phase of activity (*e.g.*, ramp-up of HRG equipment, HRG acoustic source on/off, soft-start for pile driving, active pile driving); the timing and description of any mitigation-related action implemented, or mitigation-related actions called for but not implemented, in response to the sighting (*e.g.*, delay, shutdown, *etc*.); other human activity in the area; and other applicable information, as required in any LOA issued under section 5 herein;

(4) For all PAM deployments, the following information must be recorded and reported to NMFS: location of hydrophone (latitude and longitude; in Decimal Degrees) and site name; bottom depth and depth of recording unit (in meters); recorder (model & manufacturer) and platform type (*i.e*., bottom-mounted, electric glider, *etc*.), and instrument ID of the hydrophone and recording platform (if applicable); time zone for sound files and recorded date/times in data and metadata (in relation to Universal Coordinated Time (UTC); *i.e.*, Eastern Standard Time (EST) time zone is UTC-5); duration of recordings (start/end dates and times; in International Organization for Standardization (ISO) 8601 format, yyyy-mm-ddTHH:MM:SS.sssZ); deployment/retrieval dates and times (in ISO 8601 format); recording schedule (must be continuous); hydrophone and recorder sensitivity (in dB re. 1 microPascal (µPa)); calibration curve for each recorder; bandwidth/sampling rate (in Hz); sample bit-rate of recordings; and, detection range of equipment for relevant frequency bands (in meters);

(i) For each detection, the following information the following information must be noted: species identification (if possible); call type, number of calls (if known) and number of species (if simultaneous calls detected); temporal aspects of vocalization (date, time, duration, *etc*.; date times in ISO 8601 format); confidence of detection (detected, or possibly detected); comparison with any concurrent visual sightings; location and/or directionality of call location (if determined) relative to acoustic recorder or construction activities; location of recorder and construction activities at time of call; name and version of detection or sound analysis software used, with protocol reference; duration of detection file and minimum and maximum frequencies viewed/monitored/used in detection (in Hz); and name of PAM operator(s) on duty.

(5) SouthCoast Wind must compile and submit weekly reports during foundation installation containing marine mammal monitoring and A-SFV data to NMFS Office of Protected Resources (*pr.itp.monitoringreports@noaa.gov)*. Weekly reports are due on Wednesday for the previous week (Sunday – Saturday). In the reports, SouthCoast must provide the daily start and stop of all pile driving; the start and stop of associated observation periods by PSOs; details on the deployment of PSOs; a record of all detections of marine mammals (acoustic and visual); any mitigation actions (or if mitigation actions could not be taken, provide reasons why); and details on the noise attenuation system(s) used and its performance. The weekly report must also identify which turbines were installed, and when/if any become operational (a map must be provided).

(6) SouthCoast Wind must compile and submit monthly reports to NMFS Office of Protected Resources (*pr.itp.monitoringreports@noaa.gov)* during foundation installation that include a summary of all information in the weekly reports, including project activities carried out in the previous month, vessel transits (number, type of vessel, MMSI number, and route), number of piles installed, table(s) including all visual and acoustic detections of marine mammals, and any mitigative action taken. Monthly reports are due on the 15th of the month for the previous month. The monthly report must also identify which turbines were installed and when/if any became operational (a map must be provided). Full PAM detection data and metadata must also be submitted monthly on the 15th of every month for the previous month via the webform on the NMFS North Atlantic Right Whale Passive Acoustic Reporting System website at *https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates;*

(7) SouthCoast Wind must submit a draft annual marine mammal monitoring report to NMFS (*PR.ITP.monitoringreports@noaa.gov*) no later than March 31, annually, which contains data for all specified activities. The draft and final reports must detail the following: the total number of marine mammals of each species/stock detected and how many were within the designated Level A harassment and Level B harassment zone(s) and a comparison with the number of authorized takes of marine mammals for the associated activity type; marine mammal detections and behavioral observations before, during, and after each activity; what mitigation measures were implemented (*i.e.*, number of shutdowns or clearance zone delays, *etc*.) or, if no mitigative actions was taken, why; operational details (*i.e.*, days and duration of impact and vibratory pile driving, number of UXO/MEC detonations, days and amount of HRG survey effort, *etc*.); PAM systems used; the results, effectiveness, and which noise attenuation systems were used during relevant activities (*i.e.*, foundation pile driving); summarized information related to situational reporting; and any other important information relevant to the Project, including additional information that may be identified through the adaptive management process. The final annual report must be prepared and submitted within 30 calendar days following the receipt of any comments from NMFS on the draft report;

(8) In addition to the 48-hour interim reports, SouthCoast Wind must submit a draft annual SFV report to NMFS (*PR.ITP.monitoringreports@noaa.gov*) no later than 90 days after SFV is completed for the year. The final annual SFV report must be prepared and submitted within 30 calendar days (or longer upon approval by SouthCoast Wind must submit its draft 5-year report to NMFS Office of Protected Resources (*PR.ITP.monitoringreports@noaa.gov*) on all visual and acoustic monitoring conducted within 90 calendar days of the completion of activities occurring under the LOA. A 5-year report must be prepared and submitted within 60 calendar days (or longer upon approval by NMFS) following receipt of any NMFS Office of Protected Resources comments on the draft report;

(9) SouthCoast Wind must provide the initial results of the T-SFV measurements to NMFS Office of Protected Resources (*PR.ITP.monitoringreports@noaa.gov*) in an interim report after each foundation installation event as soon as they are available, but no later than 48 hours after each completion of T-SFV for a given foundation. The report must include, at minimum: pile identifier name, location of the pile and each hydrophone array in latitude/longitude; depths of each hydrophone; hammer energies/schedule used during pile driving including the total number of strikes and the maximum hammer energy; the model-estimated acoustic ranges ($R_{95\%}$) to compare with the real-world sound field measurements; peak sound pressure level (SPL_{pk}), root-mean-square sound pressure level that contains 90 percent of the acoustic energy (SPL_{rms}), and sound exposure level (SEL, in single strike for impact pile driving, SEL_{ss} and SEL over 1-second interval for vibratory pile driving) for each hydrophone, including at least the maximum, arithmetic mean, minimum, median (L50) and L5 (95 percent exceedance) statistics for each metric; estimated ranges to marine mammal Level A harassment and Level B harassment acoustic isopleths estimated using SFV data, calculated using the maximum-over-depth L5 (95 percent exceedance level, maximum of both hydrophones) of the associated sound metric; comparison of modeled results assuming 10-dB attenuation against the measured marine mammal Level A harassment and Level B harassment acoustic isopleths; estimated transmission loss coefficients; one-third-octave band SEL spectra for impact and vibratory pile driving for each hydrophone; if filtering is applied, full filter characteristics must be reported; and hydrophone specifications including the type, model, and sensitivity. SouthCoast Wind must also report any immediate observations which are suspected to have a significant impact on the results including but not limited to: observed noise mitigation system issues, obstructions along the measurement transect, technical issues with hydrophones or recording devices, interfering noise sources (*e.g.,* vessel traffic). If any *in-situ* calibration checks for hydrophones reveal a calibration drift greater than 0.75 dB, that pistonphone calibration checks are inconclusive, or that calibration checks are otherwise not effectively performed, SouthCoast Wind must indicate full details of the calibration procedure and results, and any associated issues in the 48-hour interim reports;

(10) All A-SFV results must be included in the weekly reports. Any indications that distances to the identified Level A harassment and Level B harassment threshold

isopleths for marine mammals were exceeded must be addressed by SouthCoast Wind in the reports, including an explanation of factors that contributed to the exceedance and corrective actions that were taken to avoid exceedance on subsequent piles, if applicable;

(11) SouthCoast Wind must provide NMFS Office of Protected Resources 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 requirement would create delays to the detonation that would 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;

(12) SouthCoast Wind must submit SFV results for a UXO/MEC detonation in a report submitted to NMFS Office of Protected Resources (PR.ITP.MonitoringReports@noaa.gov) prior to detonating a subsequent UXO/MEC, or within the relevant weekly report, whichever comes first;

(13) SouthCoast must submit bubble curtain performance reports for foundation installations within 48 hours of each bubble curtain deployment;

(14) The final results of all SFV measurements from each foundation installation and UXO/MEC detonation must be submitted as soon as possible, but no later than 90 days following completion of all annual SFV measurements. The final reports must include all details included in the interim reports and descriptions of any notable occurrences, explanations for results that were not anticipated, and mitigative actions taken during foundation installation to reduce noise levels (e.g., cleaning and redeploying bubble curtain hose). The final report must also include at least the maximum, mean, minimum, median (L_{50}) and L_5 (95 percent exceedance) statistics for each metric; the SEL and SPL power spectral density and/or one-third octave band levels (usually calculated as decidecade band levels) at the receiver locations should be reported; range of transmission loss coefficients; the local environmental conditions, such as wind speed, transmission loss data collected on-site (or the sound velocity profile); baseline pre- and post-activity ambient sound levels (broadband and/or within frequencies of concern); a description of depth and sediment type, as documented in the Construction and Operation Plan (COP), at the acoustic buoy and foundation installation and UXO/MEC detonation locations; the measured ranges to the Level A harassment and Level B harassment threshold isopleths; hammer energies required for pile installation and the number of strikes per pile; the hydrophone equipment and methods (*i.e.*, recording device, bandwidth/sampling rate; distance from the pile where recordings were made; the depth of recording device(s)); a description of the SFV measurement hardware and software, including software version used, calibration data, bandwidth capability and sensitivity of hydrophone(s), any filters used in hardware or software, any limitations with the equipment, and other relevant information; the spatial configuration of the noise attenuation device(s) relative to the pile; a description of the noise abatement system and operational parameters (*e.g.*, bubble flow rate, distance deployed from the pile, *etc*.), and any

action taken to adjust the noise abatement system. A discussion which includes any observations that are suspected to have had a significant influence on the results including, but not limited to: observed noise mitigation system issues, obstructions along the measurement transect, technical issues with hydrophones or recording devices, deviation of propagation environment from that assumed for acoustic modeling, vessel noise interference;

(15) If at any time during the project SouthCoast Wind becomes aware of any issue or issues which may (to any reasonable subject-matter expert, including the persons performing the measurements and analysis) call into question the validity of any measured ranges to Level A harassment or Level B harassment threshold isopleths to a significant degree, which were previously transmitted or communicated to NMFS Office of Protected Resources, SouthCoast Wind must inform NMFS Office of Protected Resources within 1 business day of becoming aware of this issue or before the next pile is driven, whichever comes first.

(16) If a North Atlantic right whale is acoustically detected at any time by a project-related PAM system, SouthCoast Wind must ensure the detection is reported as soon as possible to NMFS, but no longer than 24 hours after the detection via the *24-hour North Atlantic right whale Detection Template* (*https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reporting-system-templates*). Calling the hotline is not necessary when reporting PAM detections via the template;

(17) Full detection data, metadata, and location of recorders (or GPS tracks, if applicable) from all real-time hydrophones used for monitoring during foundation installations and UXO/MEC detonations must be submitted within 90 calendar days following completion of activities requiring PAM for mitigation via the International Organization for Standardization (ISO) standard metadata forms available on the NMFS Passive Acoustic Reporting System website (*https://www.fisheries.noaa.gov/resource/document/passive-acoustic-reportingsystem-templates*). Submit the completed data templates to nmfs.nec.pacmdata@noaa.gov. The full acoustic recordings from real-time systems must also be sent to the National Centers for Environmental Information (NCEI) for archiving within 90 days following completion of activities requiring PAM for mitigation. Submission details can be found at: *https://www.ncei.noaa.gov/products/passive-acoustic-data;*

(18) SouthCoast Wind must submit situational reports if specific circumstances occur, including but not limited to the following:

(i) All instances wherein an exemption to any of the requirements in the regulations and/or this LOA is taken must be reported to the NMFS Office of Protected Resources within 24 hours;

(ii) If a North Atlantic right whale is observed at any time by PSOs or project personnel, SouthCoast Wind must ensure the sighting is immediately (if not feasible, as soon as possible and no longer than 24 hours after the

sighting) reported to NMFS, the U.S. Coast Guard, and the Right Whale Sightings Advisory System (RWSAS). If in the Northeast Region (Maine to Virginia/North Carolina border) call (866-755-6622). If in the Southeast Region (North Carolina to Florida) call (877-WHALE-HELP or 877-942-5343). If circumstances arise where calling NMFS is not possible, reports must be made to the U.S. Coast Guard via channel 16 or through the WhaleAlert app (*http://www.whalealert.org/*). The sighting report must include the time, date, and location of the sighting, number of whales, animal description/certainty of sighting (provide photos/video if taken), evidence of previous or current entanglement, Lease Area/project name, PSO/personnel name, PSO provider company (if applicable), and reporter's contact information;

(iii) If a North Atlantic right whale is observed at any time by PSOs or project personnel, SouthCoast Wind must submit a summary report to NMFS Greater Atlantic Regional Fisheries (GARFO; *nmfs.gar.incidental-take@noaa.gov*), NMFS Office of Protected Resources (PR.ITP.MonitoringReports@noaa.gov) and NMFS Northeast Fisheries Science Center (NEFSC; *ne.rw.survey@noaa.gov*) within 24 hours with the above information and the vessel/platform from which the sighting was made, activity the vessel/platform was engaged in at time of sighting, project construction and/or survey activity at the time of the sighting (*e.g.*, pile driving, cable installation, HRG survey), distance from vessel/platform to sighting at time of detection, and any mitigation actions taken in response to the sighting;

(iv) In the event that personnel involved in the Project discover a stranded, entangled, injured, or dead marine mammal, SouthCoast Wind must immediately report the observation to NMFS. If in the Greater Atlantic Region (Maine to Virginia) call the NMFS Greater Atlantic Stranding Hotline (866-755-6622); if in the Southeast Region (North Carolina to Florida), call the NMFS Southeast Stranding Hotline (877-942-5343). Separately, SouthCoast Wind must report the incident to NMFS Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov)*; if in the Greater Atlantic region (Maine to Virginia), to NMFS Greater Atlantic Regional Fisheries Office (GARFO; *nmfs.gar.incidental-take@noaa.gov*, *nmfs.gar.stranding@noaa.gov*); if in the Southeast region (North Carolina to Florida), to NMFS Southeast Regional Office (SERO; *secmammalreports@noaa.gov*); and to the U.S. Coast Guard, as soon as feasible but within 24-hours. The report (via phone or email) must include contact (name, phone number, *etc.*), the time, date, and location of the first discovery (and updated location information if known and applicable); species identification (if known) or description of the animal(s) involved; condition of the animal(s) (including carcass condition if the animal is dead); observed behaviors of the animal(s), if alive; if available, photographs or video footage of the animal(s); and general circumstances under which the animal was discovered; and

(v) In the event of a vessel strike of a marine mammal by any vessel associated with the Project or if project activities cause a non-auditory injury or death of a marine mammal, SouthCoast Wind must immediately report the incident to NMFS. If in the Greater Atlantic Region (Maine to Virginia) call the NMFS Greater Atlantic Stranding Hotline (866-755-6622) and if in the Southeast Region (North Carolina to Florida) call the NMFS Southeast Stranding Hotline (877-942-5343). Separately, SouthCoast Wind must immediately report the incident to NMFS Office of Protected Resources (*PR.ITP.MonitoringReports@noaa.gov)* and, if in the Greater Atlantic region (Maine to Virginia), NMFS GARFO (*nmfs.gar.incidental-take@noaa.gov, nmfs.gar.stranding@noaa.gov*) or, if in the Southeast region (North Carolina to Florida), NMFS SERO (*secmammalreports@noaa.gov*). The report must include the time, date, and location of the incident; species identification (if known) or description of the animal(s) involved; vessel size and motor configuration (inboard, outboard, jet propulsion); vessel's speed leading up to and during the incident; vessel's course/heading and what operations were being conducted (if applicable); status of all sound sources in use; description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike; environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike; estimated size and length of animal that was struck; description of the behavior of the marine mammal immediately preceding and following the strike; if available, description of the presence and behavior of any other marine mammals immediately preceding the strike; 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 to the extent practicable, photographs or video footage of the animal(s). SouthCoast Wind must immediately cease all on-water activities until the NMFS Office of Protected Resources is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of the LOA. NMFS Office of Protected Resources may impose additional measures to minimize the likelihood of further prohibited take and ensure MMPA compliance. SouthCoast Wind may not resume their activities until notified by NMFS Office of Protected Resources; and

(19) Any lost gear associated with the fishery surveys must be reported to the NOAA Greater Atlantic Regional Fisheries Office Protected Resources Division (*nmfs.gar.incidentaltake@noaa.gov*) as soon as possible or within 24 hours of the documented time of missing or lost gear. This report must include information on any markings on the gear and any efforts undertaken or planned to recover the gear.

Should you have questions regarding this LOA or the required conditions found herein, please contact NMFS Office of Protected Resources staff, Carter Esch (*carter.esch@noaa.gov*) and Jaclyn Daly (*jaclyn.daly@noaa.gov*).

_____ _____

Kimberly Damon-Randall, Date
Director, Office of Protected Resources,
National Marine Fisheries Service.

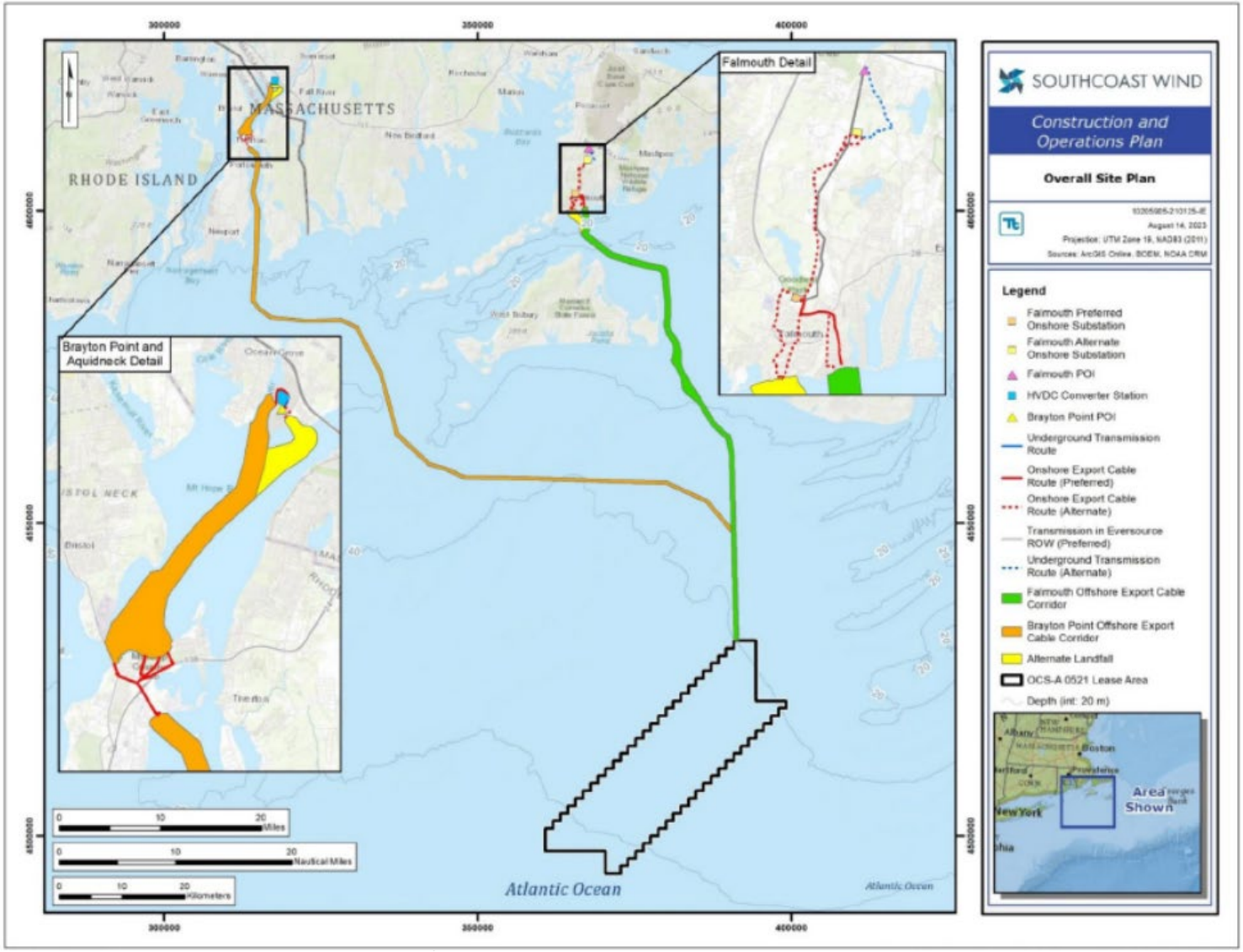

Figure 1 — Project Location Including Export Cable Corridor Routes

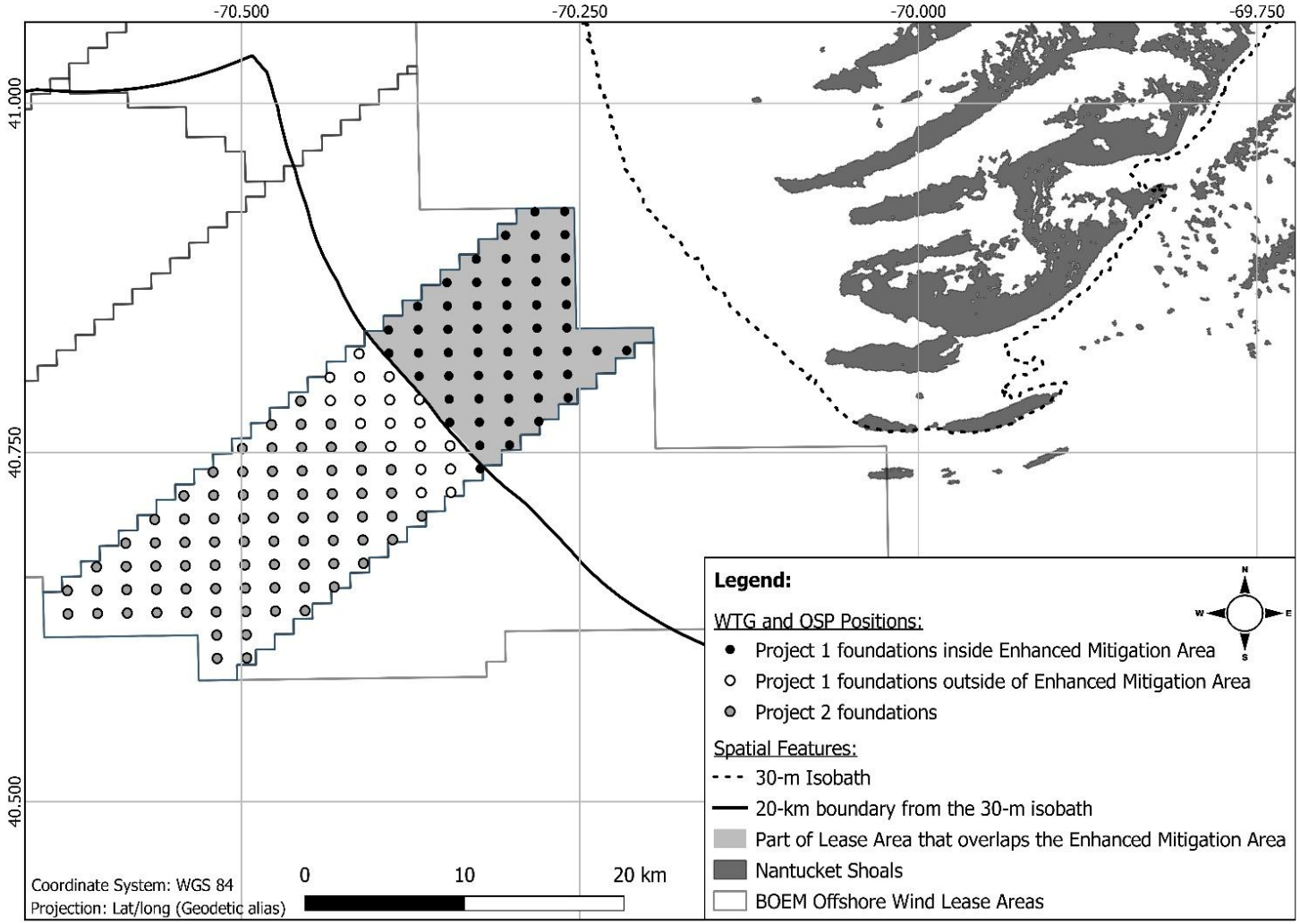

Figure 2 – Map of Project 1 and Project 2 Foundation Locations in the SouthCoast Lease Area and NARW Enhanced Mitigation Area (EMA).

Table 1 -- Level A Harassment and Level B Harassment Takes of Marine Mammals Proposed to be Authorized Incidental to All Activities During Construction of the SouthCoast Offshore Wind Energy Project

Marine Mammal Species	NMFS Stock Abundance	Year 1		Year 2		Year 3		Year 4		Year 5	
		Level A (Max annual)	Level B	Level A	Level B (Max annual)	Level A	Level B	Level A	Level B	Level A	Level B
Blue whale*	402	0	3	0	3	0	1	0	1	0	1
Fin whale*	6,802	3	58	3	496	0	4	0	4	0	4
Humpback whale	1,396	0	99	0	341	0	35	0	35	0	35
Minke whale	21,968	0	255	0	911	0	8	0	8	0	8
North Atlantic right whale*	338	0	26	0	111	0	5	0	5	0	5
Sei whale*	6,292	0	15	0	48	0	2	0	2	0	2
Atlantic spotted dolphin	39,921	0	87	0	378	0	29	0	29	0	29
Atlantic white-sided dolphin	93,221	0	784	0	3,101	0	28	0	28	0	28

Bottlenose dolphin	62,851	0	451	0	2,489	0	89	0	89	0	89
Common dolphin	172,974	0	9,823	0	42,363	0	778	0	778	0	778
Harbor porpoise	95,543	65	691	44	2,609	0	69	0	69	0	69
Long-finned pilot whales	39,215	0	83	0	657	0	11	0	11	0	11
Risso's dolphin	35,215	0	49	0	1,772	0	6	0	6	0	6
Sperm whale*	4,349	0	17	0	126	0	2	0	2	0	2
Gray seal	27,300	24	542	16	8,606	0	234	0	234	0	234
Harbor seal	61,336	2	94	2	488	0	33	0	33	0	33

* Endangered Species Act-listed species

Table 2 – Maximum Annual and 5-year Total Take Authorized Incidental to all Specified Activities for the SouthCoast Wind Project

Common Name	Maximum Annual Take		5-year Total Take	
	Level A	Level B	Level A	Level B
North Atlantic right whale*	0	111	0	149
Blue whale*	0	3	0	9
Fin whale*	3	496	6	566
Humpback whale	0	341	0	541
Minke whale	0	911	0	1,162
Sei whale*	0	48	0	67
Sperm whale*	0	126	0	149
Atlantic spotted dolphin	0	378	0	552
Atlantic white-sided dolphin	0	3,101	0	3,762
Bottlenose dolphins	0	2,489	0	3,171
Common dolphin	0	42,363	0	52,943
Long-finned pilot whale	0	657	0	773
Risso's dolphin	0	1,772	0	1,839
Harbor porpoise	65	2,609	109	3,442
Gray seal	24	8,606	40	9,835
Harbor seal	2	488	4	677

* Endangered Species Act-listed species

Table 3 – Clearance, Shutdown, and Minimum Visibility Zones, in meters (m), during Sequential and Concurrent Installation of 9/16-m Monopiles and 4.5-m Pin Piles in Summer (and Winter)

Installation Order	Sequential						Concurrent	
Pile type	9/16-m Monopile	4.5-m Pin pile	9/16-m Monopile		4.5-m Pin Pile		WTG Mono+4 OSP pin piles	4 WTG pin+4 OSP pin piles
Method	Impact only		Impact	Vibratory	Impact	Vibratory	Impact only	
N. Atl. right whale visual clearance/shutdown zone	Sighting at any distance from PSOs on pile-driving or dedicated PSO vessels							
N. Atl. right whale PAM clearance/shutdown zone[1]	10,000 m (pin), 15,000 m (monopile)							
Other baleen whales clearance/shutdown zone[1]	3,500 (3,700)	2,000 (2,300)	3,500	200	1,900	NAS	3,500	2,600
Sperm whales & delphinids clearance/shutdown zone[1]	NAS	NAS	NAS	NAS	NAS	NAS	NAS	NAS
Harbor porpoise clearance/shutdown zone[1]	NAS	NAS	NAS	NAS	NAS	NAS	NAS	NAS
Seals clearance/shutdown zone[1]	200 (400)	NAS	200	NAS	NAS	NAS	300	200
Minimum visibility zone	Within NARW EMA: 4,800 m (pin) 7,400 m (mono) Outside NARW EMA: equal to 'other baleen whales' impact pile driving clearance zones							

1 – NAS = noise attenuation system (*e.g.*, double bubble curtain (DBBC)). This indicates that the clearance and shutdown zones do not extend beyond the expected bubble curtain radii.
2 – The PAM system used during clearance must be designed to detect marine mammal vocalizations, maximize baleen whale detections, and must be capable of detecting North Atlantic right whales at distances up to 15 km (9.3 mi) from the foundation installation site. NMFS recognizes that detectability of each species' vocalizations will vary based on vocalization characteristics (*e.g.*, frequency content, source level), acoustic propagation conditions, and competing noise sources), such that other marine mammal species (*e.g.,* harbor porpoise) may not be detected at 15 km (9.3 mi).
2 – PSOs must be able to visually monitor minimum visibility zones. To provide enhanced protection of North Atlantic right whales during foundation installations in the NARW EMA, SouthCoast proposed monitoring of minimum visibility zones equal to the Level B harassment zones when installing pin piles (4.8 km (3.0 mi)) and monopiles (7.4 km (4.6 mi)). Outside the NARW EMA, the minimum visibility zone would be equal to SouthCoast's clearance/shutdown zones for 'other baleen whales.'

Table 4 – Level B Harassment and Clearance Zones (in Meters (m)) During UXO/MEC Detonations in the Export Cable Corridor (ECC) and Lease Area (LA), by Charge Weight and Assuming 10 dB of Sound Attenuation

UXO/MEC Charge Weights	Low-frequency cetaceans[1] (baleen whales)	Mid-frequency cetaceans[2] (delphinids, sperm whale)	High-frequency cetaceans[3] (harbor porpoise)	Phocid Pinnipeds[4] (seals)

		ECC	LA	ECC	LA	ECC	LA	ECC	LA
PAM Clearance Zone[5]		15,000							
E4 (2.3 kg)	Level B harassment	2,800	2,900	500	500	6,200	6,200	1,300	1,500
	Clearance Zone	800	400	100	50	2,500	2,200	300	100
E6 (9.1 kg)	Level B harassment	4,500	4,700	800	800	7,900	8,000	2,200	2,400
	Clearance Zone	1,500	800	200	50	3,500	3,200	500	200
E8 (45.5 kg)	Level B harassment	7,300	7,500	1,300	1,300	10,100	10,300	3,900	3,900
	Clearance Zone	2,900	1,800	300	100	4,900	4,900	1,000	600
E10 (227 kg)	Level B harassment	10,300	10,500	2,100	2,200	12,600	12,900	6,000	6,000
	Clearance Zone	4,200	3,400	500	300	6,600	7,200	1,900	1,200
E12 (454 kg)	Level B harassment	11,800	11,900	2,500	2,600	13,700	14,100	7,100	7,000
	Clearance Zone	4,900	4,300	600	400	7,400	8,700	2,600	1,600

5 – The PAM system used during clearance must be designed to detect marine mammal vocalizations, maximize baleen whale detections, and must be capable of detecting North Atlantic right whales at distances up to 15 km (9.3 mi) from the foundation installation site. NMFS recognizes that detectability of each species' vocalizations will vary based on vocalization characteristics (*e.g.*, frequency content, source level), acoustic propagation conditions, and competing noise sources), such that other marine mammal species (*e.g.,* harbor porpoise) may not be detected at 15 km (9.3 mi).

Table 5 – Level B Harassment Threshold Ranges and Mitigation Zones (Meters (m)) during HRG Surveys

Species	Level B Harassment Zone Boomer/Sparker	Level B Harassment Zone CHIRPs	Clearance Zone	Shutdown Zone
North Atlantic right whale	141	48	500	500
Other baleen whales[1]			100	100
Mid-frequency cetaceans[2] (delphinids, sperm whale)	141	48	100	100[1]
High-frequency cetaceans (harbor porpoise)	141	48	100	100
Phocid pinnipeds (seals)	141	48	100	100

1 – Baleen whales other than North Atlantic right whales.
2 – The clearance and shutdown requirements do not apply to bow-riding delphinids of the following genera: *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Tursiops*.

Table 6 – Vessel Separation Distances

Vessel Separation Distances (meters (m))	
North Atlantic right whale	500
Sperm whales and other non-North Atlantic right whale baleen whales	100
Delphinids[1] and pinnipeds	50

1 – The clearance and shutdown requirements do not apply to bow-riding delphinids of the following genera: *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Tursiops*.