DEPARTMENT OF THE ARMY PERMIT

Permittee: **Ørsted/Sunrise Wind, LLC**
437 Madison Avenue, Suite 1903
New York, NY 10022
(617) 767-6956

Permit Number: **NAN-2022-00776**

Date Issued: June 6, 2024

Issuing Office: **U.S. Army Corps of Engineers, New York District**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer. You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

<u>Sunrise Wind Offshore Lease Area</u>
Construct a wind farm in the Atlantic Ocean on the Outer Continental Shelf (OCS) within the approximately 67,252-acre BOEM Renewable Energy Lease Area OCS-A 0487. Lease Area OCS-A 0487 is located approximately 18.9 statute miles south of Martha's Vineyard, Massachusetts, approximately 30.5 mi east of Montauk, New York, and approximately 16.7 mi from Block Island, Rhode Island. The wind farm will consist of up to eighty-four (84) offshore wind turbine generators (WTGs) on steel monopile foundations located at up to eighty-seven (87) potential locations, scour protection and a cable protection system (CPS) around the base of the WTGs, up to approximately 180 miles of submarine inter-array cables (IAC) connecting the WTGs and one (1) offshore converter substation (OCS-DC) on a piled jacket foundation with associated scour protection and CPS stabilization around the base of the OCS-DC foundation. Each monopile foundation diameter will be up to approximately 39 feet in diameter and installed via pile driving with a hydraulic hammer. Each monopile foundation would be protected with approximately 1.03 acres of rock scour protection. Additional CPS stabilization may be used where the IAC are pulled into the foundation, which would require additional rock cover on top of the scour protection. The maximum footprint for each monopile foundation, including scour protection and CPS stabilization, will be approximately 1.06 acres totaling 89.04 acres for the entire Lease Area. The OCS–DC will be constructed on a piled jacket foundation that will consist of up to four (4) legs with up to two (2) pin piles per leg. Both leg and pin pile diameters are 8 feet. The OCS–DC foundation may be protected with approximately 0.75 acres of rock scour protection, if necessary. Additional CPS stabilization may be used where the IAC and export cable are pulled into the foundation, which would require additional rock cover on top of the scour protection. The maximum footprint for the OCS–DC piled jacket foundation, including scour protection and CPS stabilization, will be approximately 1.39 acres.

The submarine IAC between the WTGs and the OCS–DC will consist of up to 180 mi of 161-kilovolt (kV), 200-millimeter diameter high voltage alternating current (HVAC) cables. The cables will be buried to a minimum burial depth of four feet beneath the existing stable seabed as measured from the top of the cable. If the four-foot burial depth is not achievable, secondary cable protection measures will be used. It is estimated that up to 15 percent of the IAC (approximately 27 mi) may require cable protection. Secondary cable protection may include rock placement, mattressing, rock filter bags or grout bags. The IAC will also cross existing telecommunications cables. A rock berm or concrete mattress separation layer and cover layer may be installed at seven (7) known crossing locations. The total maximum footprint of the IAC including secondary cable protection and cable crossing protection will be 139.4 acres.

In certain areas along the IAC, boulder relocation and/or removal and sand wave leveling may need to take place prior to installation. Boulder removal will either be via boulder grab or boulder plow method. Sand wave leveling will either include dredging via suction hopper dredger or controlled flow excavation within the cable corridor. It is estimated that up to 10% of the IAC route (approximately 18 miles) may require boulder removal, and up to 5% (approximately 9 miles) may require sand wave leveling.

A wave buoy will be installed within the Lease Area proximate to the WTGs in the eastern region of the windfarm and will remain in place during the installation and potentially after windfarm commissioning. The mooring configuration will be dependent on buoy type, water depth, and environmental considerations, but generally consists of an anchor weight (approximately 2,600 lbs.), mooring line, and would be equipped with navigational lighting.

<u>Sunrise Wind Export Cables (Ocean)</u>
Install a cable bundle comprised of two (2) approximately 200-mm-diameter 320-kV HVAC submarine export cables and an associated fiber optic cable. The submarine export cables would be approximately 104.6 miles long within a single cable corridor, approximately 98-feet-wide, from the OCS-DC to the cable landfall location at SPCP on Fire Island in the Town of Brookhaven, New York. Approximately 99.4 mi would be in federal waters, and approximately 5.2 mi would be in waters jurisdictional for the State of New York. The cable will be buried to a minimum depth of 6 feet below the stable seabed within state waters (three nautical miles) and buried to a minimum depth of 4 feet below the stable seabed within federal waters (outside of the three nautical mile mark) as measured from the top of the cables. If the 4-foot or 6-foot minimum burial depth in the respective portions of the ocean, is not achievable, cable protection measures will be used. It is estimated that up to 5 percent of the offshore export cable (approximately 5 mi in federal waters and approximately 0.24 mi in NYS waters) may require secondary cable protection. In cases where target burial depth cannot be achieved, secondary cable protection will be used. The offshore export cables will cross nine (9) existing telecommunications cables. A rock berm or concrete mattress separation layer and cover layer may be installed at seven (7) of these locations. The total maximum permanent footprint of the export cables, including secondary cable protection and cable crossing protection, between the OCS–DC and the NYS boundary will be approximately 52.7 acres. The total maximum permanent footprint of the export cable, including secondary cable protection and cable crossing protection, between within federal waters will be approximately 52.7 acres.

Cable protection within NYS waters would consist of approximately 2,346 cubic yards (CY) of fill, which would be discharged. Cable protection would consist of marine mattresses (approximately 9.8 feet wide by 19.6 feet long by 0.9 feet high). The total maximum permanent footprint of the export cable including secondary cable protection, will be approximately 2.3 acres in NYS waters.

In certain areas along the export cable route, boulder relocation and/or removal and sand wave leveling may need to take place prior to installation. Boulder removal will either be via boulder grab or boulder plow method. Sand wave leveling will either include dredging via suction hopper dredger or controlled flow excavation within the cable corridor. Within federal waters, it is estimated that up to 5% of the export cable route (approximately 5 mi) may require boulder removal, and up to 10% (approximately 10 mi) may require sand wave leveling. Within NYS waters it estimated that up to 30% (approximately 1.4 mi) of the export cable route may require boulder removal.

Sunrise Wind Landfall at Smith Point County Park
The two (2) segments of the SRWEC will be installed via horizontal directional drill (HDD) from the HDD entry pit located at Smith Point County Park to the HDD exit pit located offshore in the Atlantic Ocean. The borehole will be approximately 44 inches (in) in diameter and will consist of three (3) high density polyethylene (HDPE) conduits measuring approximately 3,290 feet long (0.6 mi). The HDD exit pit is located approximately 2,225 ft seaward of the Mean High-Water Line (MHWL). At the offshore HDD Exit Pit, approximately 4,900 CY of material will be excavated from within an approximate 164-ft x 49-ft x 16-ft area (8,036 sq ft) area. To ensure the excavated pit does not naturally backfill, a trench box, approximately 20-feet by 50-feet in size may be placed within the 8,036 square foot excavated area.

In addition, a wave buoy and up to three Acoustic Doppler Current Profilers (ADCPs) will be installed nearshore along the export cable route near the HDD exit location and will remain in place during the cable installation process. The wave buoy mooring configuration will be dependent on buoy type, water depth, and environmental considerations, but generally consists of an anchor weight (approximately 1,765 lbs.), mooring line, and are equipped with navigational lighting. The ADCP may be either an upward facing ADCP-mounted on a seabed frame (approximately 220 to 1,100 lbs.) with a surface marker buoy or an acoustic system to release floats, or a bottom-mounted ADCP installed on the lower part of the submerged hull of a standard wave buoy.

Sunrise Wind Export Cable (Onshore)
The onshore export cable is approximately 17.5 miles in length and will cross two waterways, the Long Island Intracoastal Waterway (LIIW) and the Carmans River.

Via HDD, install approximately 2,640 feet (0.4 miles) of the two (2) segments of the onshore export cable under the LIIW from the upland entry point located at SPCP to the upland punchout point at Smith Point Marina. The borehole will be approximately 36 inches in diameter and will consist of six (6) HDPE conduits. The cables will be installed a minimum of 42 feet below the existing seabed of the waterway.

The second crossing at the Carmans River will consist of installing via HDD approximately 36 feet of the export cables beneath the Carmans River. The cable will be installed a minimum of 40 feet below an existing culvert located within the waterway.

Temporary Landing Structure
Construct a temporary fixed pier in the LIIW to support the transport of heavy construction materials to SPCP. The fixed pier will be approximately 18-feet-wide by 242-feet-long and will be secured to the seabed by approximately 21 steel piles each measuring 16 inches in diameter and four (4) fender piles each measuring 18-in in diameter to allow barges to connect to the pier. It is anticipated that approximately 4.35 CY of flowable concrete will be installed within the steel pipes below the plane of Spring High Water over an approximate 150 square foot area. The piles will be placed using a crane barge with four (4) spuds each with a diameter of 30 inches. The pier will be removed following completion of construction.

All work shall be performed in accordance with the attached dated permit drawings; Special Conditions (A) through (OO) listed below, and the New York State Public Service Commission Section 401 Water Quality Certificate issued for Case 20-T-0617, which are all hereby made part of this permit.

Project Location:

IN: Atlantic Ocean, Fire Island and Long Island Intracoastal Waterway

AT: BOEM Renewable Energy Lease Area OCS-A 0487 with export cable landfall at Town of Brookhaven, Suffolk County, New York

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on June 6, 2029 **. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.**

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

A. The permittee understands and agrees that if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

B. The permittee shall ensure that all plans, reports, or other documents required to be submitted to this office in relation to this permit must have "Sunrise Wind – NAN-2022-00776" on the title page. All submittals shall be submitted to CENAN-R-PERMIT-APP@USACE.ARMY.MIL and Christopher.W.Minck@usace.army.mil.

C. The permittee shall complete and return the enclosed Compliance Certification Forms to this office within 30 days of completion of construction of the authorized work.

D. The permittee shall submit an annual report to this office detailing the work that occurred to date and status of compliance with all of the Conditions of this DA Permit. Reports for each year are due by February 15th of the following year.

E. The permittee shall contact this office a minimum of three (3) years in advance of proposed decommissioning to determine permitting requirements. Decommissioning is required at the end of the life of the project, and is not authorized by this Department of the Army (DA) permit.

F. The permittee shall notify the National Ocean Service (NOS) Office of Coast Survey when you begin cable laying work and work on the OCS and when the work authorized by this permit is completed. When construction of the offshore export cables and other offshore subprojects is complete, the permittee shall notify the NOS's Nautical Data Branch by email at ocs.ndb@noaa.gov, and provide as-built drawings with explicit geographic control, horizontal datum (WGS 84 or NAD83), survey unit, survey date and any other relevant information. Digital data is preferred (e.g., CAD, GIS, PDF, Excel spreadsheets for route position lists of cables, etc.). The notification of completion shall be done within 90 days of completion of the activities.

The permittee shall additionally send this office a copy of this documentation as we may note the location on future survey drawings.

G. The Permittee must submit BOEM's Construction and Operations Plan (COP) approval to USACE within 30 days of receipt. As USACE also has jurisdiction on the OCS and BOEM was the lead for the National Environmental Policy Act (NEPA) and several agency consultations, numerous DA permit conditions are analogous to BOEM's anticipated conditions of COP approval. USACE will review BOEM's final conditions of COP approval to determine if a permit modification will be required to align these DA permit conditions with the analogous conditions in the COP approval.

H. The permittee shall abide by all Section 408 permission conditions included in the enclosed Section 408 Permission decision document.

I. Pursuant to 15 CFR 930 Subparts A through I, the permittee shall be responsible for, and shall comply with, all of the conditions and stipulations contained within the New York State Department of State (NYSDOS) issued Coastal Zone Management Concurrence with Consistency Certification F-2022-0909 dated August 30, 2023 and last revised August 31, 2023.

J. Pursuant to 15 CFR 930 Subparts A through I, the permittee shall be responsible for, and shall comply with, all of the conditions and stipulations contained within the Commonwealth of Massachusetts Office of Coastal Zone Management's issued Coastal Zone Management Concurrence with Consistency Certification dated October 6, 2023.

K. Pursuant to 15 CFR 930 Subparts A through I, the permittee shall be responsible for, and shall comply with, all of the conditions and stipulations contained within the State of Rhode Island Coastal Resources Management Council's issued Coastal Zone Management Concurrence with Consistency Certification (CRMC File No. 2021-09-036) dated September 7, 2023.

L. This Department of the Army (DA) permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The United States Fish and Wildlife Service (USFWS) BO, entitled "Biological Opinion on the Effects of the Sunrise Wind Farm and Sunrise Wind Export Cable – Development and Operation on Federally Listed Species within the Jurisdiction of the Long Island Field Office, New York", prepared by the U.S. Fish and Wildlife Service, and dated June 2023, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this DA permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take statement of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the incidental take statement of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with

your DA permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

M. This DA permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have separate authorization under the ESA (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The National Marine Fisheries Service (NMFS) BO for the Sunrise Wind Offshore Energy Project, entitled "National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion", prepared by the National Marine Fisheries Service, and dated September 28, 2023, contains mandatory terms and conditions, including specified provisions of any incidental take authorization pursuant to the Marine Mammal Protection Act, to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this DA permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take statement of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the incidental take statement of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your DA permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with ESA.

N. The permittee shall comply with the enclosed Memorandum of Agreement (MOA), entitled "Memorandum of Agreement among the Bureau of Ocean Energy Management, the Mashpee Wampanoag Tribe, the Mashantucket (Western) Pequot Tribal Nation, and the Wampanoag Tribe of Gay Head (Aquinnah), the Massachusetts State Historic Preservation Officer, the Rhode Island State Historic Preservation Officer, the New York State Historic Preservation Officer, the Connecticut State Historic Preservation Officer, Sunrise Wind LLC, and the Advisory Council on Historic Preservation regarding the Sunrise Wind farm (Lease Number OCS-A 0487) that was fully executed on March 25, 2024.

O. No later than 90 days after COP approval, the permittee shall make a request to both the Bureau of Safety and Environmental Enforcement (BSEE) Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov to coordinate with federally recognized Tribal Nations with geographic, cultural, or ancestral ties to the project area (hereinafter "interested Tribal Nation"), including, but not limited to: Delaware Nation, Delaware Tribe of Indians, Mashantucket Pequot Indian Tribe (Western), Mashpee Wampanoag Tribe, Mohegan Tribe of Indians of Connecticut, Narragansett Indian Tribe, Shinnecock Indian Nation, and Wampanoag Tribe of Gay Head (Aquinnah). The purpose of this coordination is to (1) solicit Tribal Nation interest in participating as an environmental liaison during construction and/or maintenance activities, so the environmental liaison can safely monitor, and participate in postmortem examinations of mortality events, as a result of these activities; and (2) provide open access to the following: reports generated as a result of the Fisheries Research and Monitoring Plan; reports of North Atlantic Right Whale (NARW) sightings; injured or dead protected species reporting (sea turtles, NARW, sturgeon); NARW Passive Acoustic Monitoring (PAM) monitoring; Protected Species Observer (PSO) reports (e.g., pile driving reports); pile driving schedules and schedule changes; and any interim and final sound field verification

(SFV) reports, and its associated data. If an interested Tribal Nation expresses interest in participating as an environmental liaison, the permittee shall provide the interested Tribal Nation information regarding training(s), certification(s), and safety measures, required for participation. Environmental liaisons must be invited to monitor/participate from a safe platform, such as a vessel. The permittee shall provide to the interested Tribal Nation, in a manner suitable to the Tribal Nation, access to all ESA reports, Post Review Discovery Plans, and other documents listed in this paragraph no later than 30 days after the information becomes available. The permittee may redact or withhold documents listed in this paragraph when it is information that the permittee would not generally make publicly available and considers that the disclosure may result contrary to the permittee's commercial interests. The permittee shall submit a justification for the request to redact/withhold in writing to the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov. Only upon approval of such request may the document be redacted/withheld.

P. The permittee must prepare and implement a Sequencing Plan that describes how construction activities will be sequenced to avoid or minimize impacts to Atlantic cod spawning. The plan must specifically describe how construction-related bottom disturbing activities (e.g., sea-bed prep, interarray cable installation and burial, scour protection installation, boulder relocation and/or removal, foundation site preparation, WTG or OCS-DC installation including pile driving, and other construction-related bottom disturbing activities) will occur such that construction-related bottom disturbing activities are avoided and/or minimized as listed below:

a. **The Sequencing Plan must describe, to BSEE's and BOEM's satisfaction, how the construction schedule for pile driving is designed, to the extent technically or economically feasible and practicable, to avoid and/or minimize any pile driving in the lease area between November 1 and December 31. If pile driving is necessary during this time period, The permittee shall describe in detail the specific measures taken to minimize acoustic exposure ranges for fish and how pile driving is limited to WTG positions in the southernmost and easternmost portions of the lease area, to the extent technically or economically feasible and practicable.**
b. **The Sequencing Plan must describe, to BSEE's and BOEM's satisfaction, how the schedule for construction-related bottom disturbing activities other than pile driving is designed, to the extent technically or economically feasible and practicable, to avoid and/or minimize any construction-related bottom disturbing activities between November 1 and March 31. If construction-related bottom disturbing activities are necessary during this time period, The permittee shall describe in detail how these activities are limited to the southernmost and easternmost portions of the lease area, to the extent technically or economically feasible and practicable.**
c. **The Sequencing Plan must provide a detailed construction schedule that includes installation timeframes and locations for all construction related bottom disturbing activities inclusive of seabed preparation and installation activities.**
d. **The permittee shall submit the Sequencing Plan to this office, BOEM, and BSEE for coordination with NMFS GARFO-HESD for a 60-day review, 120 days prior to site preparation activities for inter-array cables and WTGs. The permittee shall resolve all comments on the Sequencing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If there are less than 120 days between site preparation**

activities and this COP approval, The permittee shall submit the plan as soon as practicable and no later than 60 days prior to commencing activities.

e. The permittee shall provide a summary describing the implementation of the Sequencing Plan in the Annual Certification under 30 C.F.R. § 285.633.

Q. Prior to OCS sea-bed prep, inter-array cable installation, foundation site preparation, and other construction-related bottom disturbing activities (e.g., boulder relocation and/or removal, cable lay and burial, scour protection installation), the permittee shall prepare and implement a Cod Spawning Monitoring Plan to monitor for Atlantic cod aggregations in the lease area between November 1 and March 31 of each year during which construction activities are planned.

a. The permittee shall carry out monitoring in a manner consistent with/comparable to existing cod monitoring studies conducted in the lease area (e.g., Atlantic cod passive acoustic and telemetry study, Movement Patterns of Fish in Southern New England AT-19-08) and use both Passive Acoustic Monitoring (PAM) and acoustic telemetry technology.

b. The permittee shall submit the plan to BOEM and BSEE for coordination with NMFS GARFO-HESD for a 60-day review at least 120 days before the commencement of in-water construction on the OCS. The permittee shall resolve all comments on the plan to BOEM's and BSEE's satisfaction prior to implementation of the Plan. If there are less than 120 days between commencement of in-water construction on the OCS and this COP approval, The permittee shall submit the plan as soon as practicable and no later than 60 days prior to commencing activities.

c. The permittee shall submit an annual Cod Spawning Monitoring Report within 90 days of the completion of each survey season to BOEM and BSEE for coordination with NMFS GARFO-HESD. The report must include documentation of any cod detections and contain information on all survey activities that took place during the season, including location of equipment and location, time, and date of detections. The report on survey activities must be comprehensive of all activities, regardless of whether cod were detected. Following the completion of each monitoring campaign, The permittee shall make all data collected from PAM and acoustic telemetry publicly available. Detection data will be shared through the Atlantic Coast Telemetry Network and the Mid-Atlantic Telemetry Observing System (MATOS). Specifically, sensor and biological data should be publicly disseminated by packaging the data according to MATOS data standards.

R. If, prior to BSEE's review of the applicable Facility Design Report (FDR) or Fabrication and Installation Report (FIR), the Permittee determines that fewer than 84 WTGs will be constructed for the Sunrise Wind project, The permittee shall prioritize removal from the following positions in order: WTGs 92, 93, 94, 91, 95, 122, and 123, and then any other WTG positions in Priority Area 1. Priority Area 1 includes WTGs 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 120, 121, 122, 123, 124, 150, 151, and OCS-DC. If applicable, The permittee shall describe how it prioritizes the removal of the listed WTG positions in the FDR/FIR.

S. The permittee shall prepare and implement a Micrositing Plan(s) that describes how wind turbine locations, OCS-DC, inter-array cables and export cable routes will be microsited to avoid or minimize impacts to sensitive benthic habitat, potential and confirmed Munitions and

Explosives of Concern (MEC)/Unexploded Ordinances (UXO); known and potential shipwrecks, and Ancient Submerged Land Forms (ASLFs). The plan(s) must specifically describe how inter-array and export cable routes will be microsited to avoid or minimize impacts to sensitive benthic habitats, including boulders greater than or equal to 0.5 m, as technically and/or economically practicable or feasible. The plan(s) must describe MEC/UXO ALARP Certified areas, which should be consistent with MEC/UXO As Low As Reasonably Practical (ALARP) Certification. To the extent practicable, cables should cross sensitive benthic habitat areas perpendicularly at the narrowest points; cables unable to avoid benthic features such as sand waves should be sited along natural benthic contours within troughs/lows, to maximize cable burial while minimizing disturbance to local submarine topography. The permittee shall submit detailed supporting data and analysis as part of the FDR or FIR, including relevant geophysical and geospatial data. The submission of the data may be incorporated by reference or submitted as an attachment to the FDR or FIR. The Micrositing Plan must be consistent with MEC/UXO ALARP Certification, Cable Burial Risk Assessment, and Boulder Identification and Relocation Plan. The Micrositing Plan must include a figure for each microsited WTG or cable segment, including benthic habitat delineations showing sensitive benthic habitat and locations of boulders greater than or equal to 0.5 m. The plan must include a figure encompassing the lease area, depicting large boulder locations, benthic habitat delineations, and the proposed microsited locations for cables and WTGs. Benthic habitat (NOAA complexity categories) and benthic feature/habitat type maps in conjunction with backscatter, bathymetry, and boulder layers should be used to inform the Micrositing Plan.

a. **For cables that cannot be microsited to avoid impacts to sensitive benthic habitat or boulders greater than or equal to 0.5 m, the micrositing plan must identify technically and economically practicable or feasible impact minimization measures and use the following prioritized list, including complex habitat sub-types (using NMFS complexity categories), to avoid during micrositing: complex habitats with high density large boulders; complex habitats with medium density large boulders; complex habitats with low density large boulders; complex habitats with scattered large boulders; complex habitats with no large boulders.**
b. **The Micrositing Plan must be submitted to BOEM and BSEE for coordination with NMFS GARFO-HESD for a 60-day review, 120 days prior to site preparation activities for cables, WTGs and OCS-DC within the scope of the plan. The permittee shall resolve all comments on the Micrositing Plan(s) to BOEM's and BSEE's satisfaction prior to implementation of each plan. If there are less than 120 days between site preparation activities and this COP approval, The permittee shall submit the plan as soon as practicable and no later than 60 days prior to commencing activities. The final version of the Micrositing Plan(s) must be provided to BOEM, BSEE, NMFS GARFO-HESD, and USACE.**

T. Where plows, jets, grapnel runs, or other similar methods are used, post-construction surveys capable of detecting bathymetry changes of 1.5 foot or less must be completed to determine the height and width of any created berms. The permittee shall capture bathymetry changes greater than 3 feet during the first and second post-installation surveys along the cable routes. If there are bathymetric changes in berm height greater than 3 feet above grade after the second survey, The permittee shall develop and implement a Berm Remediation Plan to restore created berms to match adjacent natural bathymetric contours (isobaths). The permittee shall submit the Berm Remediation Plan to BOEM and BSEE for coordination with NMFS for a 60-day

review within 90 days of completion of the Year 1 MBES bathymetry survey. The permittee shall resolve all comments on the Berm Remediation Plan to BOEM's and BSEE's satisfaction prior to initiating restoration activities. The final version of the Berm Remediation Plan must be provided to BOEM, BSEE, NMFS and USACE.

U. The permittee shall submit a Boulder Identification and Relocation Plan(s) to BSEE for review and concurrence. The plan(s) must be submitted to BOEM and BSEE for coordination with NMFS for a 60-day review, 120 days prior to boulder relocation and/or removal activities within the scope of the plan. The permittee shall resolve all comments on the Boulder Identification and Relocation Plan(s) to BOEM's and BSEE's satisfaction prior to implementation of each plan. If BOEM or BSEE do not provide comments on a plan within 60 days of its submittal, then the Permittee may presume concurrence with the plan. A copy of the final plan(s) must be provided prior to construction to BOEM, BSEE, USACE and NMFS.

a. **The plan must detail how the Permittee will avoid or minimize impacts to sensitive benthic habitats and relocate boulders as close as practicable to the original location, in areas of soft bottom but immediately adjacent to similar habitat. The plan(s) should use benthic habitat (NOAA complexity categories) and benthic feature/habitat type maps in conjunction with backscatter and boulder layers to inform the siting of boulders. The plan(s) must include sufficient scope to mitigate boulders for facility installation and operation risks. The plan(s) must be consistent with and meet the conditions of the Safety Management System (SMS). The plan(s) must include the following for boulders that are proposed to be relocated:**
    - **A summary and detailed description of surface boulders greater than 0.5 m in diameter, locations of areas with subsurface boulders and locations along the cable routes and WTG areas where such boulders have been found;**
    - **A detailed summary of methodologies used in boulder identification, including geological and geophysical survey results;**
    - **Figures of the locations of boulder relocation and/or removal activities specified by activity type (e.g., pick or plow, removal, or placement) and overlaid on multibeam bathymetry and backscatter data;**
    - **A description of boulder removal and/or relocation and/or relocation methods for each type of boulder relocation and/or removal activity and technical feasibility constraints, including capacity of crane used in grab systems, vessel specifications and metocean limits on operation, etc.;**
    - **The environmental footprint of disturbance activities by habitat type and measures taken to avoid further adverse impacts to archaeological resources, sensitive benthic habitats and fishing operations;**
    - **A comprehensive list and shapefile of locations of boulders that would be relocated (latitude, longitude), boulder dimensions (m), buffer radius (m), areas of active (within last 5 years) bottom trawl fishing (latitude, longitude), areas where boulders greater than 2 ms in diameter are anticipated to occur (latitude, longitude), and identification of approximate areas to which boulders would be relocated (latitude, longitude);**
    - **The measures taken to minimize the quantity of seafloor obstructions from relocated boulders in areas of active bottom trawl fishing;**

- **A description of safety distances or zones to limit boulder relocation and/or removal near third-party assets;**
- **A description of MEC/UXO ALARP Certified areas, which should be consistent with MEC/UXO ALARP Certification;**
- **A summary of any consultation and outreach conducted with resource agencies and the fishing industry in development of the plan (e.g., notifications to mariners);**
- **A statement of consistency with the Micrositing Plan.**

b. The permittee shall provide USACE, USCG, NOAA, and the local harbormaster with a comprehensive list and shapefile of positions and areas to which boulders would be relocated (latitude, longitude) at least 60 days prior to boulder relocation and/or removal activities.

c. The permittee shall implement methods identified in the approved COP and described in the Boulder Identification and Relocation Plan (described above) for boulder relocation and/or removal activities. The permittee shall consider the spatial extent of boulder relocation and/or removal in the micrositing of WTGs and OCS-DC foundations and inter-array and export cables for this Project and must relocate boulders as close as practicable to areas immediately adjacent to existing similar habitat. The relocation of boulders must be consistent with the Project easement.

- **The permittee shall provide to BSEE and BOEM and make available to the approved Certified Verification Agent (CVA) a Boulder Relocation Report. The report must include a post-relocation summary of the Boulder relocation and/or removal activities and information to certify boulder risks related to the installation and operation of the facility have been properly mitigated. The report must also identify boulders that could not be relocated with documentation of technical feasibility concerns, including information on how, if at all, the final boulder placement differs from the Boulder Relocation Plan and why such changes were necessary. The report must be submitted within 60 days of completion of the boulder relocation and/or removal activities and prior to or with the relevant FIR. The permittee shall also provide BOEM and BSEE a comprehensive list and shapefile of boulder locations to which boulders were relocated (latitude, longitude), boulder dimensions (m), any safety distances or zones to limit boulder relocation and/or removal near third-party assets (m), and areas of active (within last 5 years) bottom trawl fishing (i.e., as a raster file for use in ArcGIS).**

V. The permittee shall prepare and implement an Anchoring Plan(s) for all areas where anchoring or buoy placement occurs and jack-up barges are used during construction and operations/maintenance within 1,640 feet (500 m) of habitats, resources, and submerged infrastructure that are sensitive, including sensitive benthic habitats;21 boulders greater than or equal to 0.5 m; ancient submerged landform features (ASLFs); known and potential shipwrecks; potentially significant debris fields; potential hazards; third-party infrastructure, and any related facility installation activities (such as cable, WTG, and OCS-DC installation). Avoidance buffers must be consistent with the following: potential unexploded ordnances will be shown with an exclusion zone consistent with risks identified in the MEC/UXO Desktop Study; confirmed UXO will be shown with exclusion zone relative to risks of planned activities; avoidance of cultural resources (shipwrecks and ASLFs) will be consistent with as-built or as-laid position plats. The permittee shall provide to all construction and support vessels the

locations where anchoring or buoy placement must be avoided to the extent technically and/or economically practicable or feasible, including sensitive benthic habitats; boulders greater than or equal to 0.5 m; ASLFs; known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OCS-DC installation). Dynamic positioning systems should be used in these areas instead of anchoring, as practicable. If anchoring is necessary at these locations, then all vessels deploying anchors must extend the anchor lines to the extent practicable to minimize the number of times the anchors must be raised and lowered to reduce the amount of habitat disturbance, unless the anchor chain sweep area includes sensitive benthic habitat that may be impacted by the chain sweep. On all vessels deploying anchors, The permittee shall use mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed, unless the Permittee demonstrates, and BOEM and BSEE accept, that (1) the use of mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed is not technically practical or feasible; or (2) a different alternative is as safe and provides the same or greater environmental protection. If placement of jack-up barge spud cans is necessary in sensitive benthic habitats, locations for the spud cans must be selected to avoid or minimize impacts according to the following prioritized list, including complex habitat sub-types (using NMFS complexity categories): complex habitats with high density large boulders; complex habitats with medium density large boulders; complex habitats with low density large boulders; complex with scattered large boulders; complex habitats with no large boulders; as technically feasible and practicable. Benthic habitat (NOAA complexity categories) and benthic feature/habitat type maps in conjunction with backscatter, bathymetry, and boulder layers should be used to inform the anchoring plan.

a. The permittee shall provide the proposed Anchoring Plan to BOEM and BSEE for coordination with NMFS GARFO-HESD for a 60-day review at least 120 days before anchoring activities or construction begins for export and inter-array cables. The permittee shall resolve all comments on the Anchoring Plan to BOEM's and BSEE's satisfaction before conducting any OCS seabed-disturbing activities that require anchoring. If there are less than 120 days between anchoring activities and this COP approval, The permittee shall submit the plan as soon as practicable and no later than 60 days prior to commencing activities.

The final version of each Anchoring Plan must be provided to BOEM, BSEE, NMFS GARFO-HESD, and USACE.

W. The permittee shall prepare and implement a Scour and Cable Protection Plan(s) that includes descriptions and specifications for all scour and cable protection materials. The plan(s) must include depictions of the location and extent of scour and cable protection, the habitat delineations for the areas of cable protection measures, and detailed information on the proposed scour or cable protection materials for each area and habitat type. The Scour and Cable Protection Plan(s) must demonstrate consistency with the Micrositing Plan(s) and Sequencing Plan(s), as appropriate.

a. The permittee shall avoid the use of engineered stone or concrete mattresses in complex habitat, as practicable and feasible. The permittee shall ensure that all materials used for scour and cable protection measures consist of natural or engineered stone that does not inhibit epibenthic growth and provides three-dimensional complexity in height and in

interstitial spaces, as practicable and feasible. If concrete mattresses are necessary, bioactive concrete (i.e., with bio-enhancing admixtures) must be used as practicable as the primary scour protection (e.g., concrete mattresses) or veneer to support biotic growth.

b. Cable protection measures must have tapered or sloped edges to reduce hangs for mobile fishing gear. The permittee shall avoid the use of plastics/recycled polyesters/net material (i.e., rock-filled mesh bags, fronded mattresses) for scour protection.

c. The Scour and Cable Protection Plan(s) must be submitted to BOEM and BSEE for coordination with NMFS GARFO-HESD for a 60-day review, at least 120 days prior to placement of scour and cable protection within the area covered by the scope of the Plan(s). The Scour and Cable Protection Plan(s) must be concurred with by BOEM and BSEE prior to BSEE issuing a no-objection to the relevant FDR.

d. The permittee shall resolve all comments on each Plan to BOEM's and BSEE's satisfaction before placement of the scour and cable protection materials. The final version of the Scour and Cable Protection Plan(s) must be provided to BOEM, BSEE, NMFS GARFO-HESD and USACE.

X. The permittee shall report any occurrence of at least 10 dead non-ESA-listed fish within established shutdown or monitoring zones to BOEM and to BSEE (via email to protectedspecies@bsee.gov) as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours after the sighting. BOEM or BSEE will notify NMFS GARFO-HESD. The permittee shall confirm the relevant point of contact prior to reporting and confirm the reporting was received.

Y. The permittee shall conduct fisheries and benthic monitoring according to the Sunrise Wind Fisheries and Benthic Monitoring Plan to assess fisheries and benthic habitat status in the Project area pre-, during, and post-construction. The permittee shall review all NMFS GARFO comments on the Fisheries and Benthic Monitoring Plan that BOEM provides to the permittee and revise the Plan, as appropriate. The permittee shall resolve all comments on the Plan to BOEM's and BSEE's satisfaction prior to implementation of the revised Plan. A copy of the final Fisheries and Benthic Monitoring Plan shall be provided to this office within 30 days of BOEM & BSEE's approval.

Z. The permittee shall, to the extent it is technically and/or economically practicable or feasible, The permittee shall avoid using Zinc sacrificial anodes on external components of WTG and OCS-DC foundations to reduce the release of metal contaminants in the water column.

AA. The permittee shall utilize vibratory pile driving to the maximum extent practicable for both installation and removal of the temporary pier, as practicable.

BB. The permittee shall utilize a soft start during pile installation of the temporary pier on the Intra-coastal Waterway. If pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold, a "soft start" is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. In addition to using a soft start at the beginning of the work day for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes

or longer. For impact pile driving: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving. For vibratory pile installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.

CC. The permittee shall avoid in-water work within Narrow Bay/Long Island Intracoastal Waterway from January 15 to May 31 of any calendar year in estuarine/nearshore waters of 6 meters (m) in depth or less to avoid impacts to winter flounder early life stages (eggs, larvae) with the exception of the installation and/or removal of the temporary pier along in Narrow Bay/Long Island Intracoastal Waterway. If work is conducted from January 15 to May 31, a turbidity curtain shall be used around the construction area, as practicable.

DD. The permittee shall avoid and minimize impacts to sensitive benthic habitats in all inshore/estuarine habitats where seafloor preparation and cable installation activities will occur through the use of HDD, micrositing, and rerouting, as practicable. The permittee shall conduct post-construction surveys to determine any impacts to sensitive benthic habitats where sensitive benthic habitats were previously identified or in the event of Frackout/Inadvertent Release during HDD. The permittee shall coordinate with USACE, BOEM, BSEE, and NMFS regarding potential remedial steps to disturbed benthic habitats, as necessary. All survey results shall be provided to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov.

EE. The permittee shall ensure that all vessels avoid vessel grounding by floating at all stages of the tide or utilizing appropriate spudding, jack-ups or anchoring to avoid vessel grounding. Any spudding, jack-ups or anchoring utilized shall avoid sensitive benthic habitats to the maximum extent possible.

FF. The permittee shall avoid trenching in open nearshore/estuarine waters, as practicable. If open trenching is used, dredged/excavated materials shall not be sidecast or placed in the aquatic environment.

GG. During dredging/excavation of HDD exit pits, the permittee shall dispose of all dredged material at a state approved upland facility if any material is identified to be contaminated. Contaminated sediment shall not be side-casted or stored within any waterway. If the dredged material is contaminated, the permittee shall utilize clean fill to backfill areas where any contaminated sediment was dredged from the HDD exit pit. If the material is not contaminated, the dredged/excavated material may be sidecasted and the side casted material shall be allowed to backfill the HDD exit pit upon completion of the HDD activities.

HH. The permittee shall submit the final copy of the Frackout/Inadvertent Release plan to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov and to USACE a minimum of 60 days prior to construction.

II. The permittee shall avoid seabed disturbing activities in Submerged Aquatic Vegetation (SAV). The permittee shall not moor barges in SAV or SAV habitat and shall maintain a minimum 100 foot buffer between the edge of any SAV beds and any equipment staging or anchoring activities. Additionally, the permittee shall ensure that SAV surveys be provided to vessels/captains to ensure SAV is avoided during construction to the maximum extent practicable.

Within 60 days of completion of each activity in the Intracoastal Waterway (the installation of the temporary pier, the HDD work, and the removal of the temporary pier) the Permittee must submit a post-construction report to USACE and NMFS HESD detailing the following information, as applicable:

- **a. The dates during which the work occurred.**
- **b. Methods utilized for pile installation (vibratory, impacted, etc.)**
- **c. Vessels (type and quantity) utilized for the work, the method of anchoring, and the length of time they were anchored.**
- **d. For any mooring or staging work in previously mapped SAV that could not be avoided, the date(s) the impacts occurred, the length of time of the impacts, and the specific activities within SAV resources.**
- **e. For any inadvertent releases that occurred during the HDD work, the date(s), the location, the proximity to the SAV beds, and the measures taken to mitigate the situation.**
- **f. If the initial HDD work was unsuccessful, indicate the size and location of the new entry and exit pits, whether the exit pits were located within the shellfish survey area, and whether the 100-foot buffer from SAV resources was maintained.**
- **g. If the second set of pits failed and trenching in isolation is required,, indicate the length, width, and depth of the trench, the distance from the trench and side slopes to the closest SAV resources, and the square footage of any direct impacts to SAV resources from this activity.**

USACE and NMFS will have 90 days to review the report and to determine if a post-construction SAV survey will be required due to anchoring, mooring, or staging in mapped SAV or impacts to SAV resulting from an inadvertent return. If so, the Permittee will perform an SAV survey during the next SAV growing season in accordance with the guidelines mentioned above. USACE will then review the SAV survey within 60 days of submission to determine if restoration and/or compensatory mitigation is required. Any required compensatory mitigation will comply with USACE's 2008 compensatory mitigation rule (33 CFR 332).

JJ. The permittee shall avoid in-water work within 1000-feet of Mean High Water on the ocean side of the Long Island Beaches including the Fire Island National Seashore between May 15 to July 15 of any calendar year to avoid and minimize impacts to horseshoe crab spawning.

KK. As there are 10 NMFS scientific surveys that overlap the Sunrise Wind project, consistent with NMFS and BOEM survey mitigation strategy, the permittee shall submit to BOEM and USACE, a survey mitigation agreement between NMFS and the Permittee within 120 days of the COP approval. The survey mitigation agreement must describe how the permittee will mitigate

the Project impacts on the eight NMFS surveys. The permittee shall conduct activities in accordance with such agreement.

If the permittee and NMFS fail to reach a survey mitigation agreement, then the permittee shall submit a Survey Mitigation Plan to BOEM and NMFS that is consistent with the mitigation activities, actions, and procedures described below, within 180 days of COP approval. BOEM will review the Survey Mitigation Plan in consultation with NMFS Northeast Fisheries Science Center (NEFSC). The permittee shall resolve comments to BOEM's satisfaction and must conduct activities in accordance with the plan.

a. **As soon as reasonably practicable, but no later than 30 days after the issuance of the Project's COP approval, the Permittee shall initiate coordination with NMFS NEFSC at nefsc.survey.mitig@noaa.gov to develop the survey mitigation agreement described above. Mitigation activities specified under the agreement must be designed to mitigate the Project impacts on the following NMFS NEFSC surveys: (a) Spring Multi-species Bottom Trawl survey; (b) Autumn Multi-species Bottom Trawl survey; (c) Ecosystem Monitoring survey; (d) Aerial marine mammal and sea turtle survey; (e) Shipboard marine mammal and sea turtle survey; (f) Atlantic surfclam and ocean quahog survey; (g) Atlantic sea scallop survey; and (h) Seal survey; (i) NARW survey; (j) Sea Turtle Ecology survey. At a minimum, the survey mitigation agreement must describe actions and the means to address impacts on the affected surveys due to the preclusion of sampling platforms and impacts on statistical designs. NMFS has determined that the project area is a discrete stratum for surveys that use a random stratified design. This agreement may also consider other anticipated Project impacts on NMFS surveys, such as changes in habitat and increased operational costs due to loss of sampling efficiencies.**
b. **The survey mitigation agreement must identify activities that will result in the generation of data equivalent to data generated by NMFS's affected surveys for the duration of the Project. The survey mitigation agreement must describe the implementation procedures by which the Permittee will work with NEFSC to generate, share, and manage the data required by NEFSC for each of the surveys impacted by the Project, as mutually agreed upon between the Permittee and NMFS NEFSC. The survey mitigation agreement must also describe the Permittee's participation in the NMFS NEFSC Northeast Survey Mitigation Program to support activities that address regional-level impacts for the surveys listed above. The agreement must include provisions that provide criteria for changing mitigation activities over time, or timeframes for review and reconsideration of the agreement based on updated information, or both.**

LL. The permittee shall provide the locations of relocated boulders, created berms, and scour protection, including cable protection measures (i.e., concrete mattresses) shall be provided to NOAA Fisheries, BOEM, BSEE, USCG, and USACE, and the public as soon as possible to help inform all interested parties of potential gear obstructions.

MM. The permittee shall provide Ichthyoplankton and zooplankton samples collected as part of the Biological Monitoring outlined in the NPDES permit to NOAA Fisheries NEFSC to cross-verify samples for incorporation into the Ecosystem Monitoring Program plankton dataset.

NN. The permittee shall ensure that the minimum burial depth for the export and inter-array cables on the OCS is four feet below the stable seabed and a minimum of six feet below the stable seabed within State Waters. The minimum burial depth shall be measured from the top of the cable.

a. In any area/s where the minimum burial depth requirement cannot be met, the permittee shall deploy cable protection measures (i.e. concrete mattressing, rock bags or rock placement). The cable protection measures must comply with the scour and/or cable protection measure plans.

OO. The permittee shall conduct an inspection of each inter-array and export cable to determine cable location, burial depths, the state of the cable, and site conditions within 6 months, 1 year, and 2 years of commissioning, and every 3 years thereafter (e.g., years 5, 8, 11, 14, 17, 20, and 23 after commissioning). These surveys must also be conducted within 180 days of a storm event (as defined in the Post-Storm Event Monitoring Plan). The permittee shall provide BSEE, BOEM, and USACE with a cable monitoring report within 90 days following each inspection. Inspections of the inter-array and export cables must include high-resolution geophysical (HRG) methods, involving, for example, multibeam bathymetric survey equipment; and must identify seabed features, natural and man-made hazards, and site conditions along Federal sections of the cable routing.

a. If this office determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, this office will notify the permittee and the permittee shall implement corrective actions required to ensure compliance with this permit.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403).

(X) Section 14 of the Rivers and Harbors Act of 1899 (33 U.S. Code 408).

(X) Section 404 of the Clean Water Act (33 U.S. Code 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization:

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally

give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Ryan Clay — May 24, 2024

(PERMITTEE) **(DATE)**

Ørsted/Sunrise Wind, LLC

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

June 6, 2024

(COMMANDER AND DISTRICT ENGINEER) **(DATE)**

Alexander L. Young
Colonel, U.S. Army
Commander and District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below. A copy of the permit signed by the transferee should be sent to this office.

(TRANSFEREE) **(DATE)**

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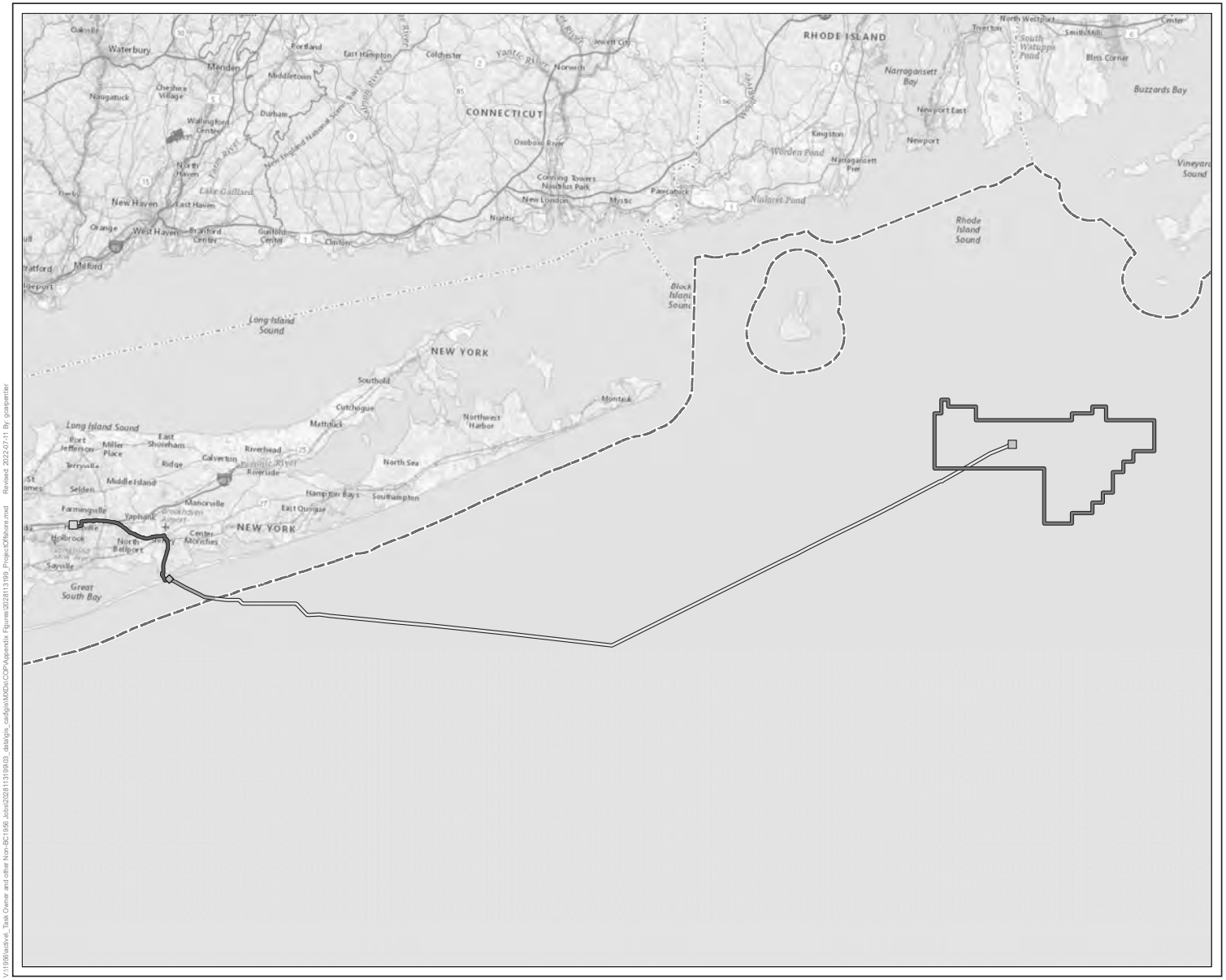
Drawing Index

** Updated drawing provided to USACE May 2023*

*** Updated drawings provided to USACE May 2023 and April 2024*



Sunrise Wind Farm Project

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Farm (SRWF)
- Offshore Converter Station (OCS–DC)
- SRWEC Landfall Location
- Union Avenue Site
- Sunrise Wind Export Cable (SRWEC–OCS)
- Sunrise Wind Export Cable (SRWEC–NYS)
- Onshore Transmission Cable
  LIE Service Road Route
- 3-nm State Waters Boundary

Note
Routes are indicative and subject to engineering design changes.

Sources
1. Base map: USGS The National Map

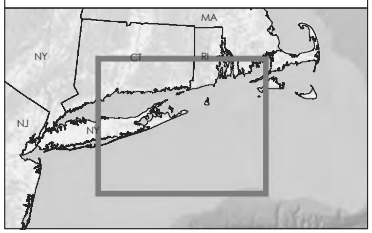
Date	07/11/2022
Project Number	2028113199
Prepared By	PB
Reviewed By	LJ

0 10 miles
0 8 nm
0 16 km

N

Scale at 11x17: 1:676,500
NAD 1983 2011 UTM Zone 19N

REFERENCE MAP



V:\1958\active_Task Owner and other Non-ISC\1958 Jobs\2028113199\03_data\gis_cad\gis\MXDs\COP\Appendix Figures\2028113199_ProjectOffshore.mxd Revised: 2022-07-11 By: graspenter

Wind Turbine Generator Information

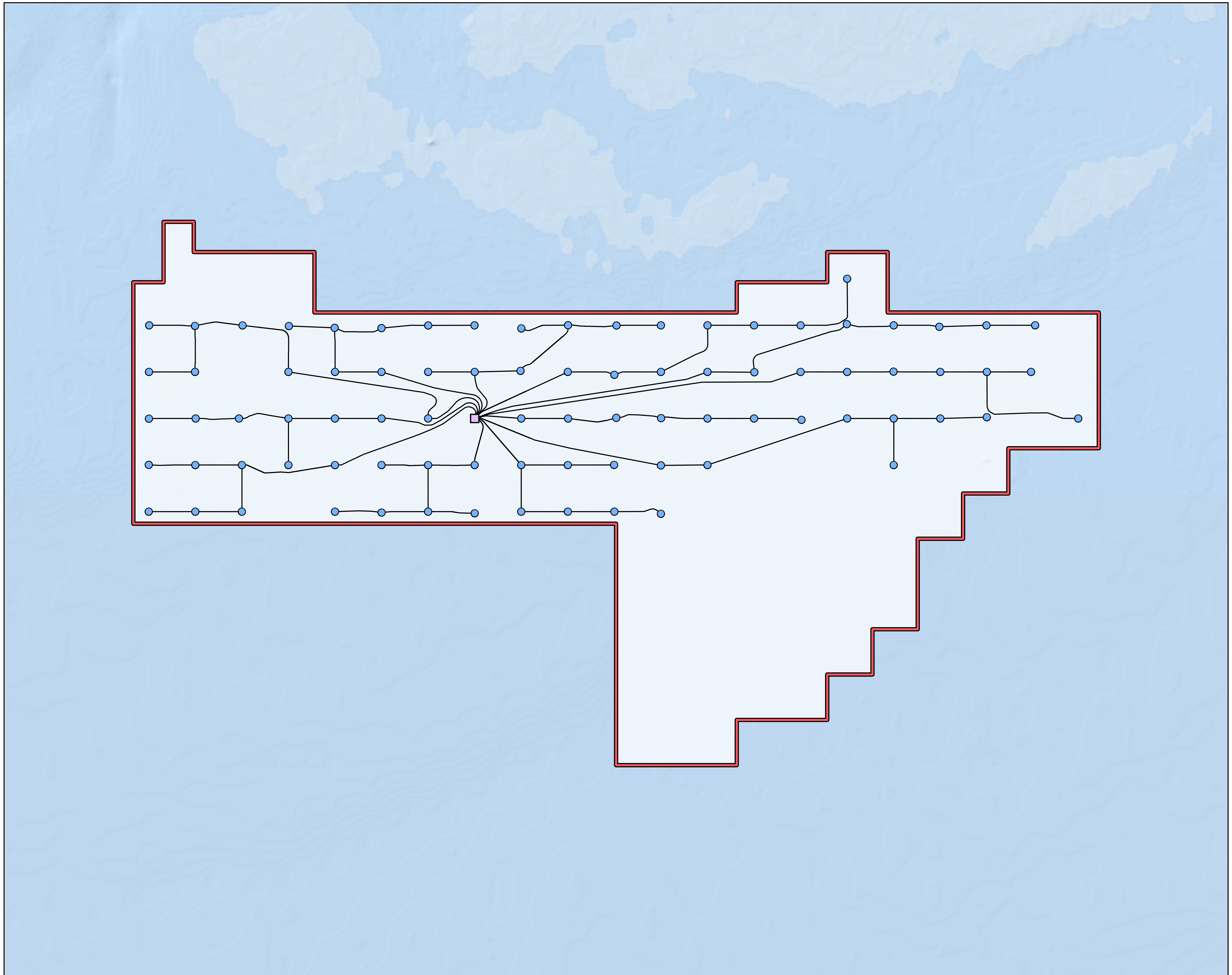


Figure 1
Indicative SRWF Layout Design

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Legend
- Sunrise Wind Farm (SRWF)
- Indicative Turbine Layout (WTG)
- Indicative Offshore Converter Station (OCS–DC)
- Indicative Inter-Array Cable (IAC)

__Sources__
Base map: ESRI World Ocean Base Map

Date	04/05/2024
Project Number	2028113199
Prepared By	GC
Reviewed By	JP

0 2.5 miles
0 2.5 nm
0 4 km
N
Scale at 11x17: 1:158,400
NAD 1983 2011 UTM Zone 19N

REFERENCE MAP

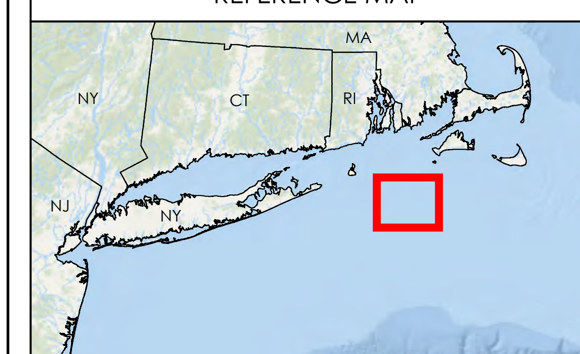


Table 1. WTGs and Offshore Converter Station Locations. *This table provides surface locations and water depths for the WTGs and 1 OCS–DC.*

			WGS84		NAD 1983 (2011) UTM19N	
Position ID[1]	**USCG ID**	**Water Depth (m, MLLW)**	**Latitude (DD)**	**Longitude (DD)**	**Easting**	**Northing**
81	AS-17	-42.39	41.030156	-70.924145	338246	4543888
83	AS-15	-39.46	41.029412	-70.968181	334542	4543888
84	AS-14	-40.67	41.029034	-70.990199	332690	4543888
85	AS-13	-41.00	41.028651	-71.012216	330838	4543888
86	AS-12	-43.19	41.028265	-71.034233	328986	4543888
111	AT-17	-45.68	41.013482	-70.923659	338246	4542036
112	AT-16	-45.32	41.013113	-70.945672	336394	4542036
113	AT-15	-46.46	41.012739	-70.967685	334542	4542036
114	AT-14	-46.06	41.012361	-70.989697	332690	4542036
115	AT-13	-45.81	41.011978	-71.011708	330838	4542036
116	AT-12	-46.05	41.011592	-71.033719	328986	4542036
140	AU-17	-47.48	40.996808	-70.923174	338246	4540184
141	AU-16	-47.10	40.996439	-70.945182	336394	4540184
143	AU-14	-47.70	40.995688	-70.989195	332690	4540184
144	AU-13	-48.33	40.995306	-71.011201	330838	4540184
145	AU-12	-48.27	40.994919	-71.033207	328986	4540184
171	AV-13	-49.61	40.978633	-71.010694	330838	4538332
172	AV-12	-50.16	40.978247	-71.032694	328986	4538332
63	AR-16	-41.26	41.04646	-70.946654	336394	4545740
88	AS-10	-42.45	41.027479	-71.078265	325282	4543888
92	AS-06	-43.44	41.024957	-71.166294	317874	4543788
93	AS-05	-46.39	41.02454	-71.188307	316022	4543788
94	AS-04	-47.81	41.02502	-71.21035	314170	4543888
95	AS-03	-49.37	41.024596	-71.232363	312318	4543888
96	AS-02	-48.97	41.024167	-71.254375	310466	4543888
97	AS-01	-45.52	41.023734	-71.276387	308614	4543888
118	AT-10	-46.50	41.010807	-71.07774	325282	4542036

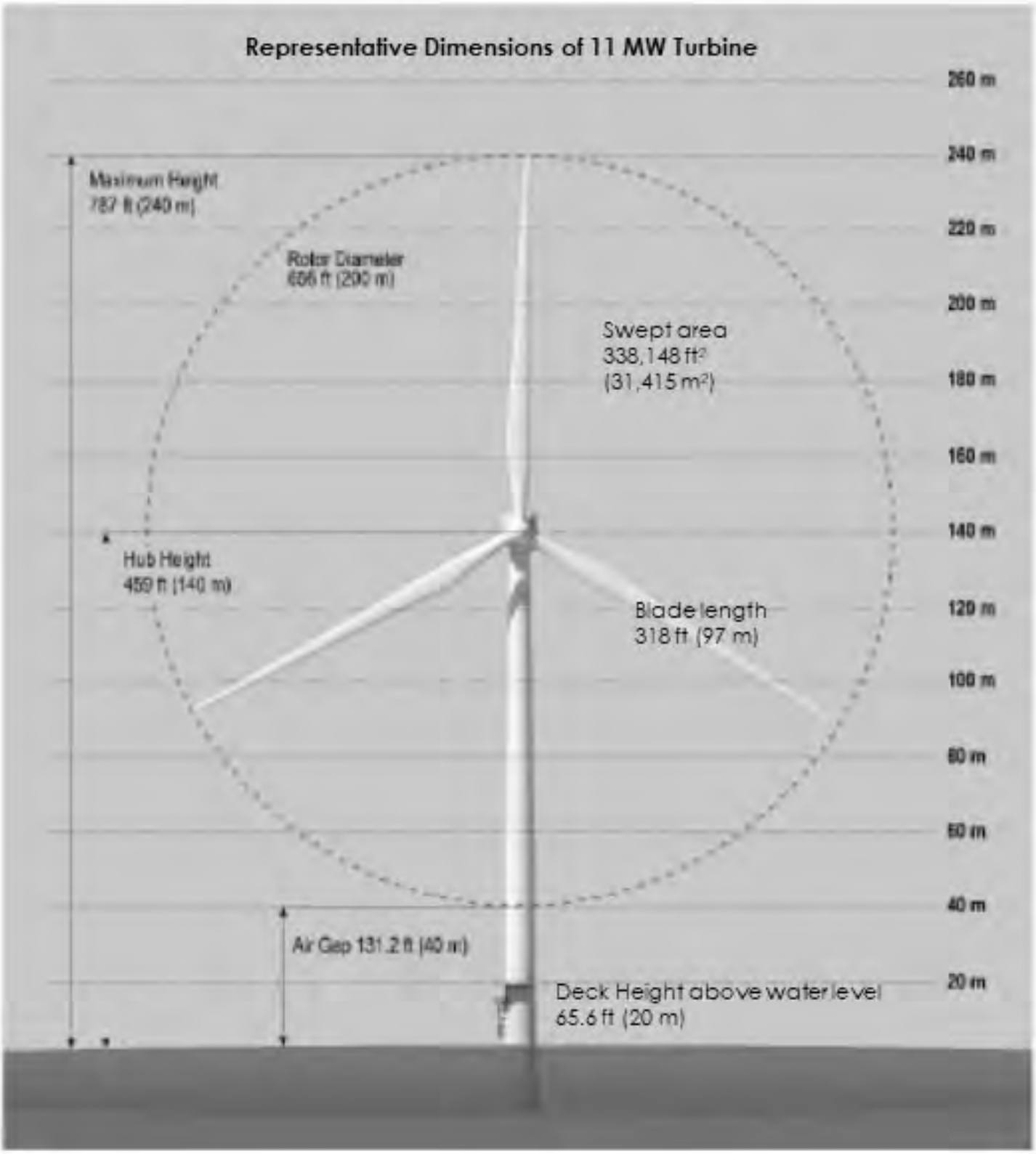
Sunrise Wind Project, Atlantic Ocean, New York, April 2024

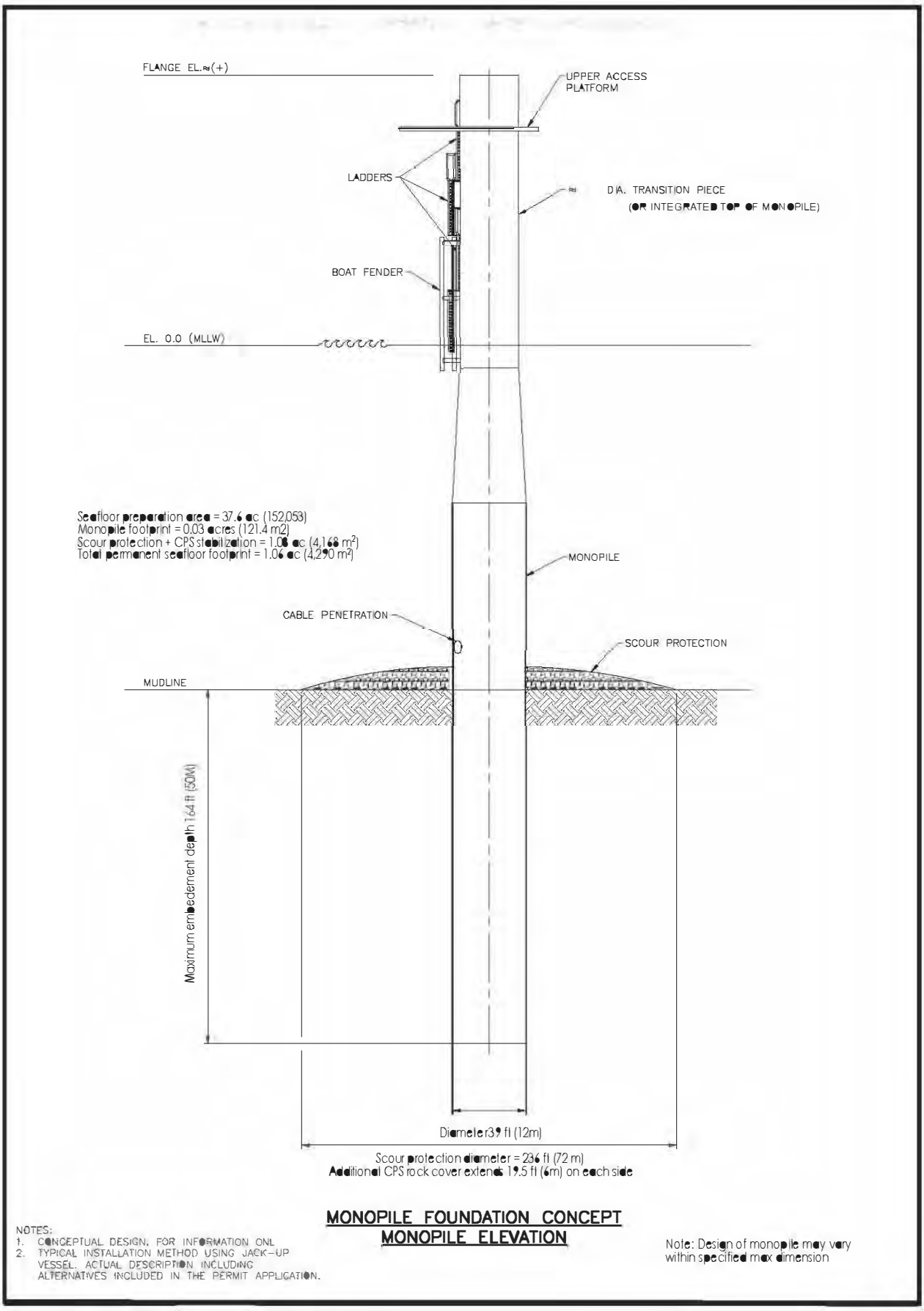
			WGS84		NAD 1983 (2011) UTM19N	
Position ID[1]	USCG ID	Water Depth (m, MLLW)	Latitude (DD)	Longitude (DD)	Easting	Northing
120	AT-08	-46.25	41.010004	-71.12176	321578	4542036
121	AT-07	-45.92	41.009597	-71.143769	319726	4542036
122	AT-06	-48.59	41.009185	-71.165777	317874	4542036
123	AT-05	-49.89	41.00877	-71.187785	316022	4542036
124	AT-04	-50.03	41.00835	-71.209793	314170	4542036
126	AT-02	-46.68	41.007497	-71.253807	310466	4542036
127	AT-01	-46.50	41.007064	-71.275813	308614	4542036
147	AU-10	-47.34	40.994134	-71.077217	325282	4540184
148	AU-09	-48.98	40.993736	-71.099221	323430	4540184
150	AU-07	-50.44	40.992925	-71.143228	319726	4540184
151	AU-06	-52.00	40.992514	-71.165231	317874	4540184
152	AU-05	-52.60	40.992099	-71.187234	316022	4540184
153	AU-04	-50.71	40.991679	-71.209236	314170	4540184
155	AU-02	-46.41	40.990827	-71.253239	310466	4540184
156	AU-01	-47.81	40.990394	-71.275239	308614	4540184
173	AV-11	-49.98	40.977856	-71.054694	327134	4538332
174	AV-10	-49.11	40.977462	-71.076693	325282	4538332
175	AV-09	-50.18	40.977064	-71.098692	323430	4538332
176	AV-08	-48.41	40.976661	-71.12069	321578	4538332
177	AV-07	-49.90	40.976254	-71.142688	319726	4538332
178	AV-06	-52.47	40.975843	-71.164686	317874	4538332
179	AV-05	-54.09	40.975427	-71.186683	316022	4538332
180	AV-04	-54.50	40.975008	-71.208679	314170	4538332
181	AV-03	-52.49	40.974584	-71.230675	312318	4538332
182	AV-02	-52.09	40.974156	-71.252671	310466	4538332
183	AV-01	-48.91	40.973724	-71.274666	308614	4538332
200	AW-11	-49.57	40.961184	-71.054177	327134	4536480
201	AW-10	-50.42	40.96079	-71.07617	325282	4536480
202	AW-09	-50.96	40.960391	-71.098164	323430	4536480
204	AW-07	-50.85	40.959582	-71.142149	319726	4536480

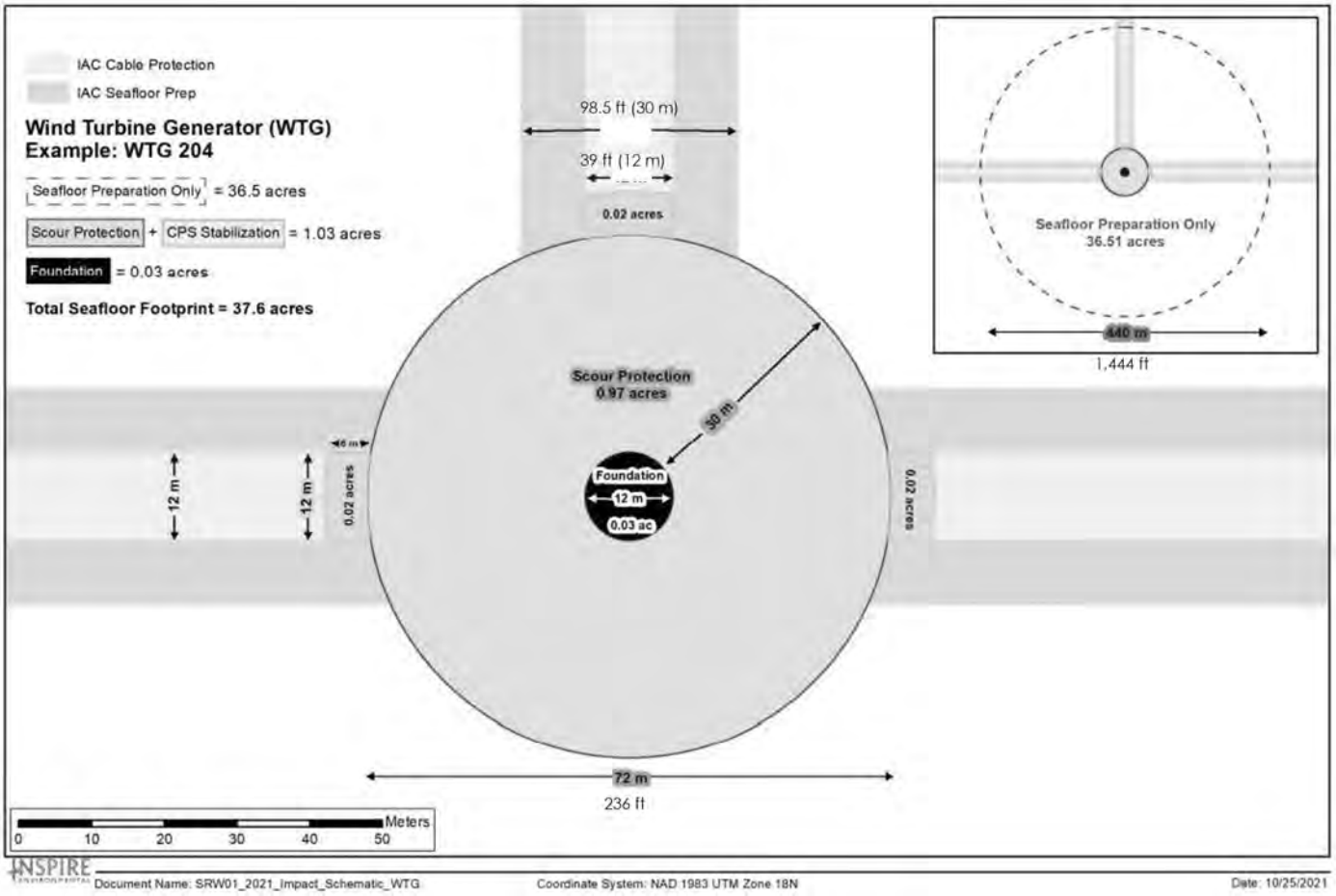
Sunrise Wind Project, Atlantic Ocean, New York, April 2024

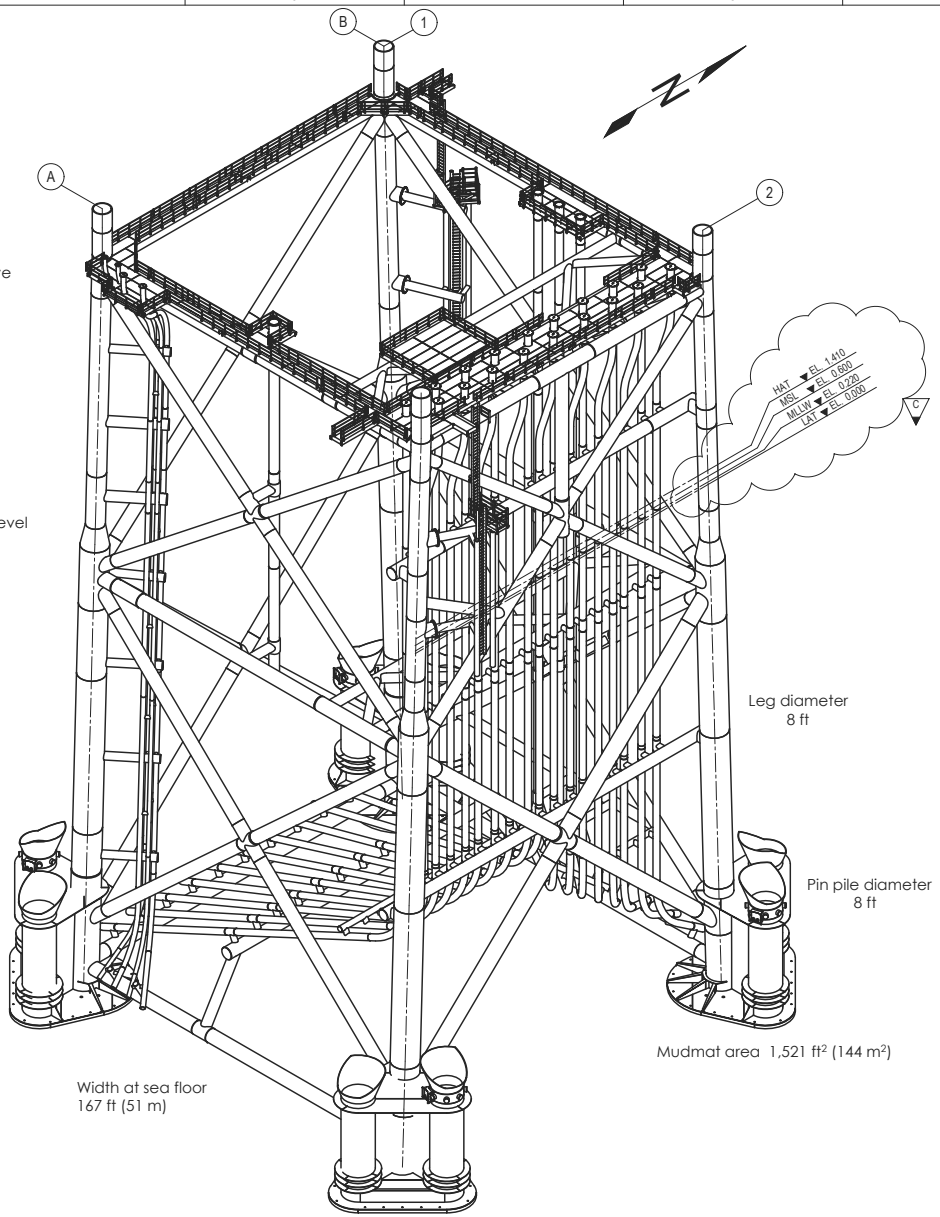
			WGS84		NAD 1983 (2011) UTM19N	
Position ID[1]	USCG ID	Water Depth (m, MLLW)	Latitude (DD)	Longitude (DD)	Easting	Northing
205	AW-06	-52.03	40.959171	-71.164141	317874	4536480
206	AW-05	-51.14	40.958756	-71.186132	316022	4536480
208	AW-03	-51.46	40.957914	-71.230114	312318	4536480
209	AW-02	-53.22	40.957486	-71.252104	310466	4536480
210	AW-01	-53.63	40.957054	-71.274094	308614	4536480
199	AW-12	-50.85	40.960809	-71.032159	328986	4536395
82	AS-16	-41.81	41.030217	-70.946335	336380.656	4543936.187
87	AS-11	-44.08	41.02789	-71.055373	327207.684	4543888
117	AT-11	-46.59	41.010169	-71.055703	327133.5469	4541921.376
119	AT-09	-47.67	41.010779	-71.100086	323402.7904	4542077.948
142	AU-15	-47.16	40.995592	-70.966744	334578.2467	4540130.623
146	AU-11	-49.03	40.994753	-71.054414	327201.7372	4540207.255
203	AW-08	-51.37	40.9593	-71.120109	321580.1471	4536403.419
79	AS-19	-45.01	41.030883	-70.880107	341950	4543888
109	AT-19	-46.90	41.014209	-70.879632	341950	4542036
110	AT-18	-46.33	41.013848	-70.901646	340098	4542036
139	AU-18	-49.04	40.997174	-70.901167	340098	4540184
80	AS-18	-44.86	41.03	-70.902569	340059.4985	4543830.912
138	AU-19	-48.39	40.997985	-70.879171	341950	4540234
167	AV-17	-49.64	40.980134	-70.92269	338246	4538332
137	AU-20	-51.65	40.997891	-70.85715	343802	4540184
77	AS-21	-46.29	41.031574	-70.836842	345588.8063	4543887.241
78	AS-20	-45.74	41.031259	-70.857271	343870.6518	4543888.586
107	AT-21	-48.82	41.015082	-70.835921	345627.7397	4542054.757
108	AT-20	-46.42	41.014551	-70.858734	343708.1401	4542036.33
136	AU-21	-49.68	40.998231	-70.835956	345585.4185	4540184
154	AU-03	-50.20	40.99124	-71.232598	312203.4888	4540185.32
89	AS-09	-42.97	41.026088	-71.100308	323425	4543778
90	AS-08	-41.78	41.026676	-71.122295	321578	4543888
91	AS-07	-42.71	41.026269	-71.14431	319726	4543888
149	AU-08	-50	40.99334111	-71.12122539	321578	4540184

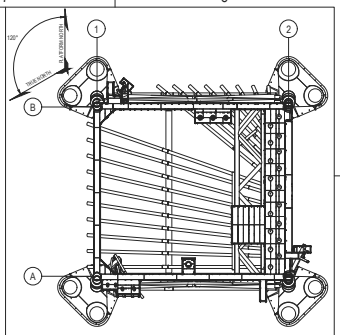
[1] These are reference identifiers for WTGs and OCS–DC and do not reflect a sequential numbering system.


Representative Dimensions of 11 MW Turbine
Maximum Height
787 ft (240 m)
Rotor Diameter
656 ft (200 m)
Swept area
338,148 ft²
(31,415 m²)
Hub Height
459 ft (140 m)
Blade length
318 ft (97 m)
Air Gap 131.2 ft (40 m)
Deck Height above water level
65.6 ft (20 m)
260 m
240 m
220 m
200 m
180 m
160 m
140 m
120 m
100 m
80 m
60 m
40 m
20 m


FLANGE EL.≈(+)
UPPER ACCESS PLATFORM
LADDERS
≈ DIA. TRANSITION PIECE
(OR INTEGRATED TOP OF MONOPILE)
BOAT FENDER
EL. 0.0 (MLLW)
Seafloor preparation area = 37.6 ac (152,053)
Monopile footprint = 0.03 acres (121.4 m2)
Scour protection + CPS stabilization = 1.03 ac (4,168 m²)
Total permanent seafloor footprint = 1.06 ac (4,290 m²)
MONOPILE
CABLE PENETRATION
SCOUR PROTECTION
MUDLINE
Maximum embedement depth 164 ft (50M)
Diameter39 ft (12m)
Scour protection diameter = 236 ft (72 m)
Additional CPS rock cover extends 19.5 ft (6m) on each side
MONOPILE FOUNDATION CONCEPT
MONOPILE ELEVATION
NOTES:
1. CONCEPTUAL DESIGN, FOR INFORMATION ONL
2. TYPICAL INSTALLATION METHOD USING JACK-UP VESSEL. ACTUAL DESCRIPTION INCLUDING ALTERNATIVES INCLUDED IN THE PERMIT APPLICATION.
Note: Design of monopile may vary within specified max dimension


IAC Cable Protection
IAC Seafloor Prep
Wind Turbine Generator (WTG)
Example: WTG 204
Seafloor Preparation Only = 36.5 acres
Scour Protection + CPS Stabilization = 1.03 acres
Foundation = 0.03 acres
Total Seafloor Footprint = 37.6 acres
98.5 ft (30 m)
39 ft (12 m)
0.02 acres
Seafloor Preparation Only
36.51 acres
440 m
1,444 ft
Scour Protection
0.97 acres
30 m
46 m
12 m
12 m
0.02 acres
Foundation
12 m
0.03 ac
0.02 acres
72 m
236 ft
Meters
0 10 20 30 40 50
INSPIRE
Document Name: SRW01_2021_Impact_Schematic_WTG
Coordinate System: NAD 1983 UTM Zone 18N
Date: 10/25/2021





NOTES:

1. ALL ELEVATIONS IS RELATIVE TO LAT.

REF	AKSO DESIGN DRAWING No	COMPANY DRAWING No

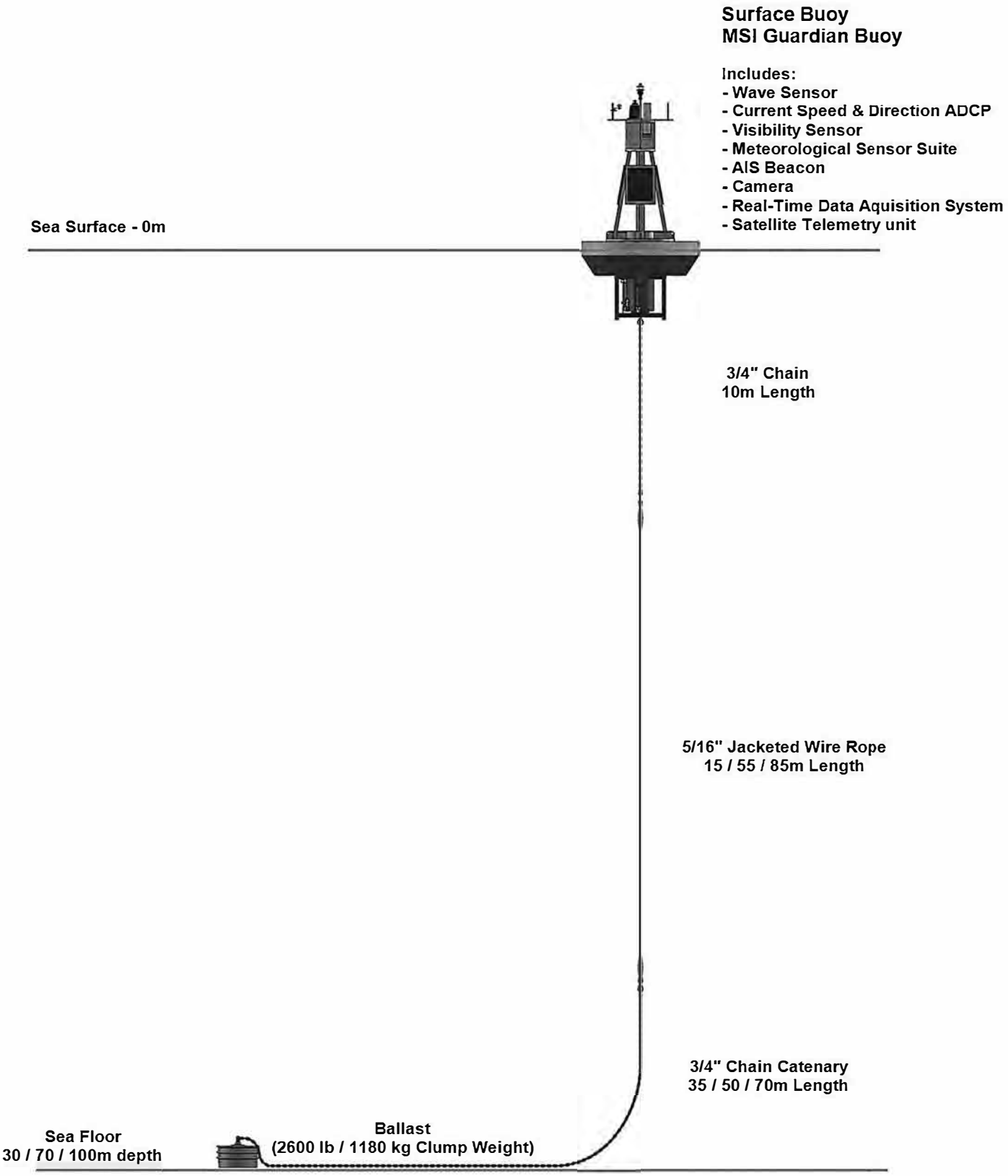
Rev.	Date	Remark	Created By
C	23-May-2022	RE-ISSUED FOR CONSTRUCTION	SR
B	24-Mar-2022	ISSUED FOR CONSTRUCTION	SR
A	17-Dec-2021	ISSUED FOR REVIEW / MTO	SR
01	01-Oct-2021	ISSUED FOR IDC / CONCEPT UPDATE	SR

DMS Identifier E4A000000NNNN

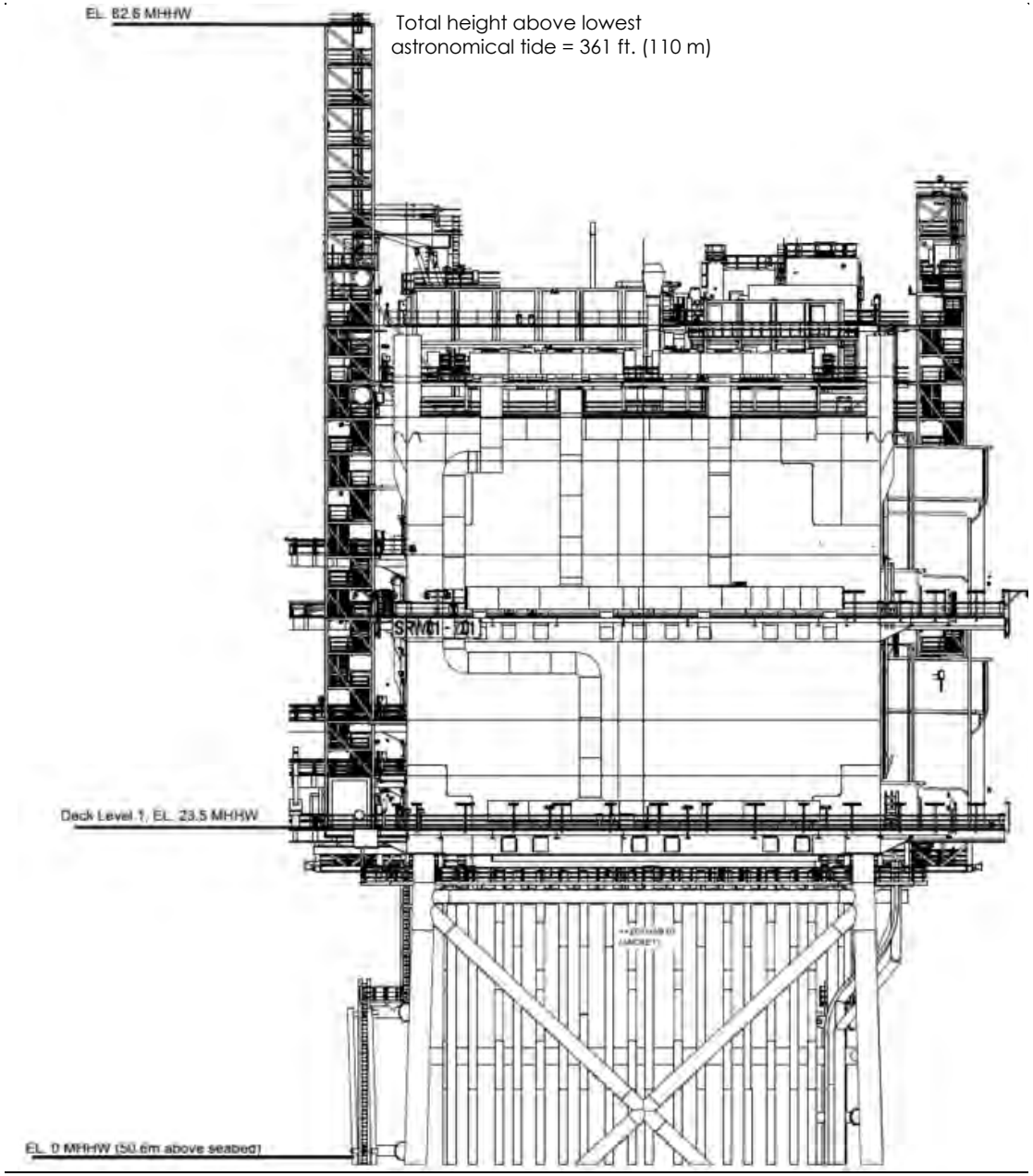
Project ID N-000456	Doc. Key E	Aspect A	Orsted Document Number 07163479	Plant Type / Voltage HVDC PLUS 1050 MW
Customer Sunrise Wind LLC				±320 kV DC / 138 kV AC
Project name Sunrise Wind EPC				Location(s) Sunrise Wind Offshore Converter Station
Scale 1:350	Orsted document no and rev code 07163479 Rev-C	RDS-PP and DCC number =SRW01=Z01UAB10&CLH007		Export Control Classification: ECCN:N AL: N
Responsible Dept. SE GP T SO	Technical Reference NOH	Document Designation AANNN#AANN-AANN-AANN&A1A2A3NNN		/NNN Paper Size A3
Sunrise Wind	Created By SR	Drawing Type GENERAL DRAWING		Document ID Exxxxx-X0000-Y000
Aker Solutions	Approved By RE	Document title, Package/Scope name GENERAL ARRANGEMENT & ISO JACKET		Rev. co. C Release Date 23-May-2022 Language en Page 1 / 1

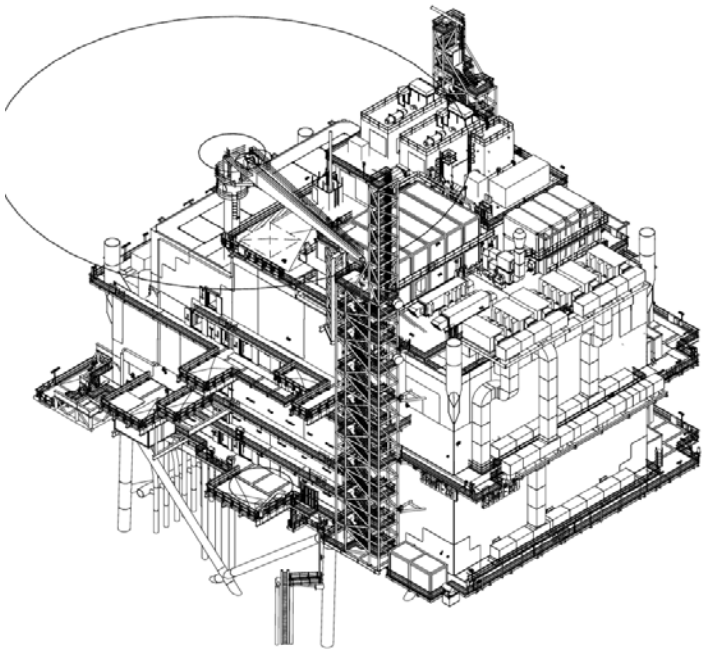
Wave Buoy

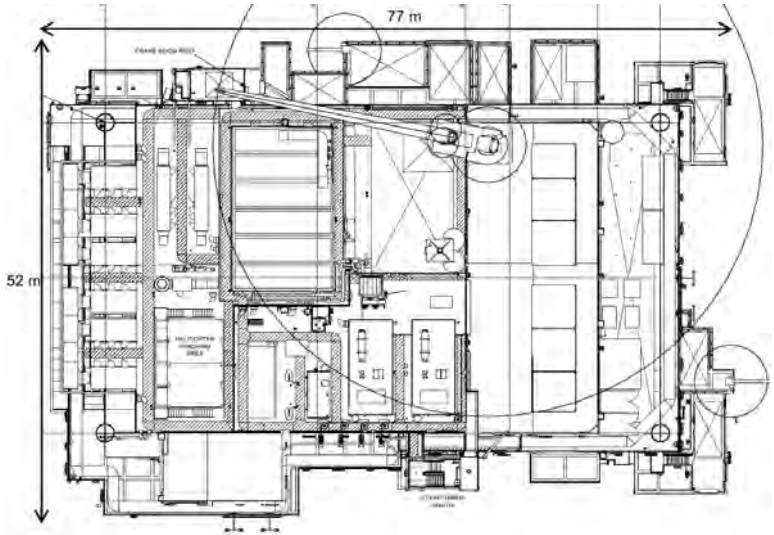
Orsted
Shallow Water Metocean Mooring
(30-100m estimated depth range)



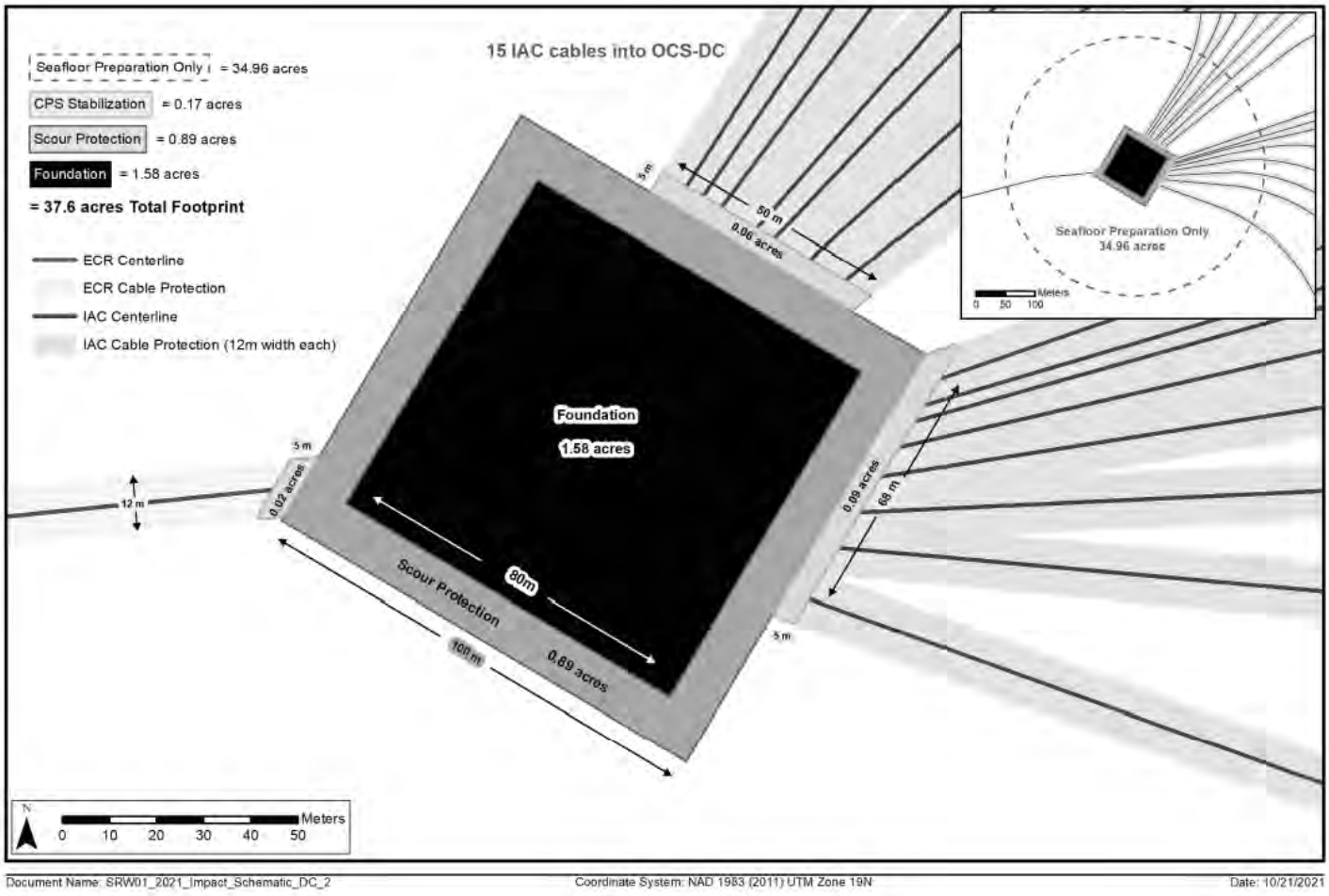
Offshore Converter Substation





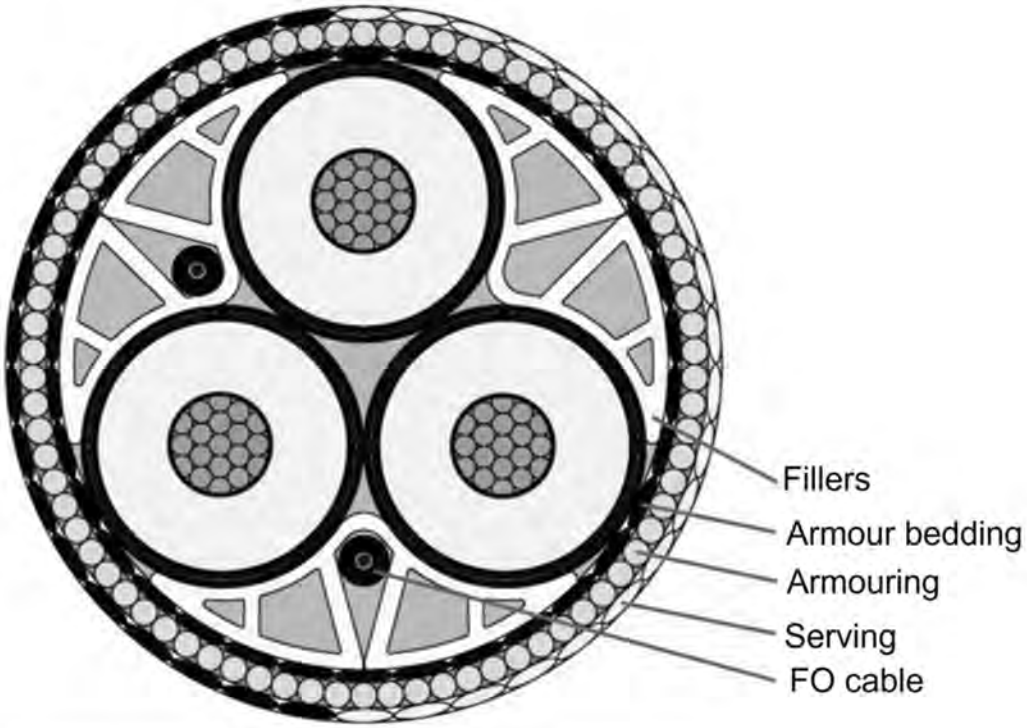


Offshore Converter Station (OCS-DC) topside platform will be assembled as a single unit prior to being transported to the Lease Area via a heavy transport vessel or barge. Topside platform will be lifted and lowered onto the pre-installed foundation and secured via grouted, bolted, or welded connection.


15 IAC cables into OCS-DC
Seafloor Preparation Only = 34.96 acres
CPS Stabilization = 0.17 acres
Scour Protection = 0.89 acres
Foundation = 1.58 acres
= 37.6 acres Total Footprint
ECR Centerline
ECR Cable Protection
IAC Centerline
IAC Cable Protection (12m width each)
Foundation
1.58 acres
Scour Protection
0.89 acres
80m
100m
50 m
0.06 acres
5 m
0.02 acres
12 m
0.09 acres
68 m
Seafloor Preparation Only
34.96 acres
Meters
0 50 100
N
Meters
0 10 20 30 40 50
Document Name: SRW01_2021_Impact_Schematic_DC_2
Coordinate System: NAD 1983 (2011) UTM Zone 19N
Date: 10/21/2021

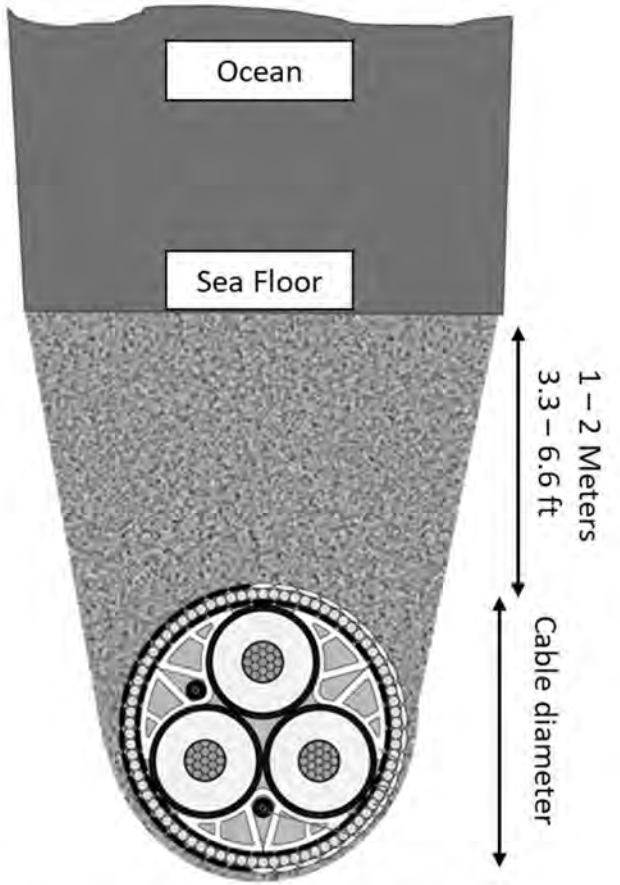
Inter-array Cable total permanent footprint = 14.5 acres (633,600 ft^2)
Total temporary seabed disturbance area = 2,150 acres (870 ha)

Inter-array Cable Cross-Section



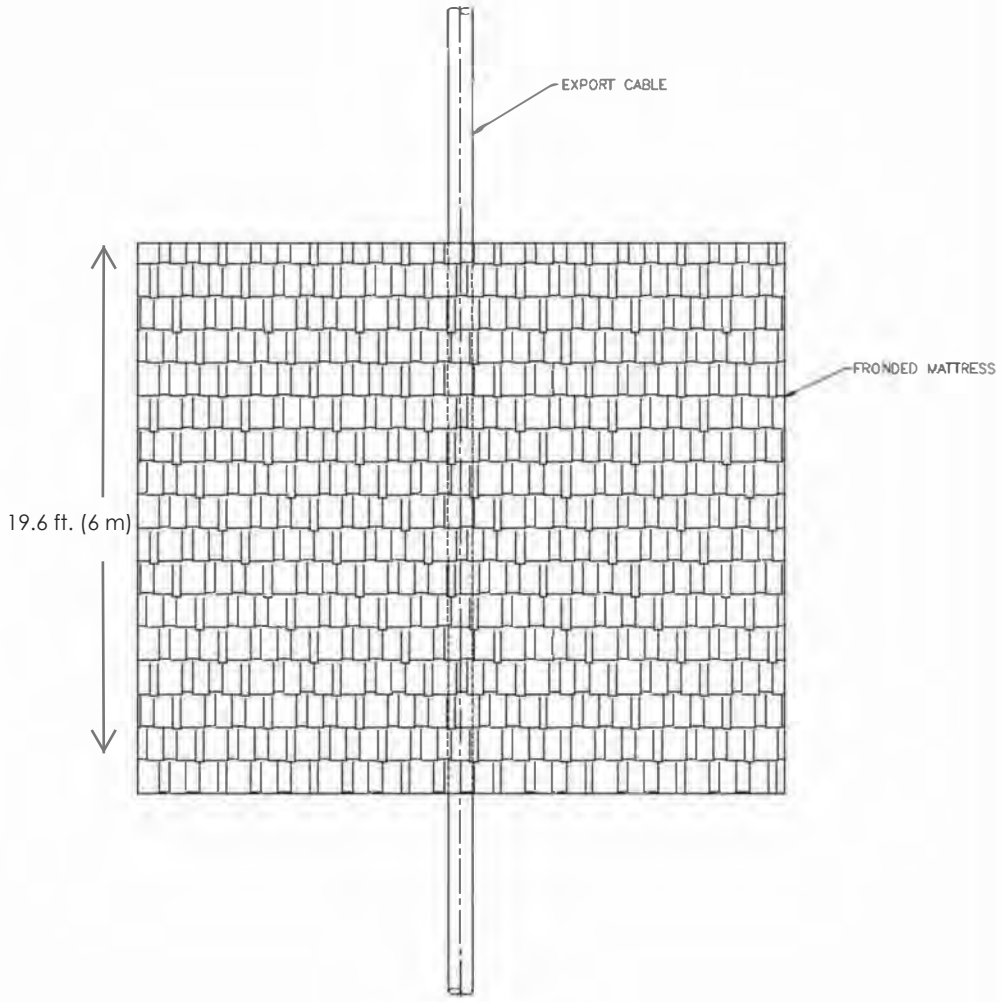
150mm^2 cable diameter = 130.1mm (5.1 in) +/-4%
300mm^2 cable diameter = 141.2mm (5.6 in) +/-4%
800mm^2 cable diameter = 172.5mm (6.7 in) +/-4%

Inter-array Cable Burial Depth (not to scale)



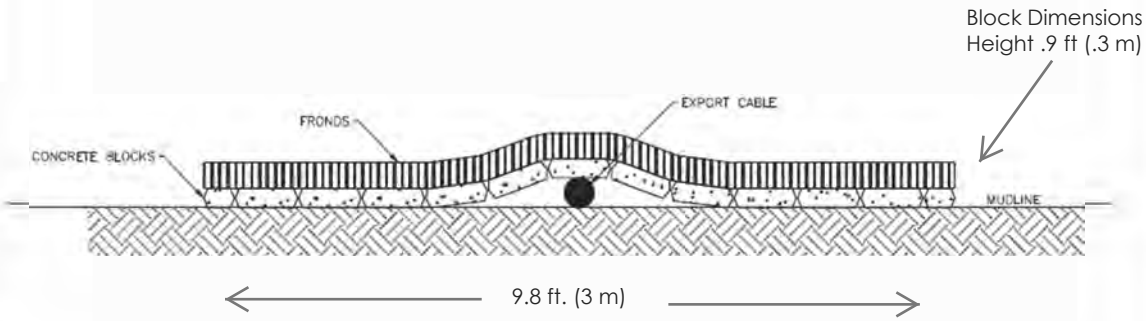
150mm^2 cable diameter = 130.1mm (5.1 in) +/-4%
300mm^2 cable diameter = 141.2mm (5.6 in) +/-4%
800mm^2 cable diameter = 172.5mm (6.7 in) +/-4%

Cable Protection



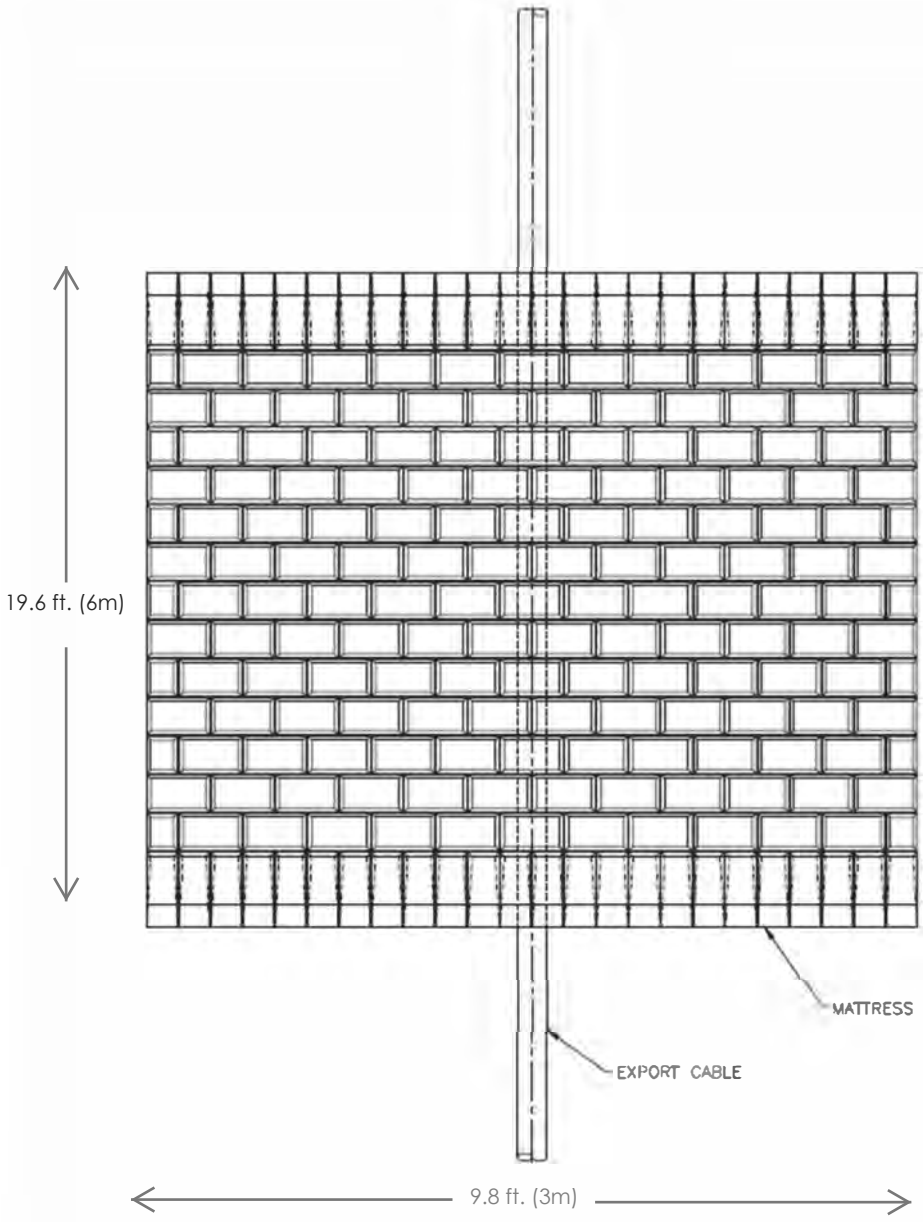
Cable burial – Fronded Mattress

NOTES:
CONCEPTUAL DESIGN, FOR INFORMATION ONLY.



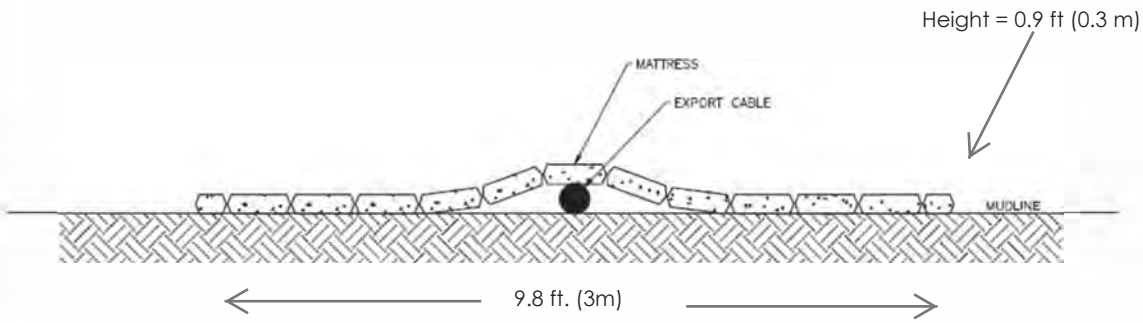
Cable burial – Bonded Mattress

NOTES:
CONCEPTUAL DESIGN, FOR INFORMATION ONLY



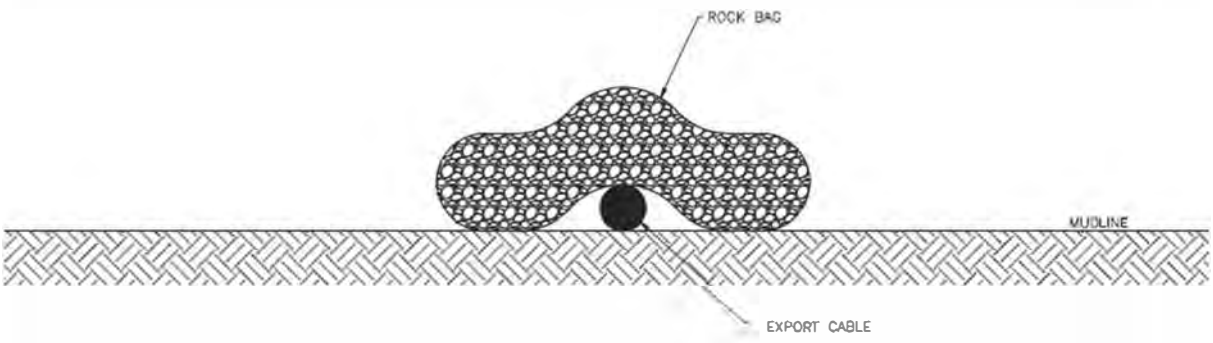
Cable burial – Mattress

NOTES:
CONCEPTUAL DESIGN – FOR INFORMATION ONLY



Cable burial – Mattress

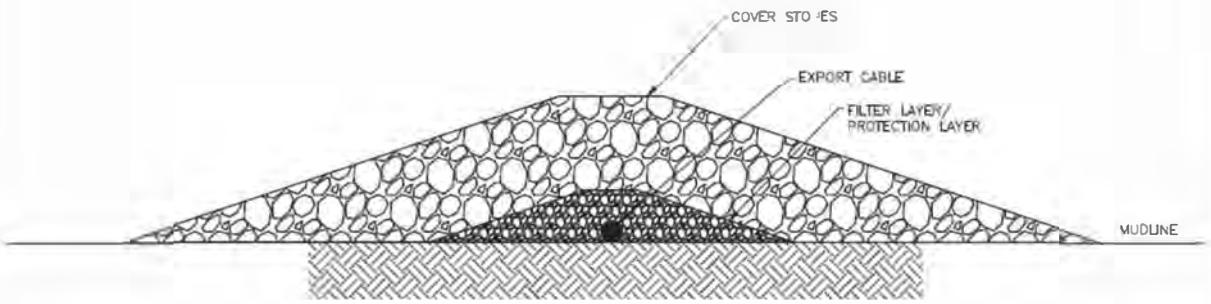
NOTES:
CONCEPTUAL DESIGN - FOR INFORMATION ONLY



Indicative - dimensions dependent on final design.

CABLE BURIAL -
ROCK BAGS OR GROUT BAGS

NOTES:
CONCEPTUAL DESIGN – FOR INFORMATION O



Indicative - dimensions dependent on final design.

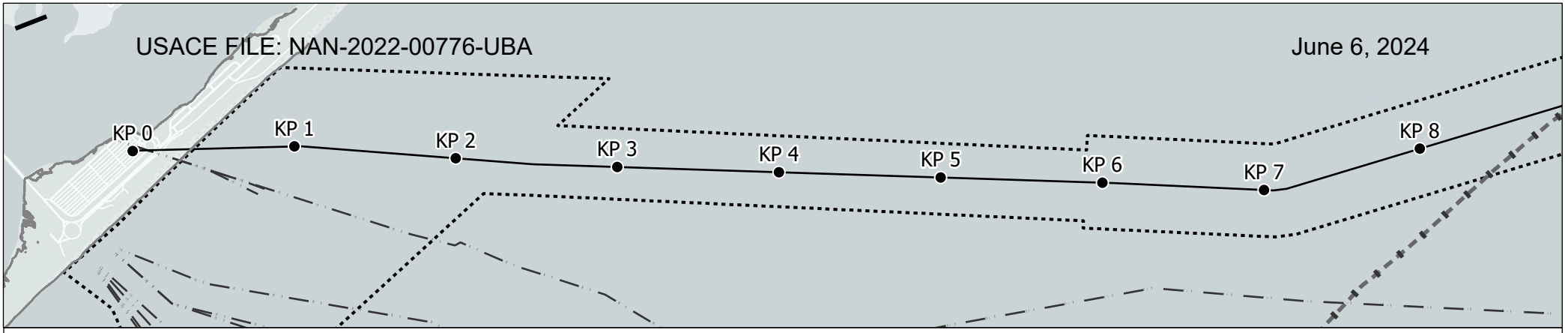
Cable burial – Rock Berm

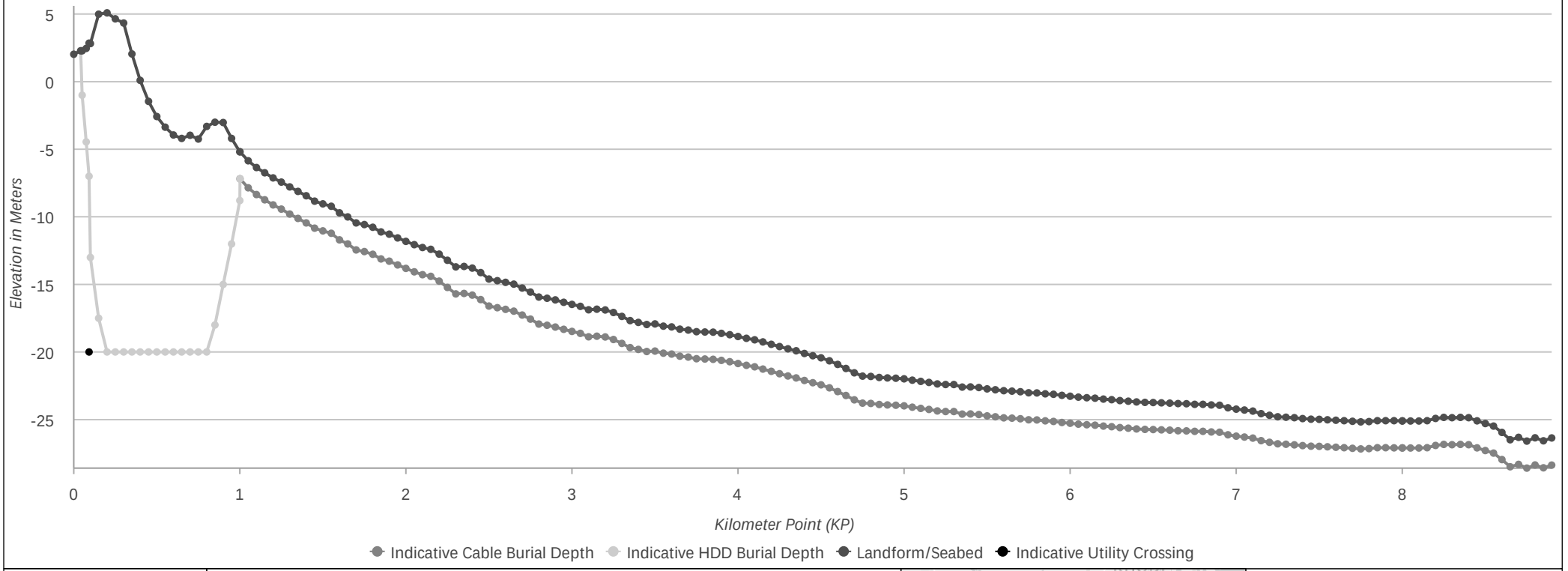
NOTES:
CONCEPTUAL DESIGN – FOR INFORMATION ONLY

SRWEC Plan and Profile

USACE FILE: NAN-2022-00776-UBA

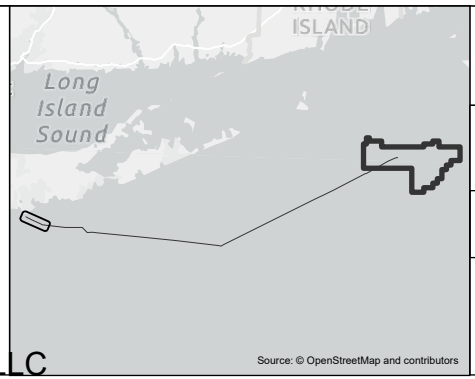
June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Approximate Mean High Water Line
- Existing Utility
- 3 NM State Water Limit
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Exclusive of the portion of the cable installed via HDD, the SRWEC–NYS will be installed a minimum of six feet (measured from top of cable) below the seabed (Target Burial Depth). The SRWEC–NYS Landfall HDD will be installed at a depth that will provide sufficient cable burial and at a minimum of six feet below the seafloor, exclusive of the transition points associated with the entry and exit positions of the HDD, whereby the conduit will be buried below surface level upon completion.
4) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
5) The Export Cable Corridor will consist of one distinct buried marine circuit. Micro-siting within the corridor will be completed by the installation contractor.
6) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
7) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
8) The existing utilities shown in this drawing are shown indicatively based on information provided by utility owners, NOAA, and NASCA. The cable burial depth that will be required at utility crossings is not depicted in the burial depth profile above. Other utilities may be present.
9) The total width of the disturbance corridor for SRWEC installation is 98 feet (30m).
10) The SWREC will be up to 104.6 mi (168 km). The SRWEC-OCS route will be up to 99.4 mi (160 km) and the SRWEC-NYS route will be up to 5.2 mi (8.4 km), from 3 nautical miles offshore to the MHWL.
11) The total maximum permanent footprint of the SRWEC-OCS, including secondary cable protection and cable crossing between the OCS-DC and NYS water boundary is 52.7 acres
12) Sources: NOAA, NASCA, BOEM and (c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)



Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

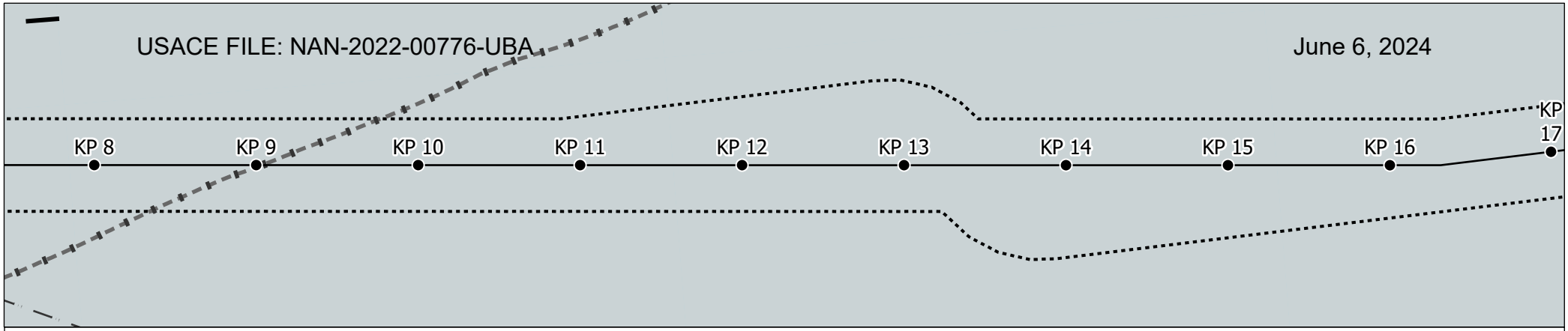
Reference system: NAD83 (2011)
Vertical reference: MLLW

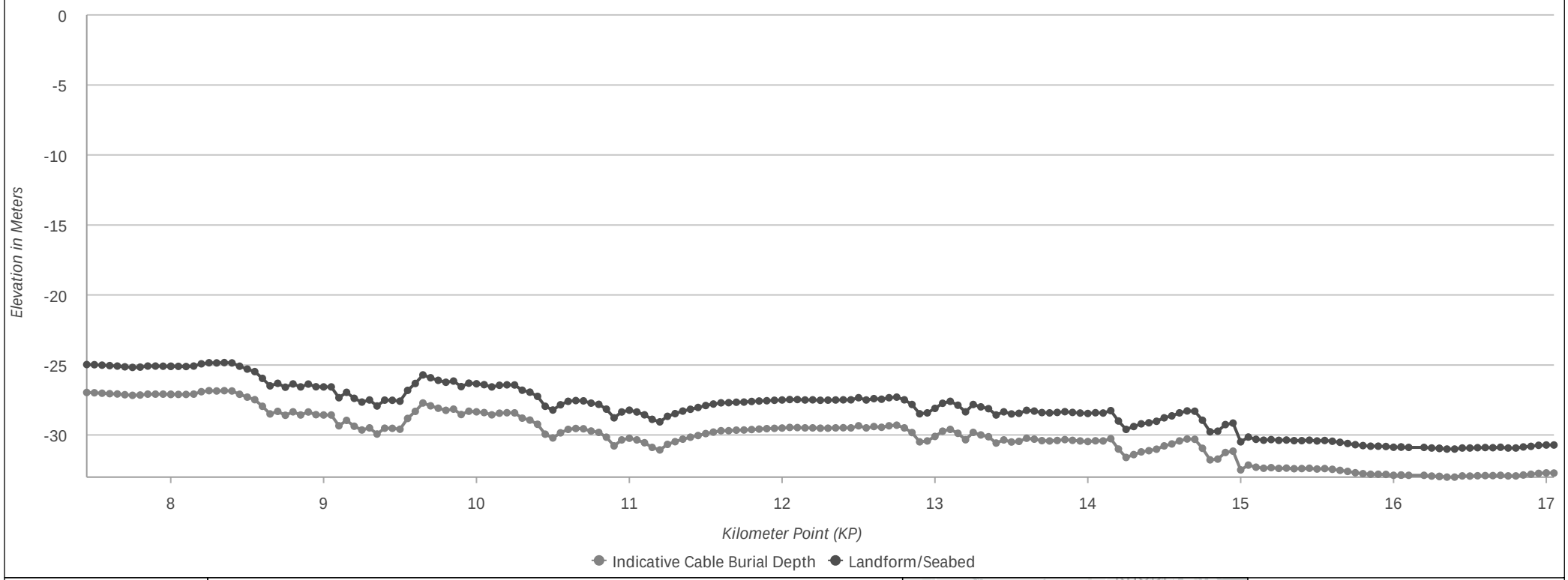
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

USACE FILE: NAN-2022-00776-UBA

June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- 3 NM State Water Limit
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Exclusive of the portion of the cable installed via HDD, the SRWEC–NYS will be installed a minimum of six feet (measured from top of cable) below the seabed (Target Burial Depth). The SRWEC–NYS Landfall HDD will be installed at a depth that will provide sufficient cable burial and at a minimum of six feet below the seafloor, exclusive of the transition points associated with the entry and exit positions of the HDD, whereby the conduit will be buried below surface level upon completion.
4) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
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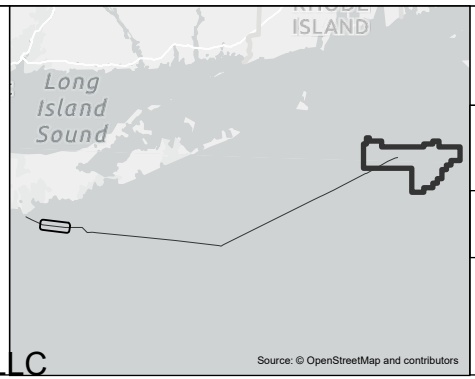
6) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
7) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
8) The existing utilities shown in this drawing are shown indicatively based on information provided by utility owners, NOAA, and NASCA. The cable burial depth that will be required at utility crossings is not depicted in the burial depth profile above. Other utilities may be present.
9) The total width of the disturbance corridor for SRWEC installation is 98 feet (30m).
10) The SWREC will be up to 104.6 mi (168 km). The SRWEC-OCS route will be up to 99.4 mi (160 km) and the SRWEC-NYS route will be up to 5.2 mi (8.4 km), from 3 nautical miles offshore to the MHWL.
11) The total maximum permanent footprint of the SRWEC-OCS, including secondary cable protection and cable crossing between the OCS-DC and NYS water boundary is 52.7 acres
12) Sources: NOAA, NASCA, BOEM and (c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)



Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

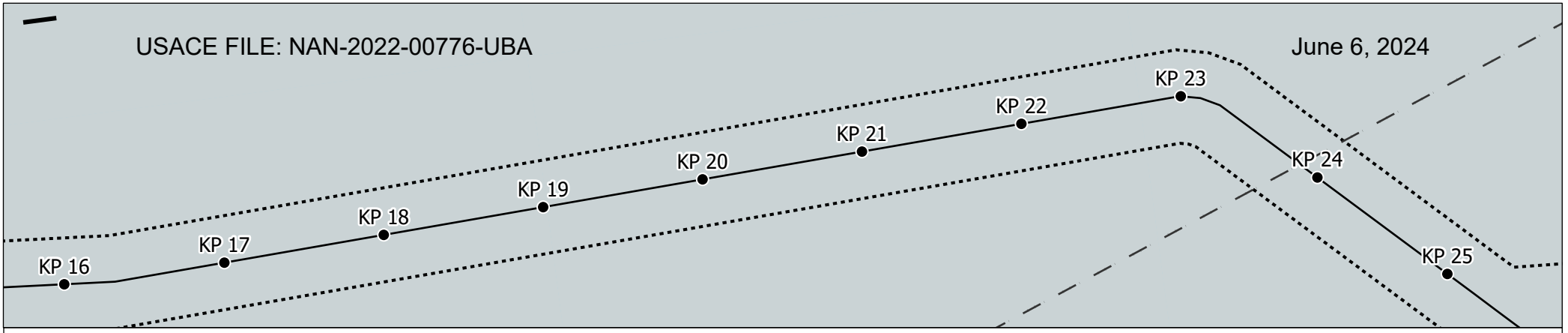
Reference system: NAD83 (2011)
Vertical reference: MLLW

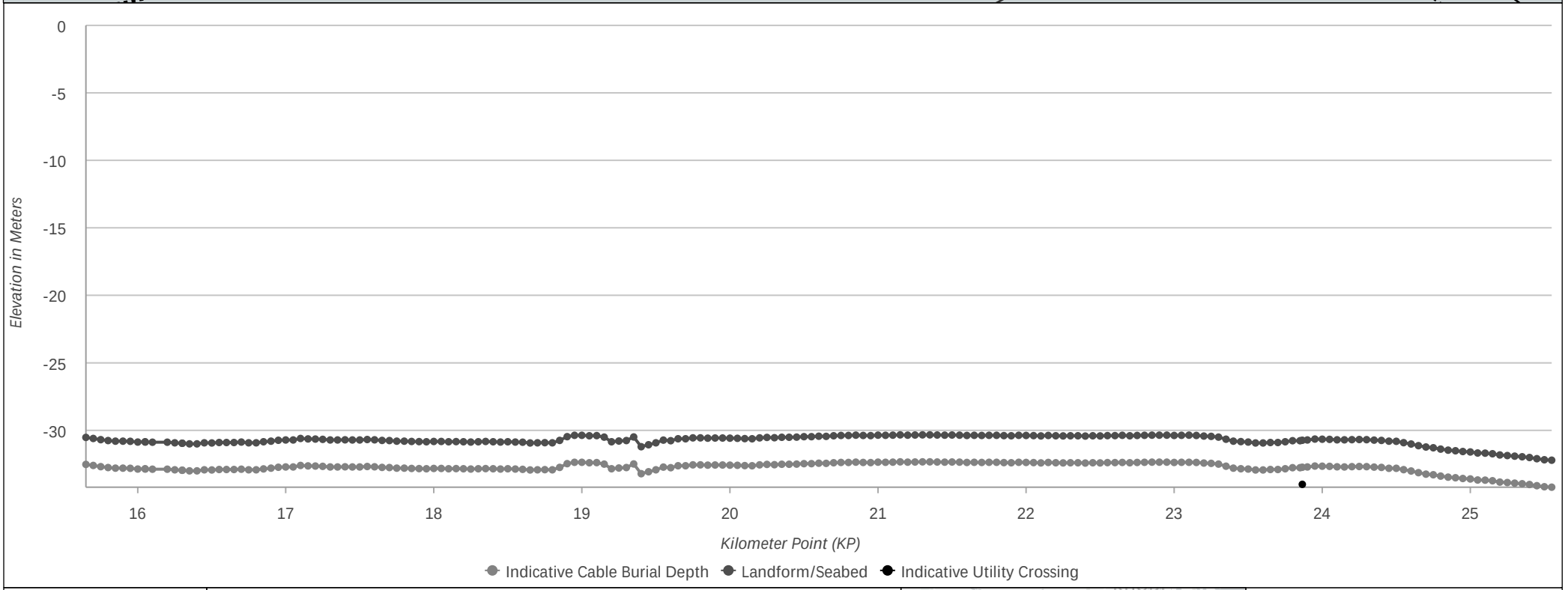
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

USACE FILE: NAN-2022-00776-UBA

June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
4) The Export Cable Corridor will consist of one distinct buried marine circuit. Micro-siting within the corridor will be completed by the installation contractor.
5) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
6) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
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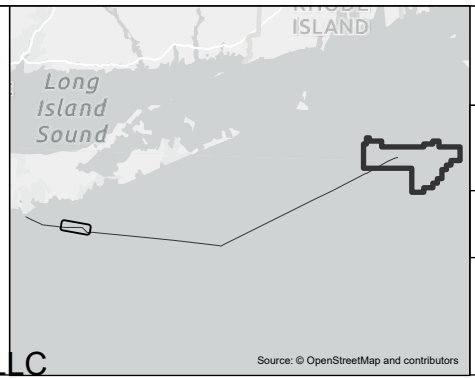


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

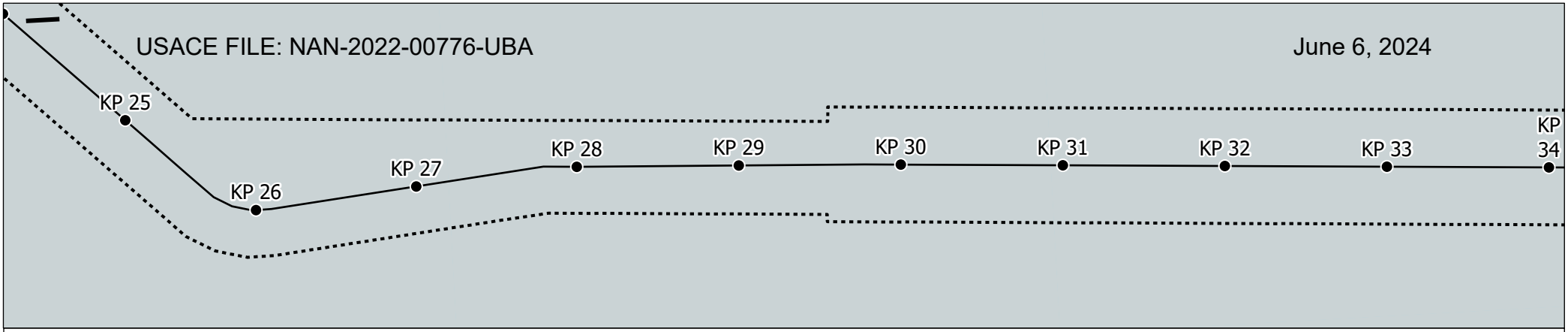
Reference system: NAD83 (2011)
Vertical reference: MLLW

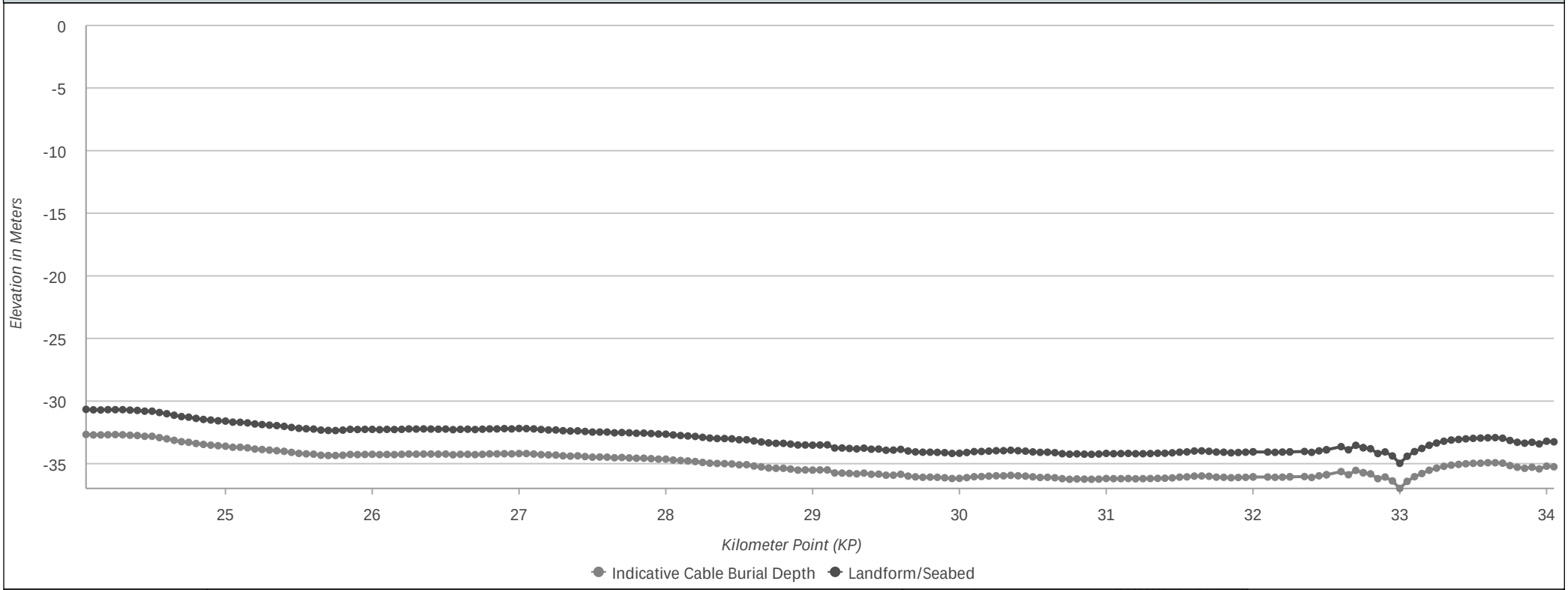
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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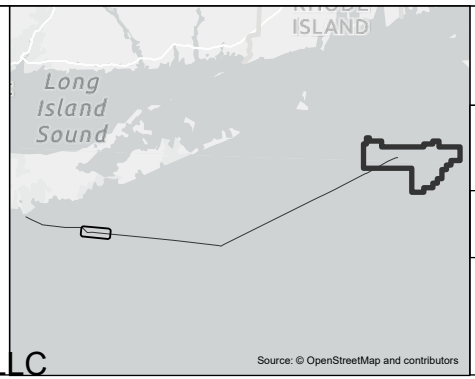


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

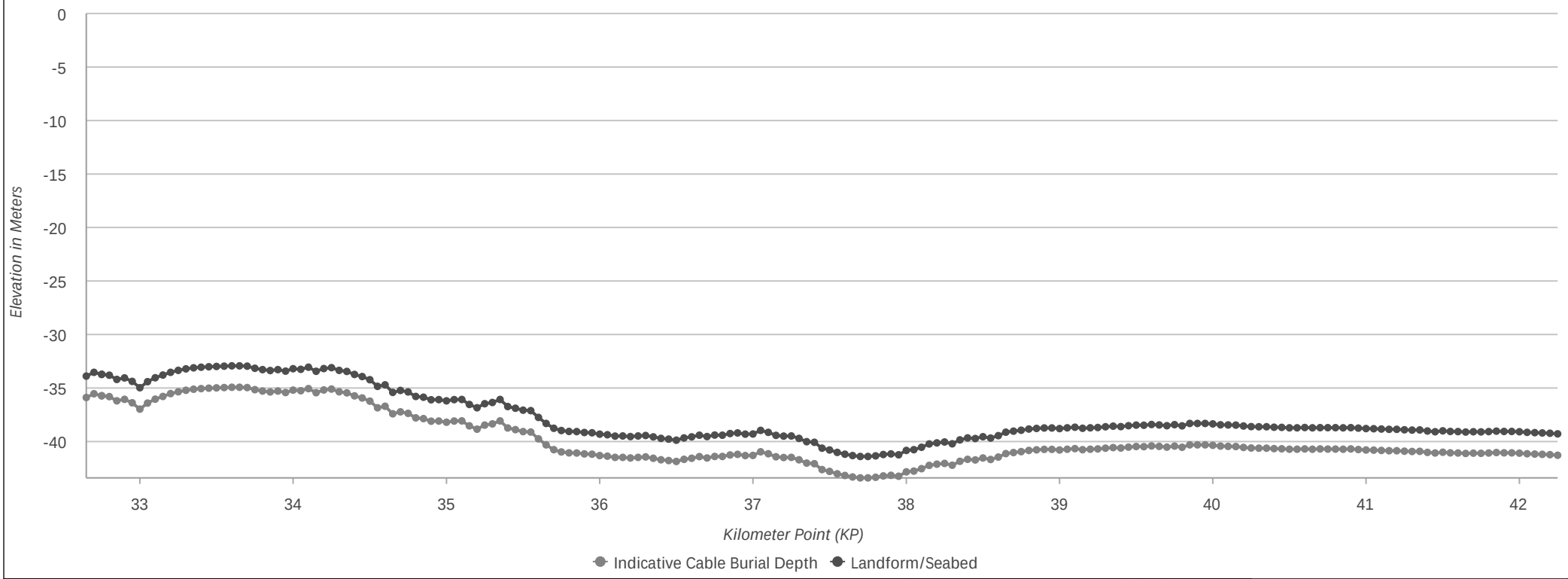
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

KP 33 KP 34 KP 35 KP 36 KP 37 KP 38 KP 39 KP 40 KP 41 KP 42



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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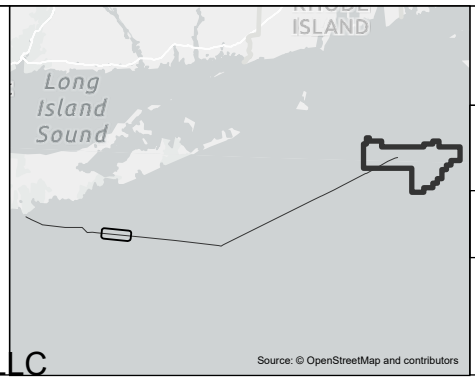


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

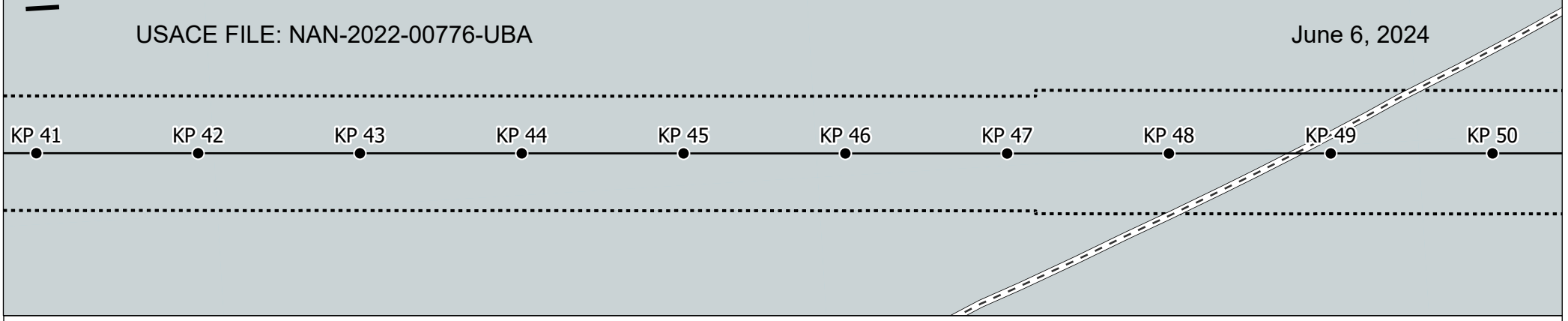
0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

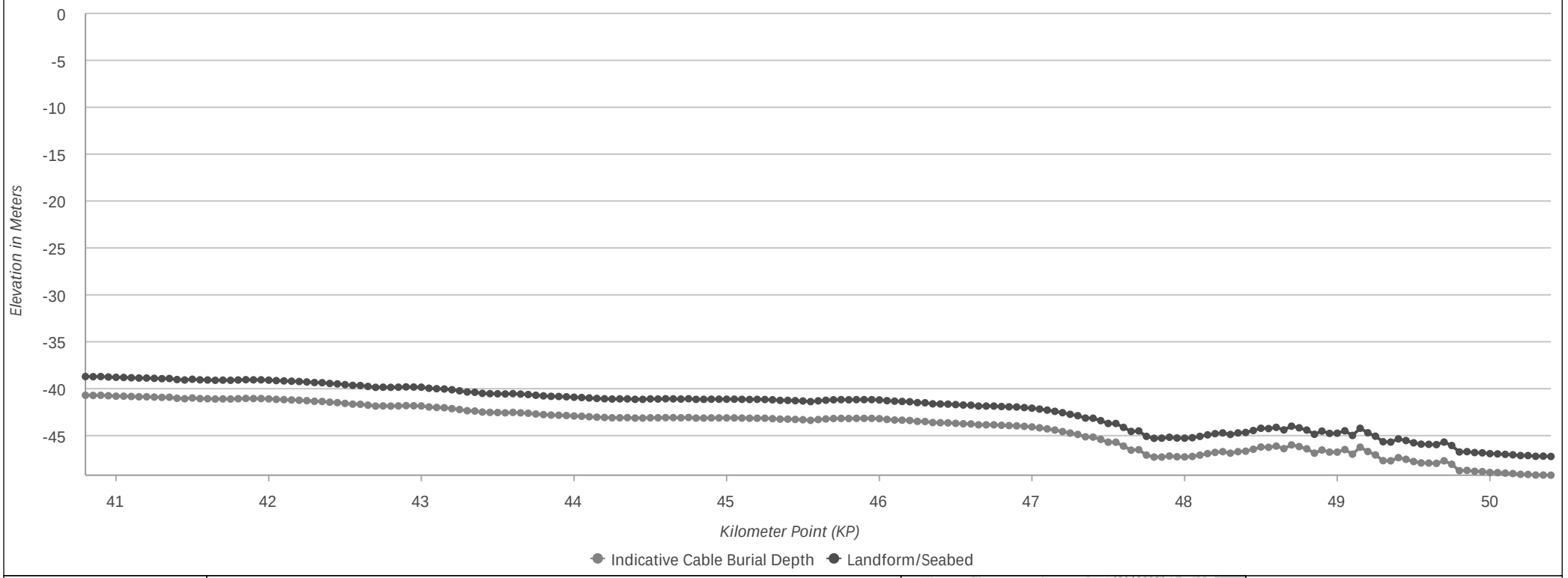
Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

USACE FILE: NAN-2022-00776-UBA

June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- 12 NM Territorial Sea
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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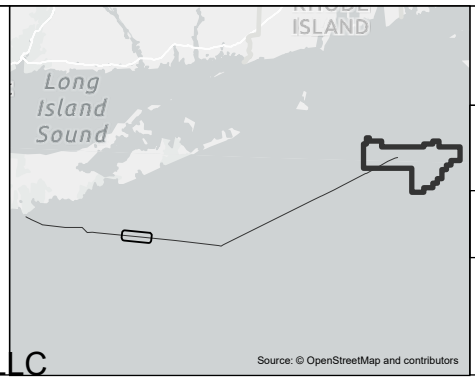


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

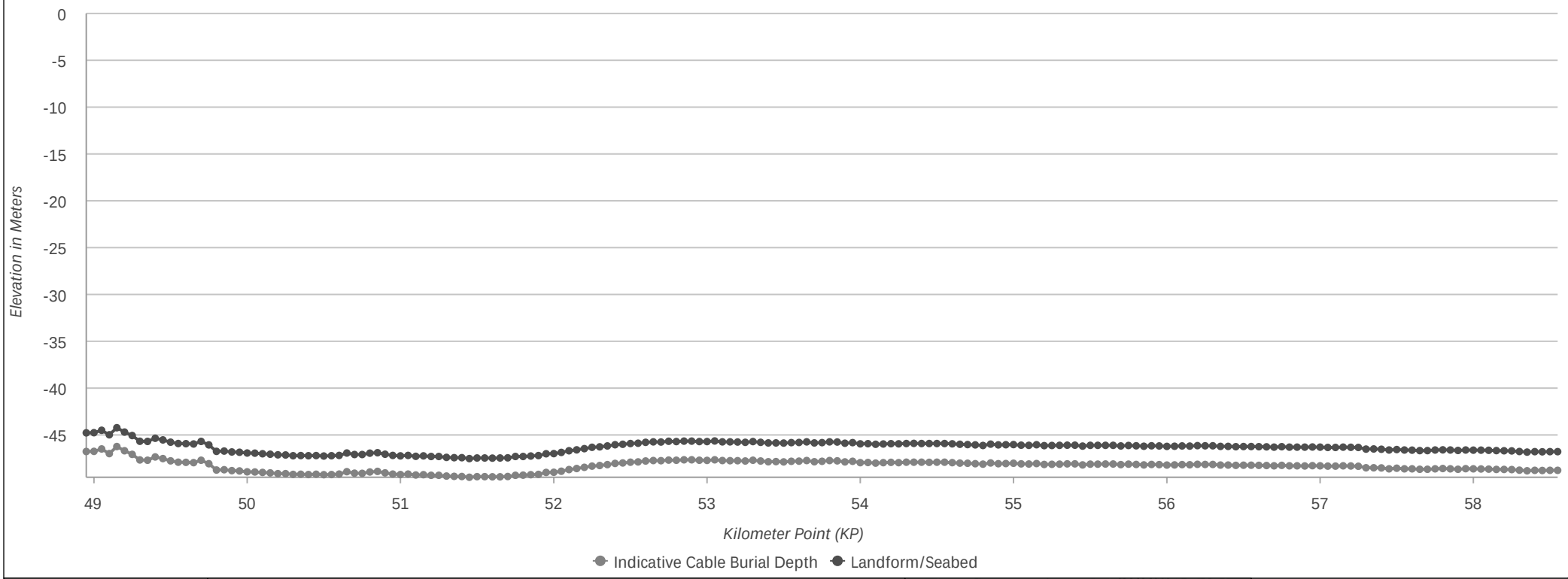
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

KP 50 KP 51 KP 52 KP 53 KP 54 KP 55 KP 56 KP 57 KP 58



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- 12 NM Territorial Sea
- Export Cable Corridor

Notes:
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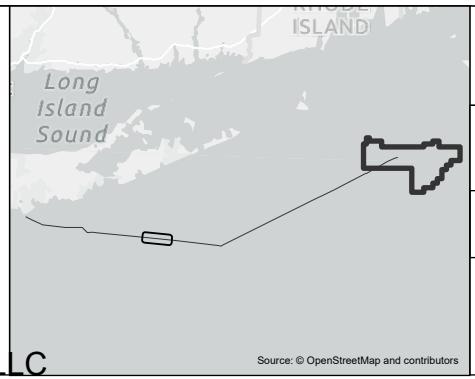


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

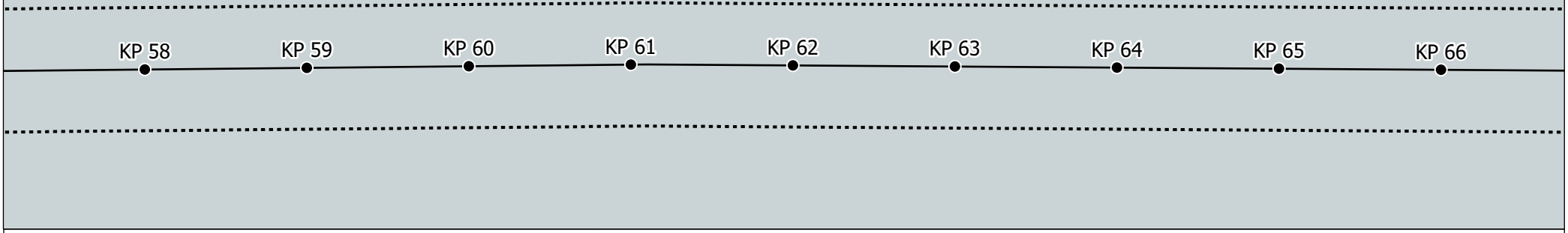
Reference system: NAD83 (2011)
Vertical reference: MLLW

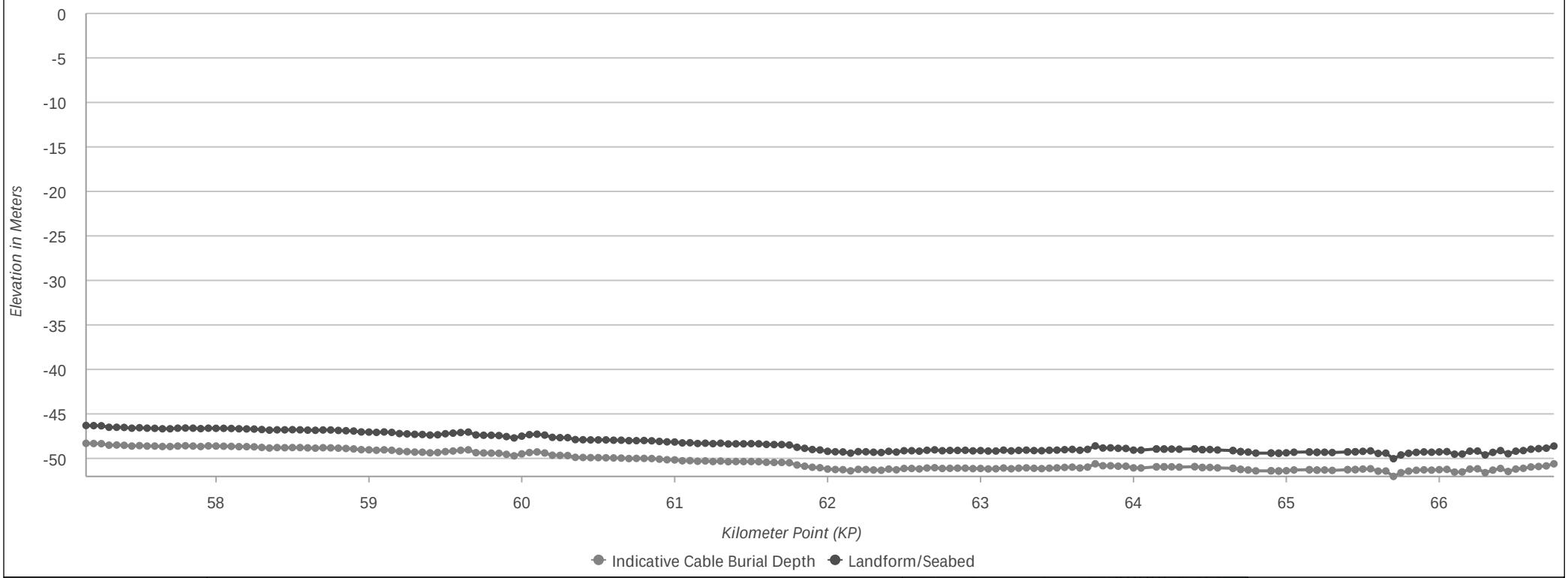
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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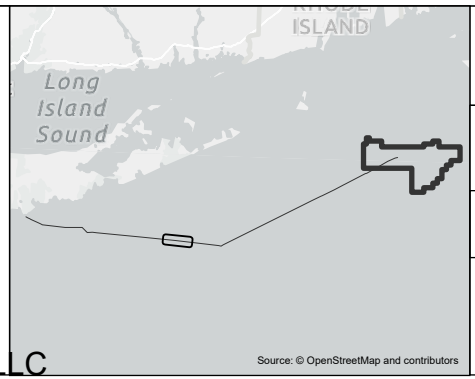


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

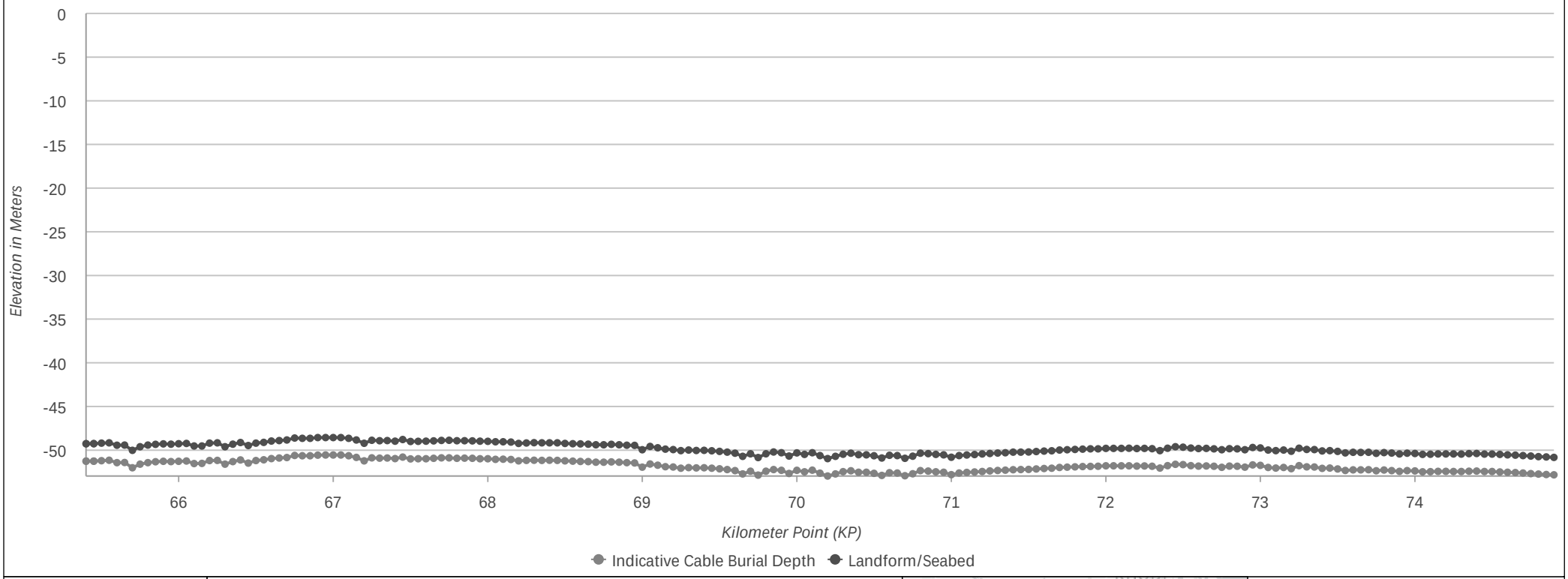
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

KP 66 | KP 67 | KP 68 | KP 69 | KP 70 | KP 71 | KP 72 | KP 73 | KP 74



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
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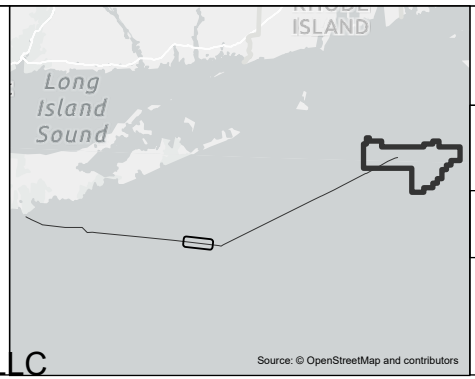


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

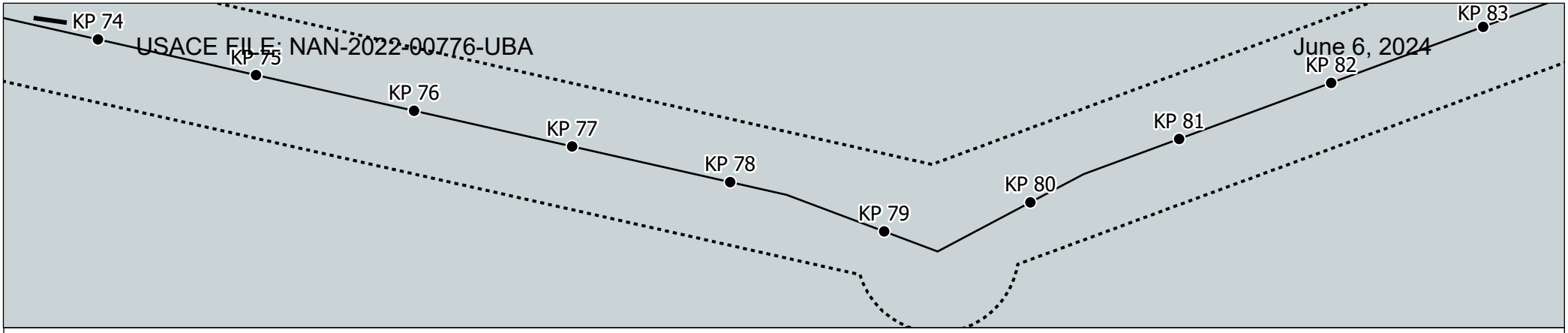
Reference system: NAD83 (2011)
Vertical reference: MLLW

Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

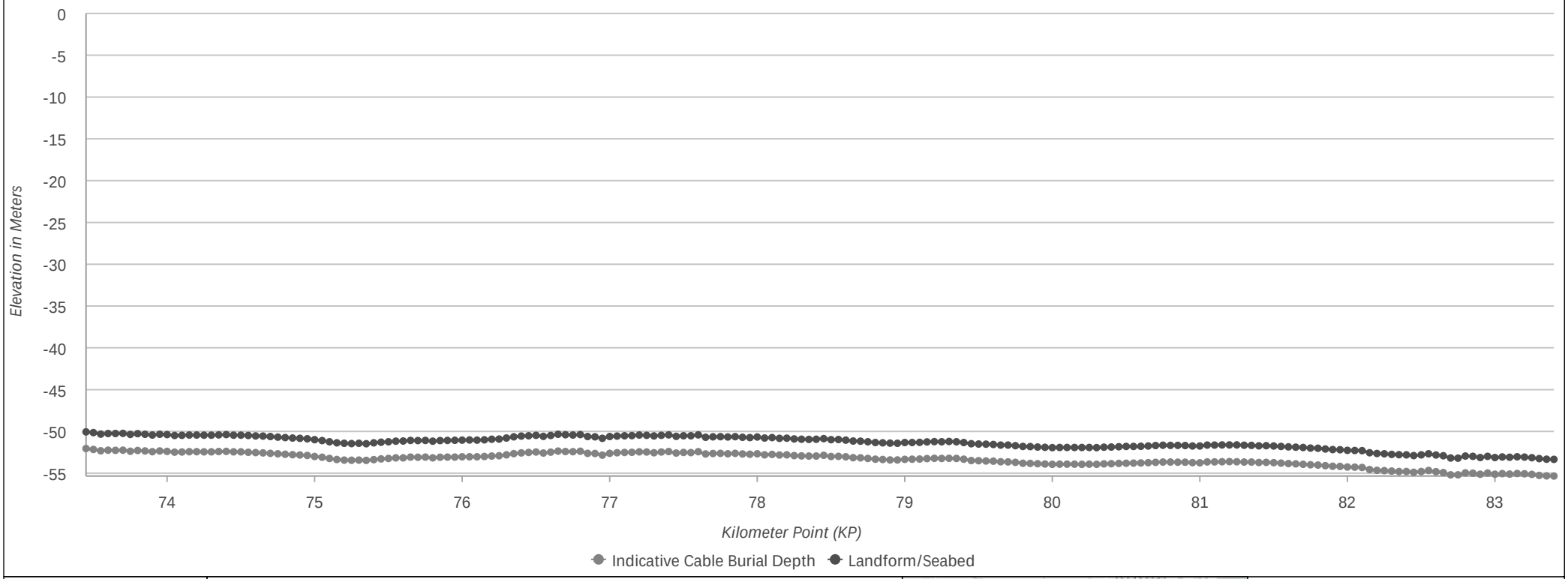
Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20



USACE FILE: NAN-2022-00776-UBA

June 6, 2024



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

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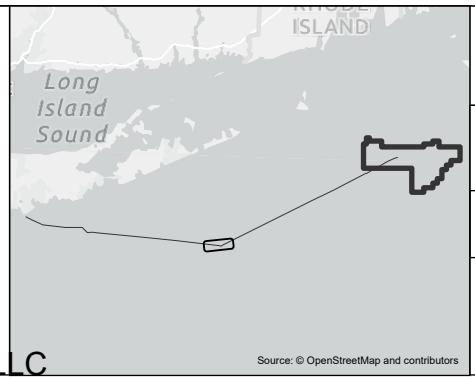
10) The total maximum permanent footprint of the SRWEC-OCS, including secondary cable protection and cable crossing between the OCS-DC and NYS water boundary is 52.7 acres
11) Sources: NOAA, NASCA, BOEM and (c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA).



Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

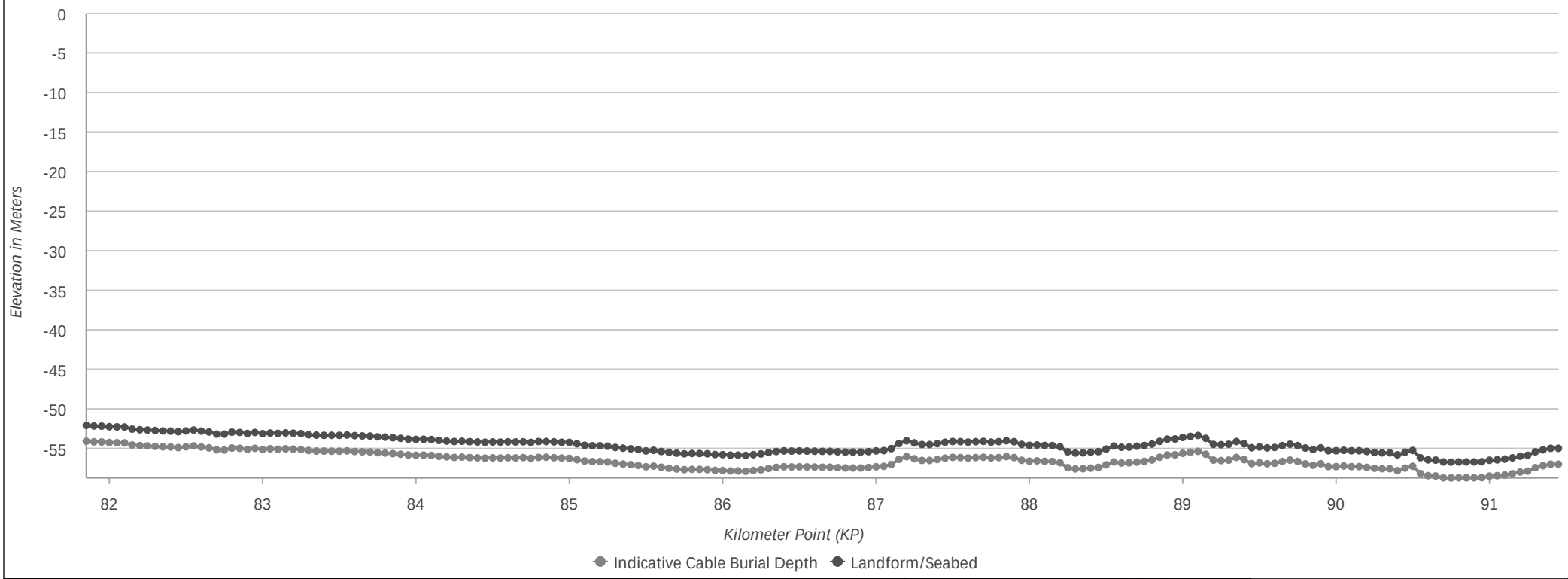
Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

USACE FILE: NAN-2022-00776-UBA

June 6, 2024

KP 82 KP 83 KP 84 KP 85 KP 86 KP 87 KP 88 KP 89 KP 90 KP 91



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
4) The Export Cable Corridor will consist of one distinct buried marine circuit. Micro-siting within the corridor will be completed by the installation contractor.
5) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
6) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
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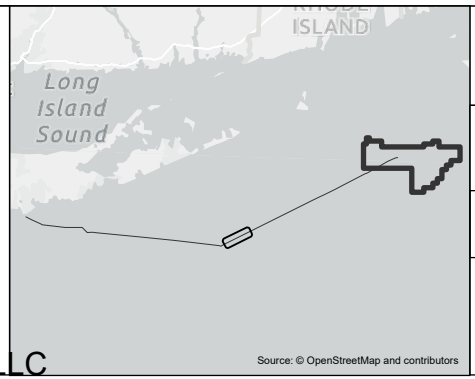


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

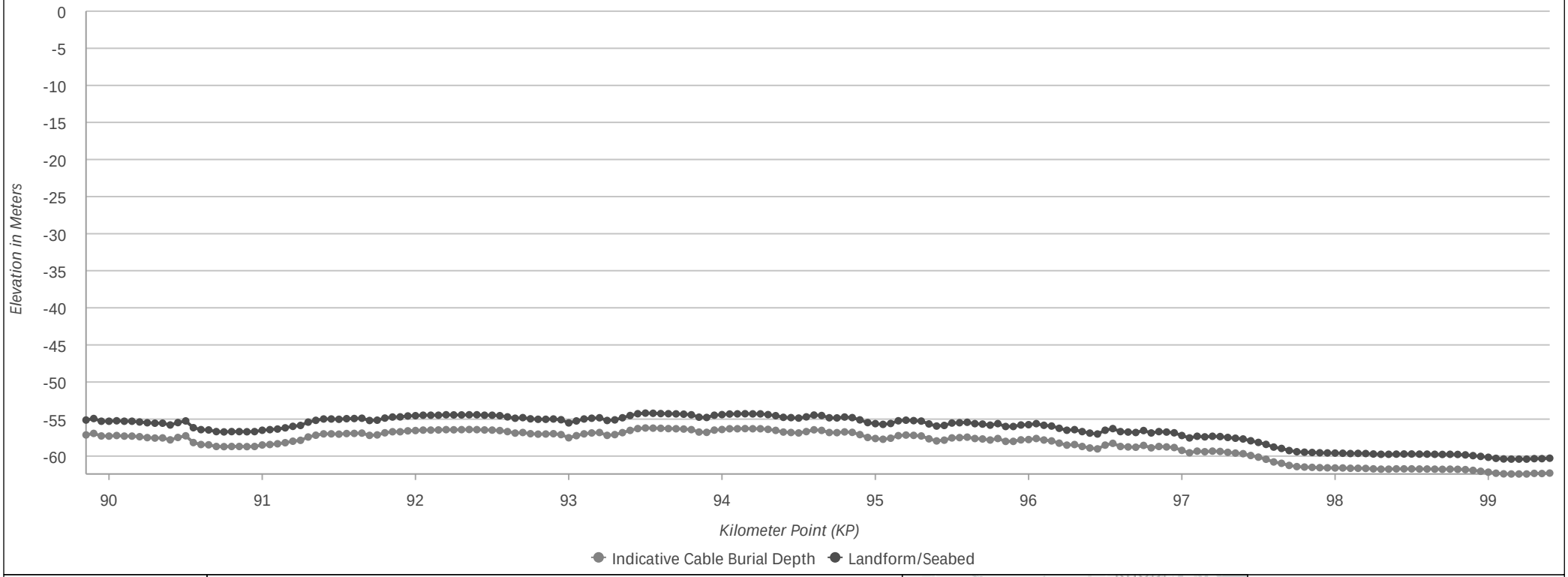
Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

USACE FILE: NAN-2022-00776-UBA

June 6, 2024

KP 90 KP 91 KP 92 KP 93 KP 94 KP 95 KP 96 KP 97 KP 98 KP 99



- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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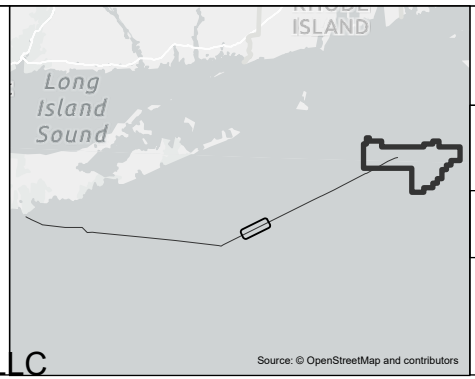


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

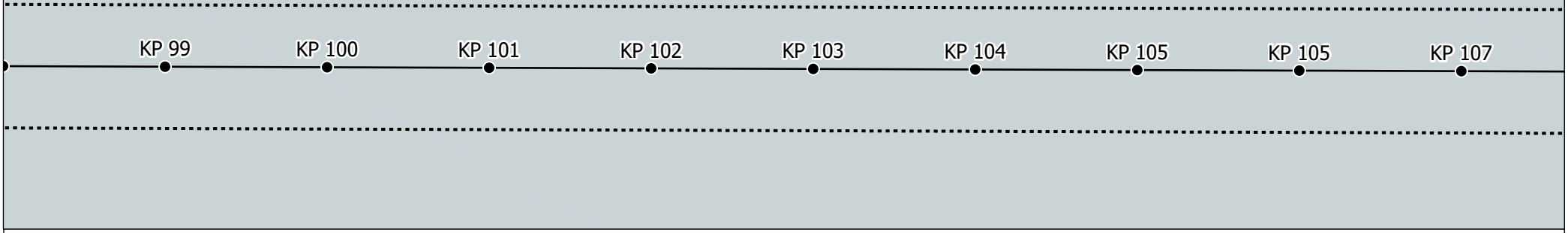
Reference system: NAD83 (2011)
Vertical reference: MLLW

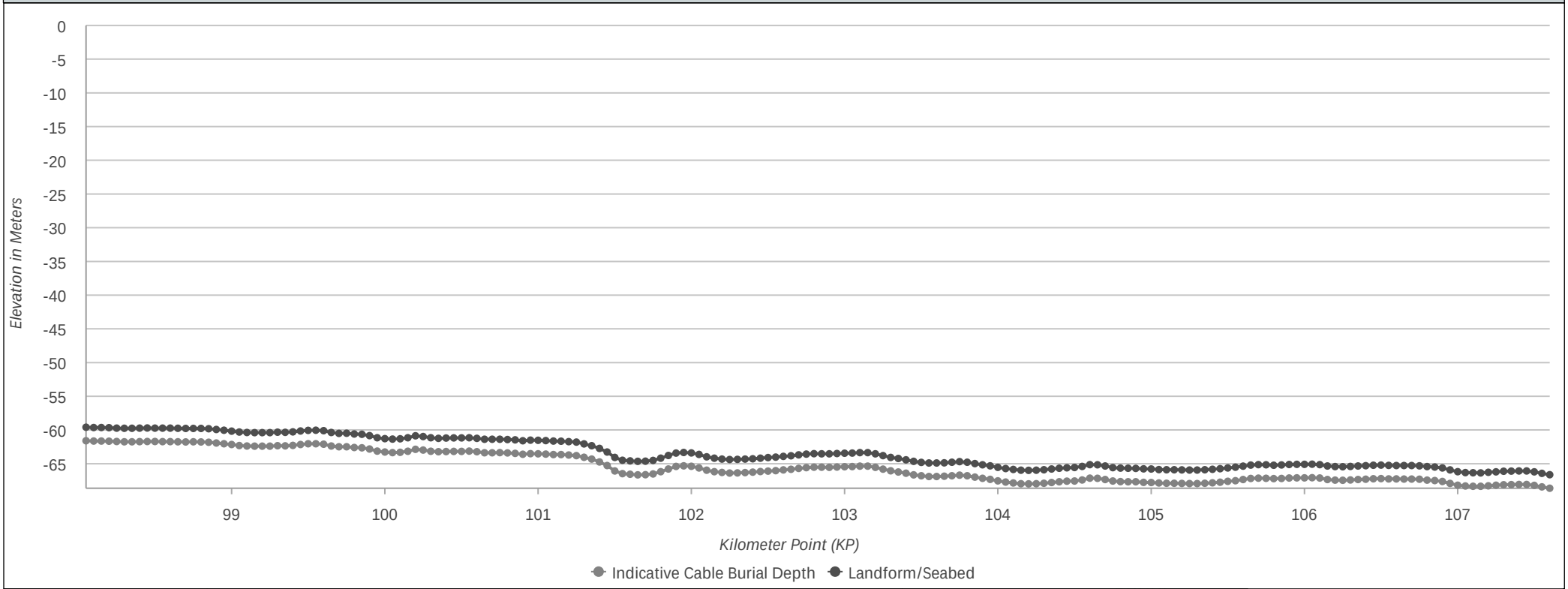
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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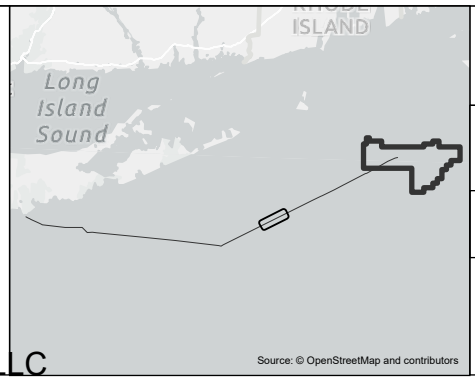


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

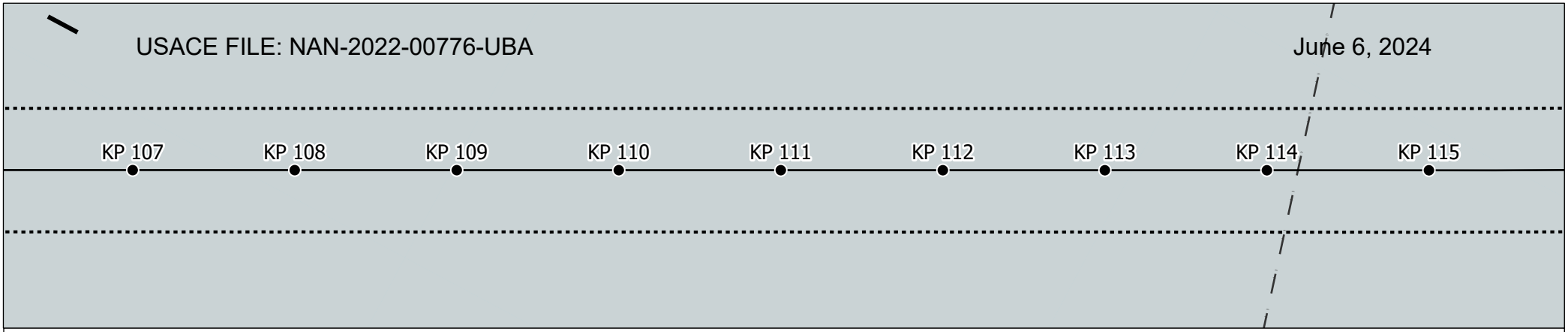
Reference system: NAD83 (2011)
Vertical reference: MLLW

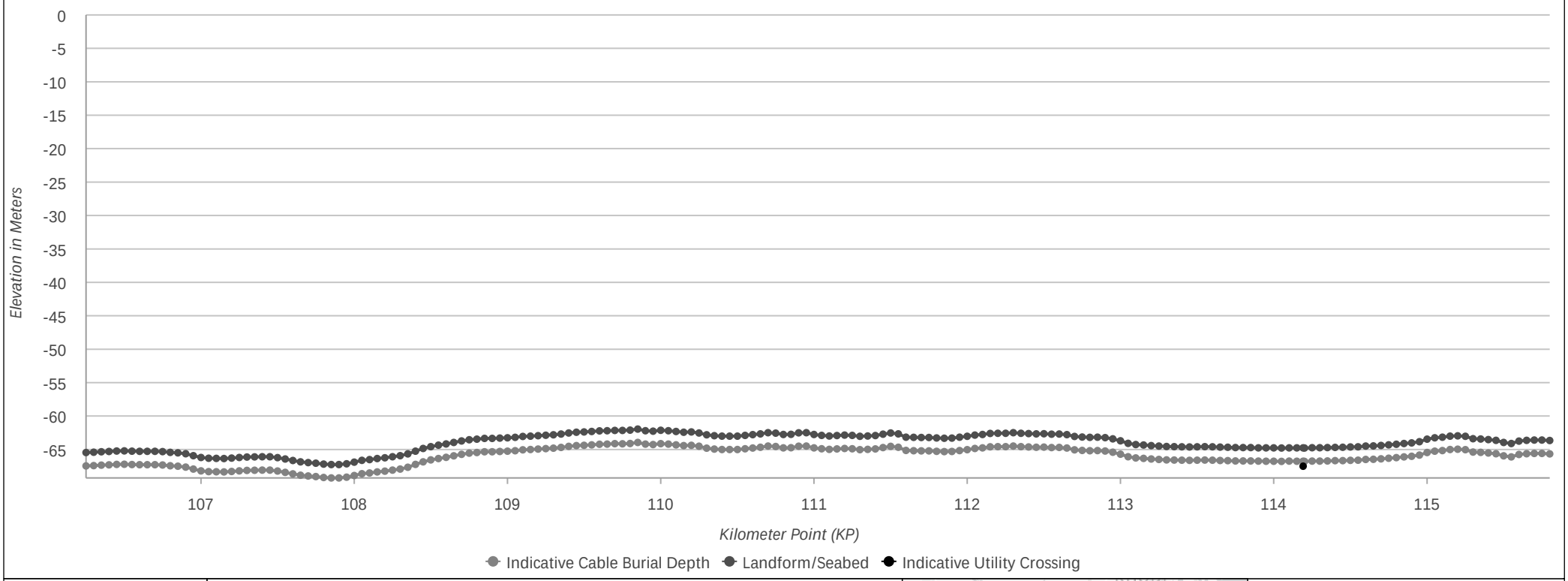
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

USACE FILE: NAN-2022-00776-UBA

June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
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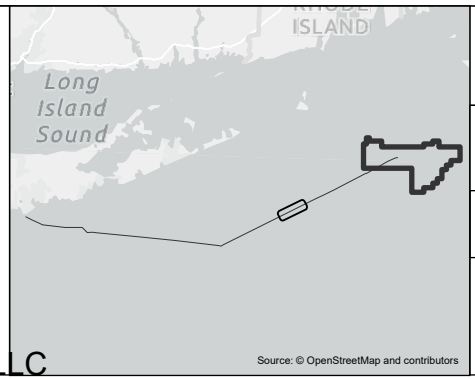


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

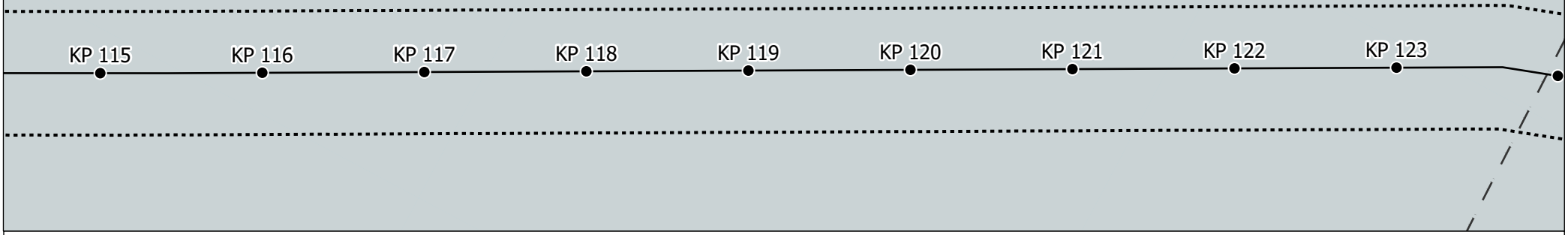
Reference system: NAD83 (2011)
Vertical reference: MLLW

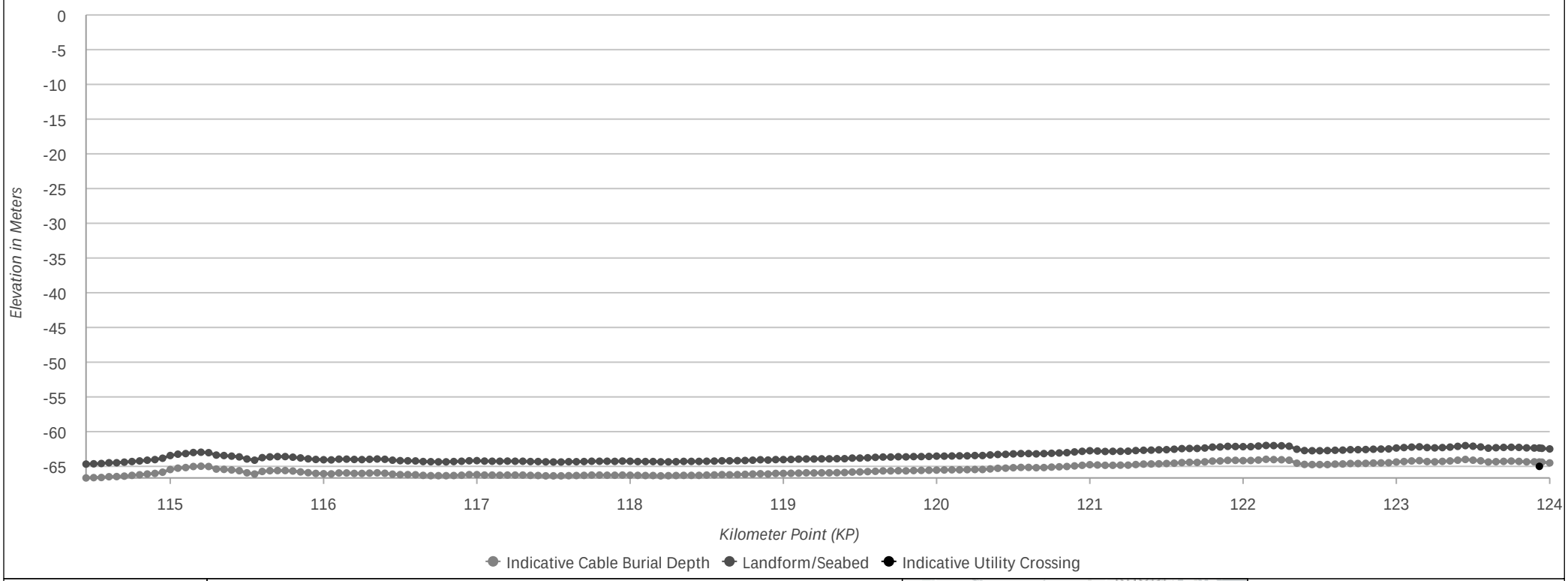
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Export Cable Corridor

Notes:
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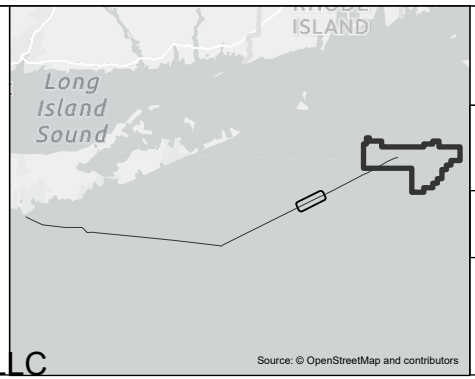


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

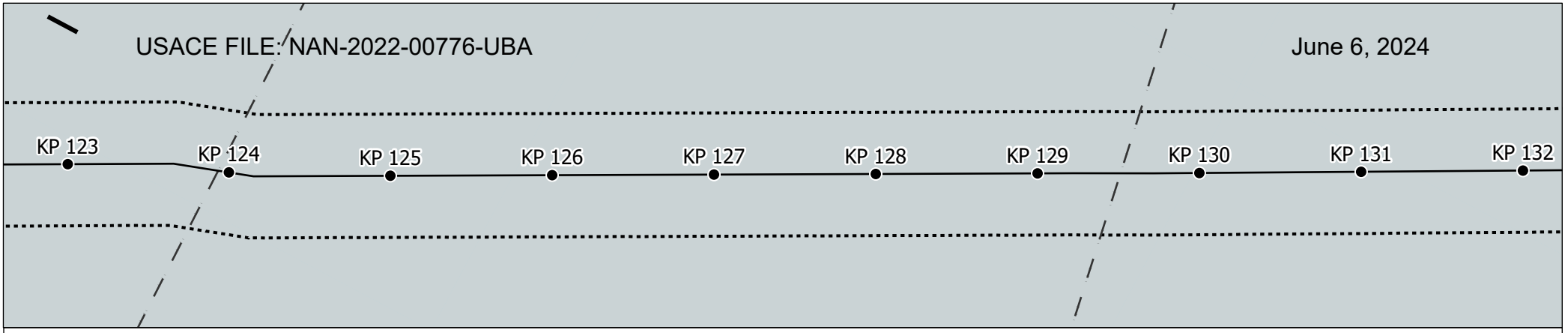
Reference system: NAD83 (2011)
Vertical reference: MLLW

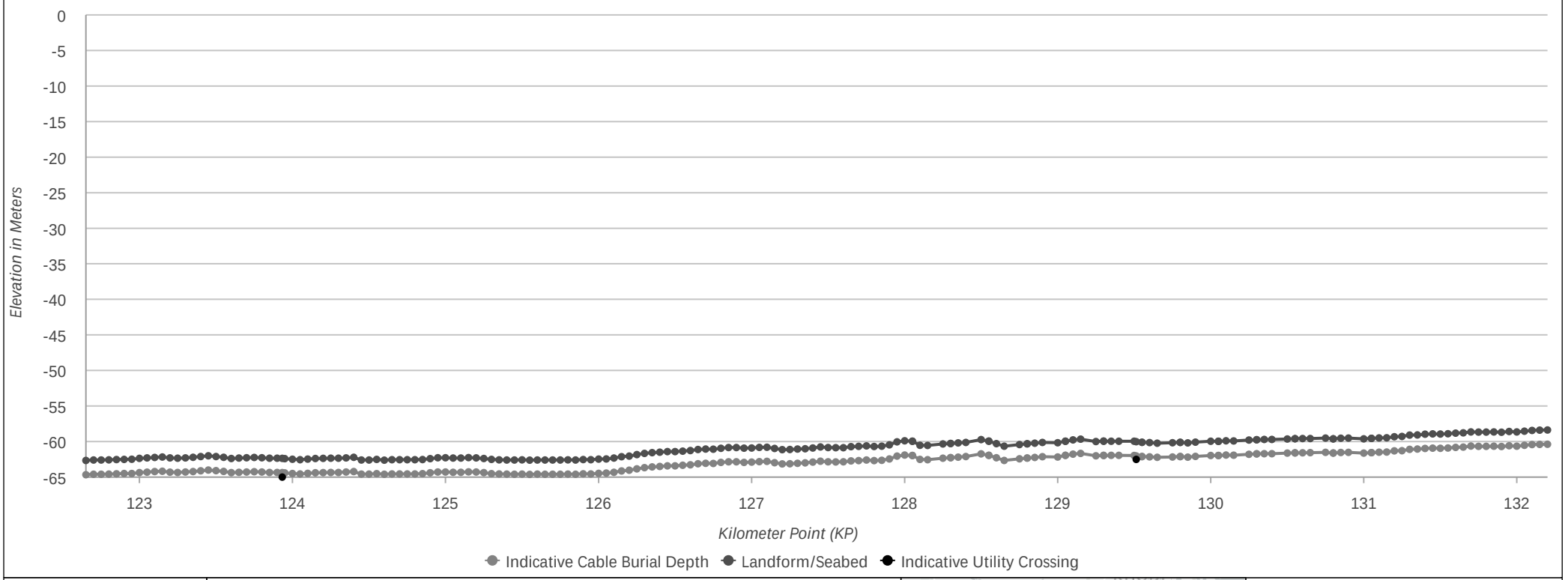
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Export Cable Corridor

Notes:
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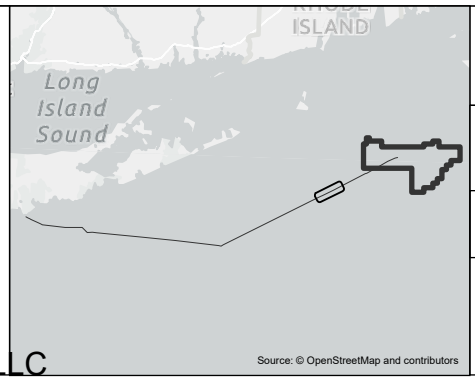


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

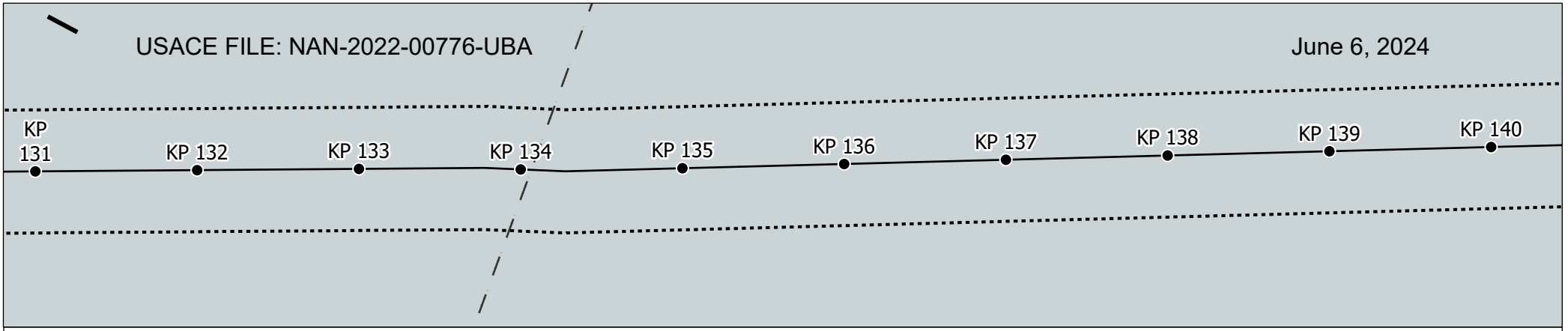
0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

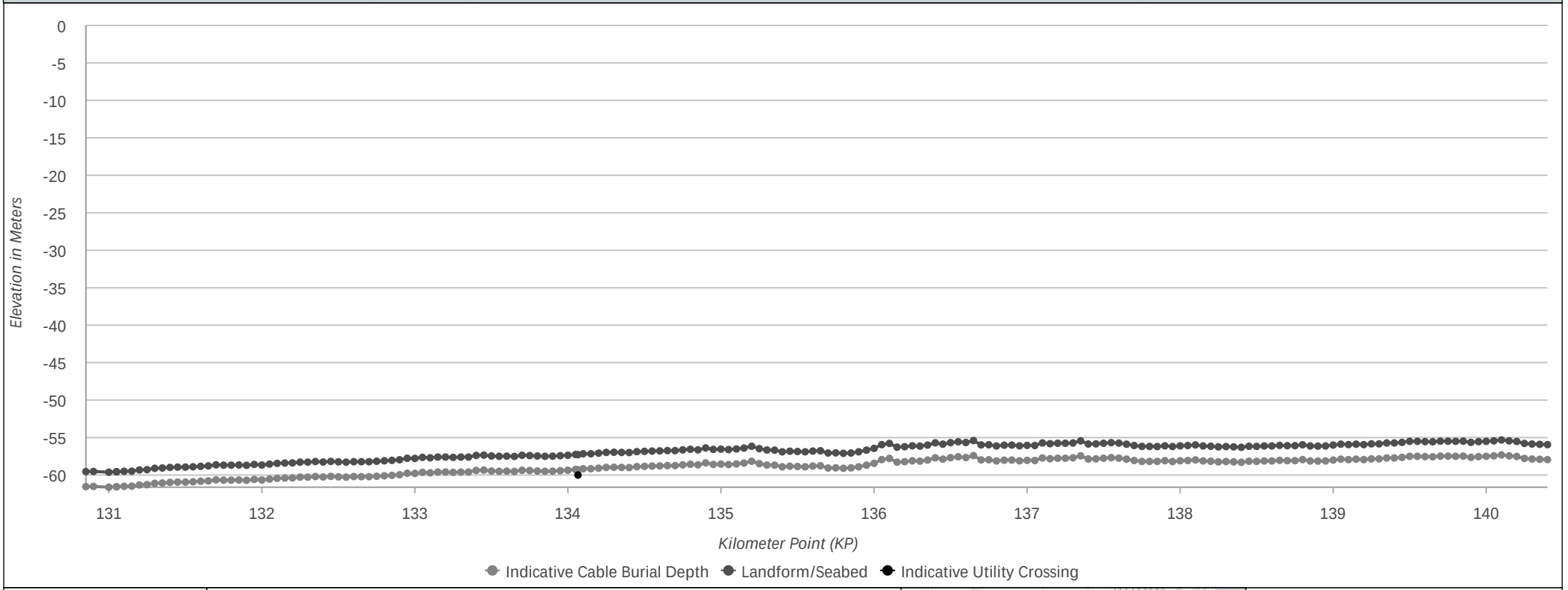
Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

USACE FILE: NAN-2022-00776-UBA

June 6, 2024





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Export Cable Corridor

Notes:
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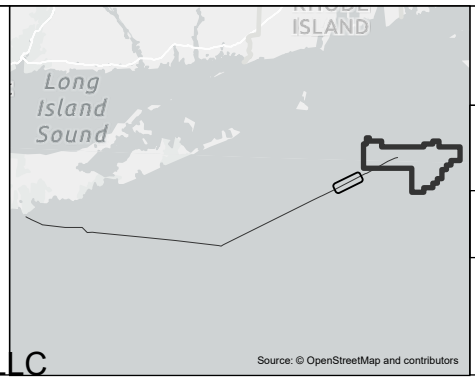


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

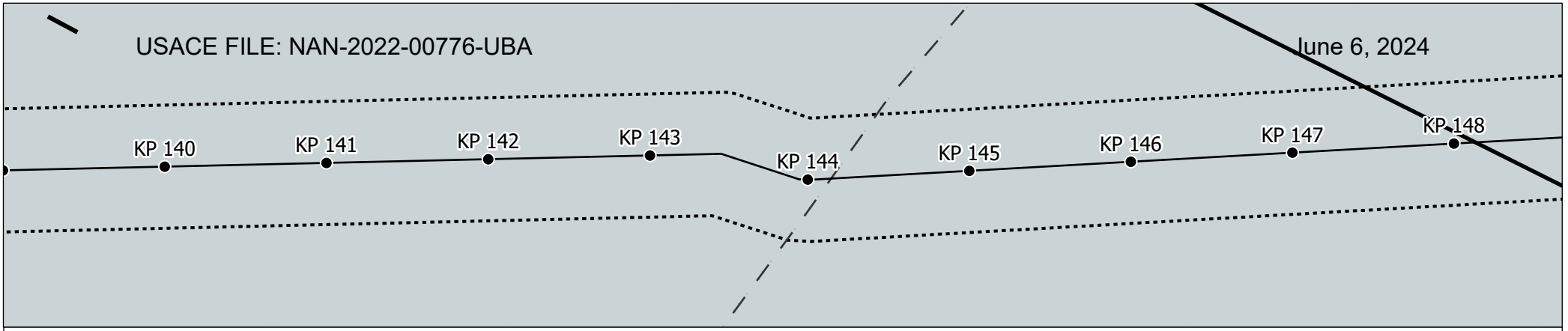
Reference system: NAD83 (2011)
Vertical reference: MLLW

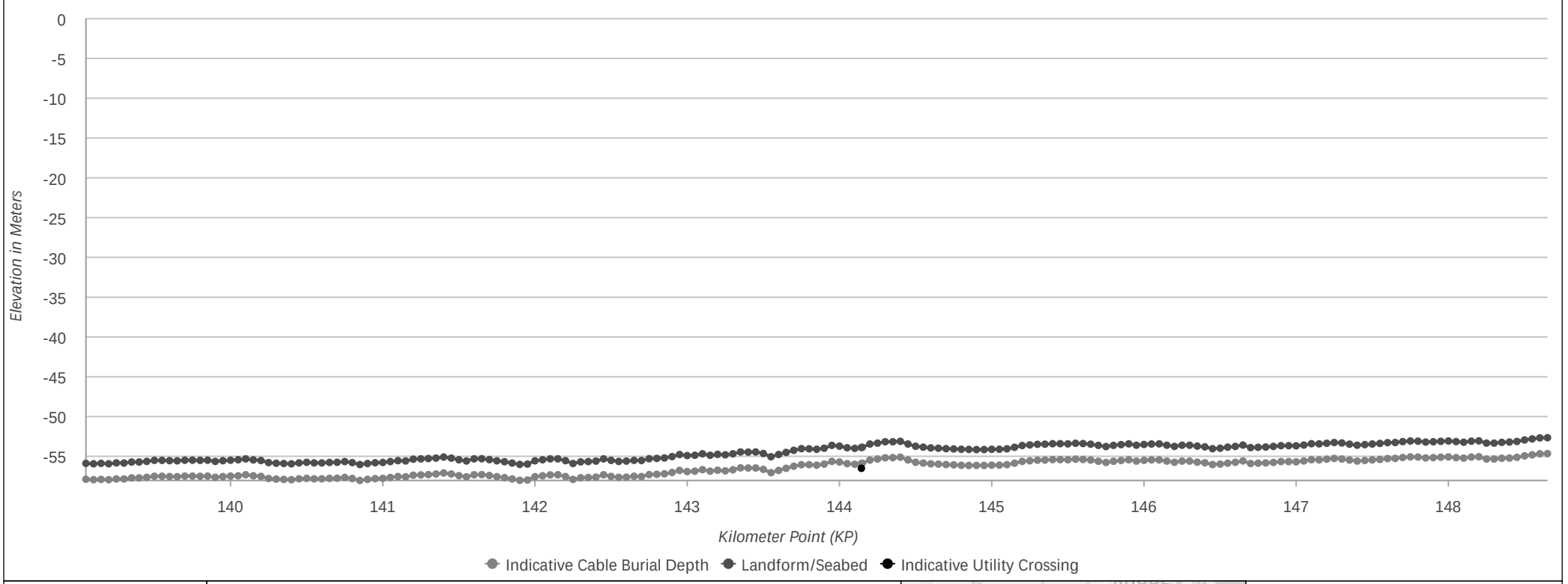
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Sunrise Wind Farm
- Export Cable Corridor

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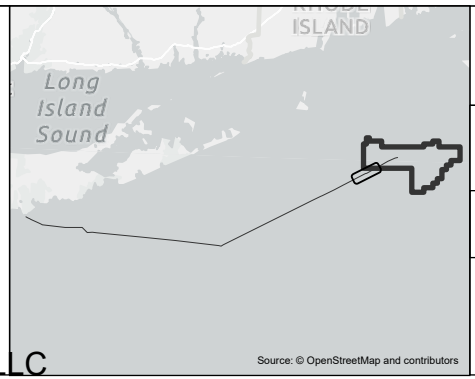
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
4) The Export Cable Corridor will consist of one distinct buried marine circuit. Micro-siting within the corridor will be completed by the installation contractor.
5) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
6) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
7) The existing utilities shown in this drawing are shown indicatively based on information provided by utility owners, NOAA, and NASCA. The cable burial depth that will be required at utility crossings is not depicted in the burial depth profile above. Other utilities may be present.
8) The total width of the disturbance corridor for SRWEC installation is 98 feet (30m).
9) The SWREC will be up to 104.6 mi (168 km). The SRWEC-OCS route will be up to 99.4 mi (160 km) and the SRWEC-NYS route will be up to 5.2 mi (8.4 km), from 3 nautical miles offshore to the MHWL.
10) The total maximum permanent footprint of the SRWEC-OCS, including secondary cable protection and cable crossing between the OCS-DC and NYS water boundary is 52.7 acres
11) Sources: NOAA, NASCA, BOEM and (c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA).



Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

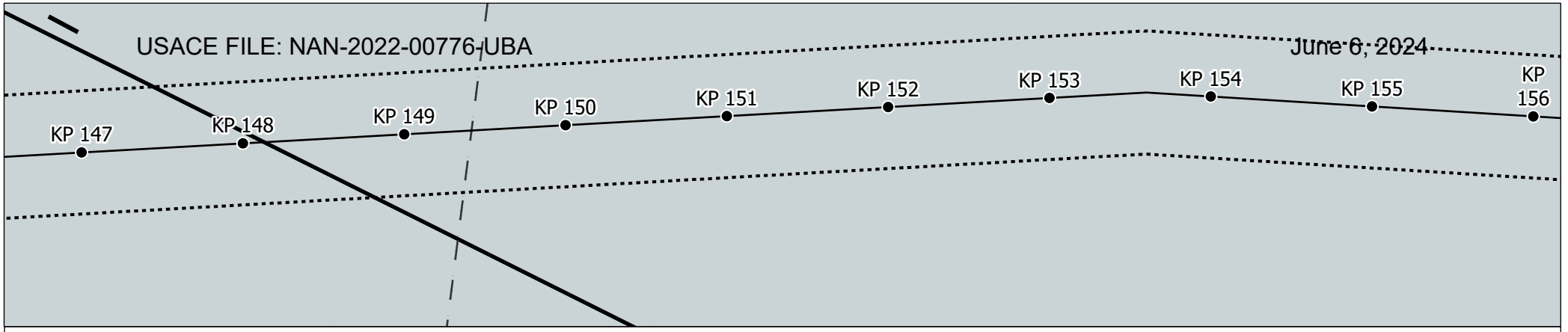
Reference system: NAD83 (2011)
Vertical reference: MLLW

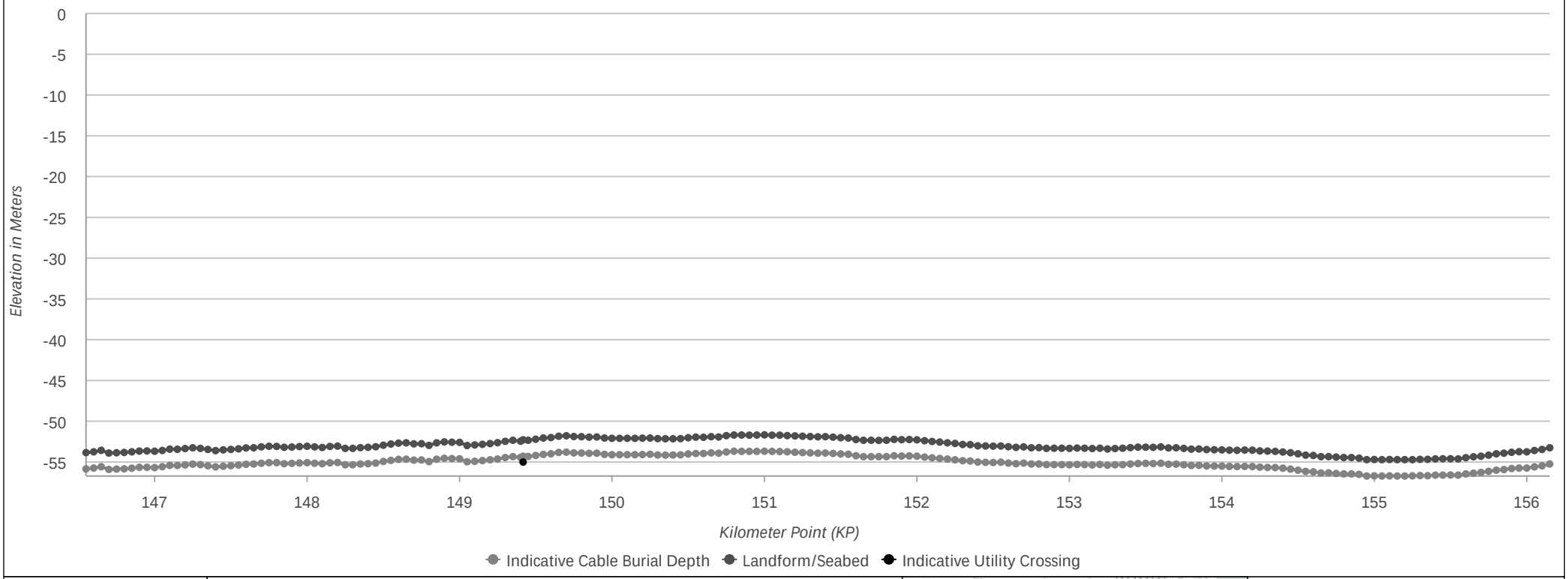
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Existing Utility
- Sunrise Wind Farm
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
3) Target Burial Depth in federal waters is 3-7 ft (1-2 m) below stable seabed elevation. Depending on seabed conditions and agency requirements, actual burial may vary.
4) The Export Cable Corridor will consist of one distinct buried marine circuit. Micro-siting within the corridor will be completed by the installation contractor.
5) The Indicative Cable Burial Profile shown in this drawing is based on the centerline of the Export Cable Corridor. The corridor is subject to change.
6) The elevation data used in this drawing is derived primarily from Orsted survey data, however a NOAA DEM product is also used to provide full coverage within the first ~900 m of the centerline.
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10) The total maximum permanent footprint of the SRWEC-OCS, including secondary cable protection and cable crossing between the OCS-DC and NYS water boundary is 52.7 acres
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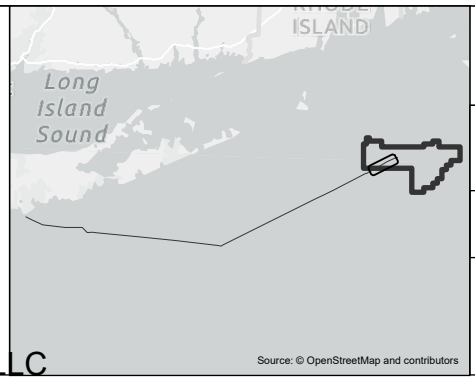


Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

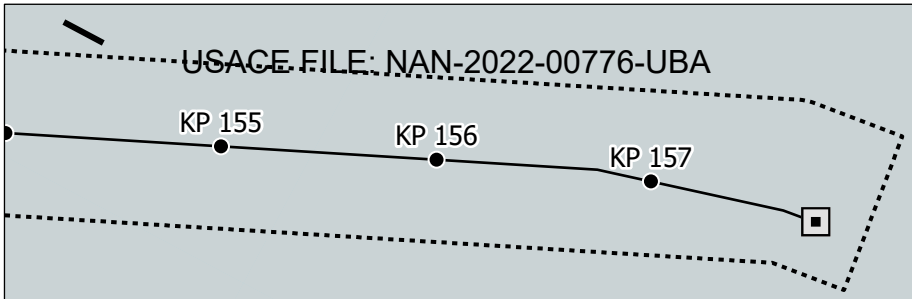
Reference system: NAD83 (2011)
Vertical reference: MLLW

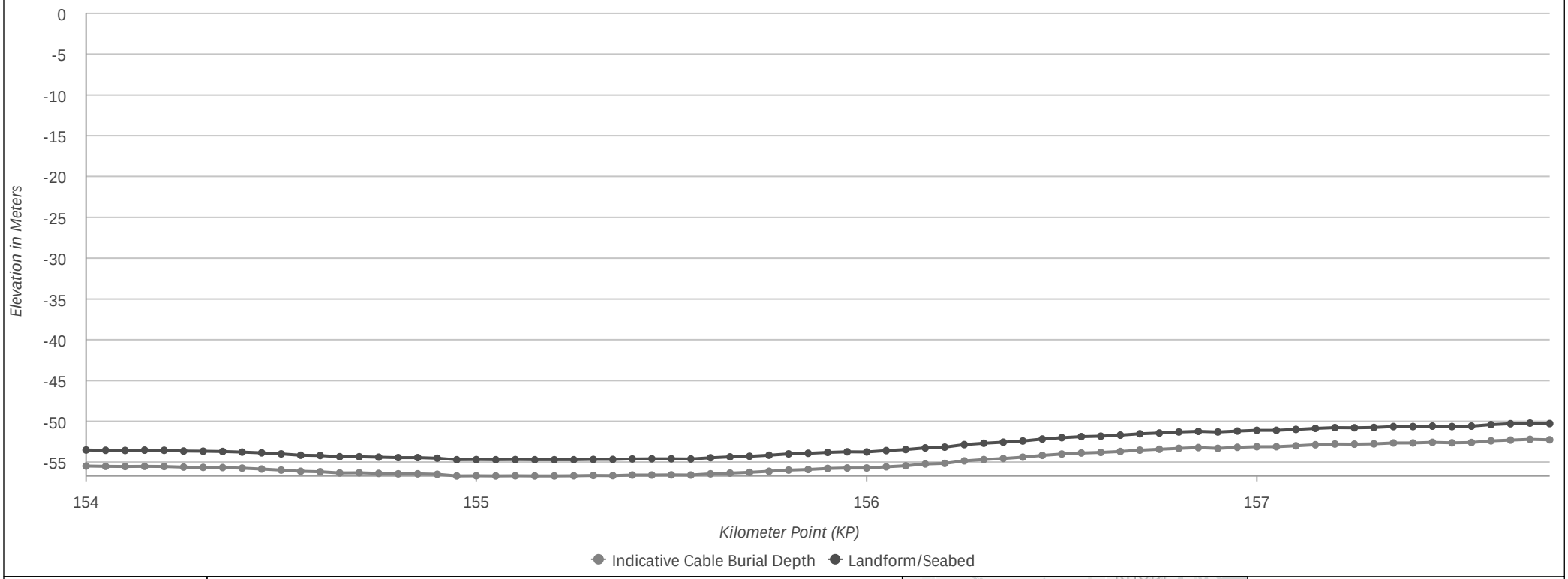
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20





- Indicative OCS
- Kilometer Point (KP)
- Indicative Cable Burial Profile
- Sunrise Wind Farm
- Export Cable Corridor

Notes:
1) Preliminary design, not for construction.
2) KP 0 lies at center of planned TJB, Indicative HDD Burial Depth profile begins at HDD entry point (approximately KP 0.04).
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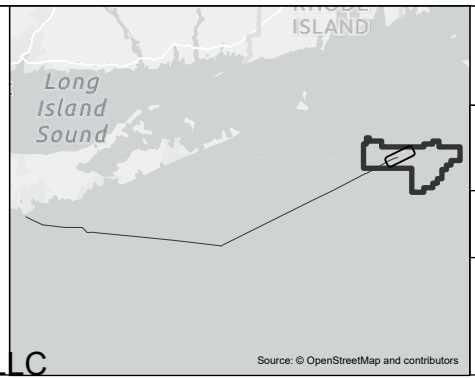
11) Sources: NOAA, NASCA, BOEM and (c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA).



Indicative Cable Burial Profile - SRWEC Corridor Centerline

Date: 09/15/2022
Created by: GEMSM
Checked by: XCDEF
Approved by: SYDSH

Sunrise Wind | Powered by Ørsted & Eversource

Reference system: NAD83 (2011)
Vertical reference: MLLW

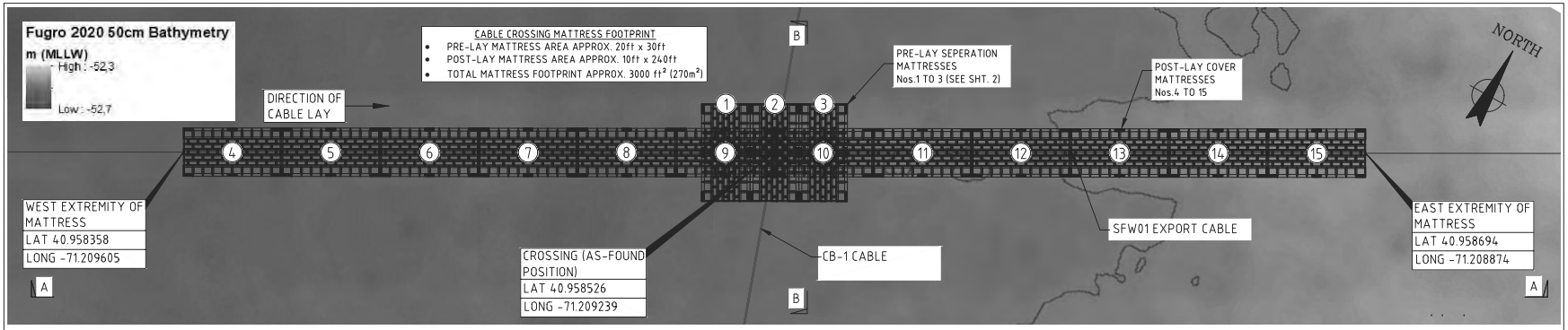
Projection: UTM Zone 19N
Scale @ 8.5" x 11": 1:35,000

0 150 300 600 900 1,200 1,500 m
0 0.1 0.2 0.4 0.6 0.8 NM

Orsted - Sunrise Wind, LLC

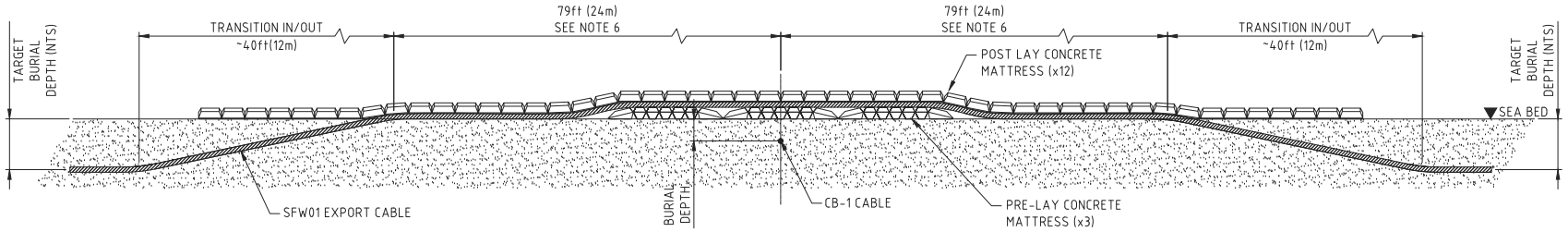
Name: SRW01_COP_USACE_DRAWINGS_BURIAL_BW_20220915_page3to20

Cable Crossing Detail



PLAN ON CABLE CROSSING

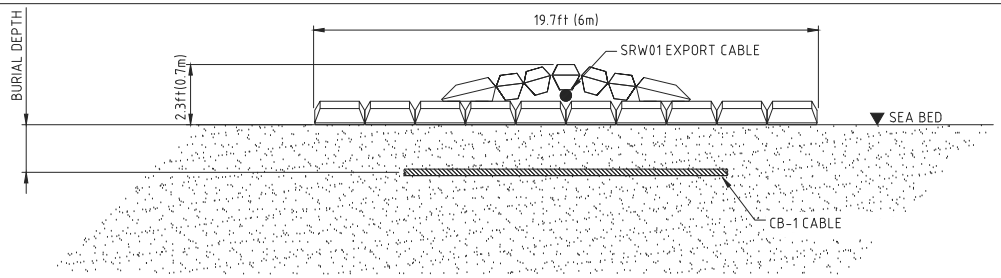
0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

1. FOR FURTHER CROSSING DETAIL REFER TO CROSSING DESIGN PACK & MATTRESS INSTALLATION PROCEDURE
2. COORDINATE SYSTEM - NAD83(2011)UTM ZONE 19N
3. PRE-LAY MATTRESSES: 3 OFF
4. POST LAY MATTRESSES: 12 OFF
5. POST LAY MATTRESSES WILL BE LAID TO FOLLOW "AS LAID" CABLE POSITION.
6. DISTANCE TO TRANSITION OF BURIAL TO BE AGREED WITH ASSET OWNER, AND WILL ALSO DEPEND ON CABLE BURIAL METHOD



SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

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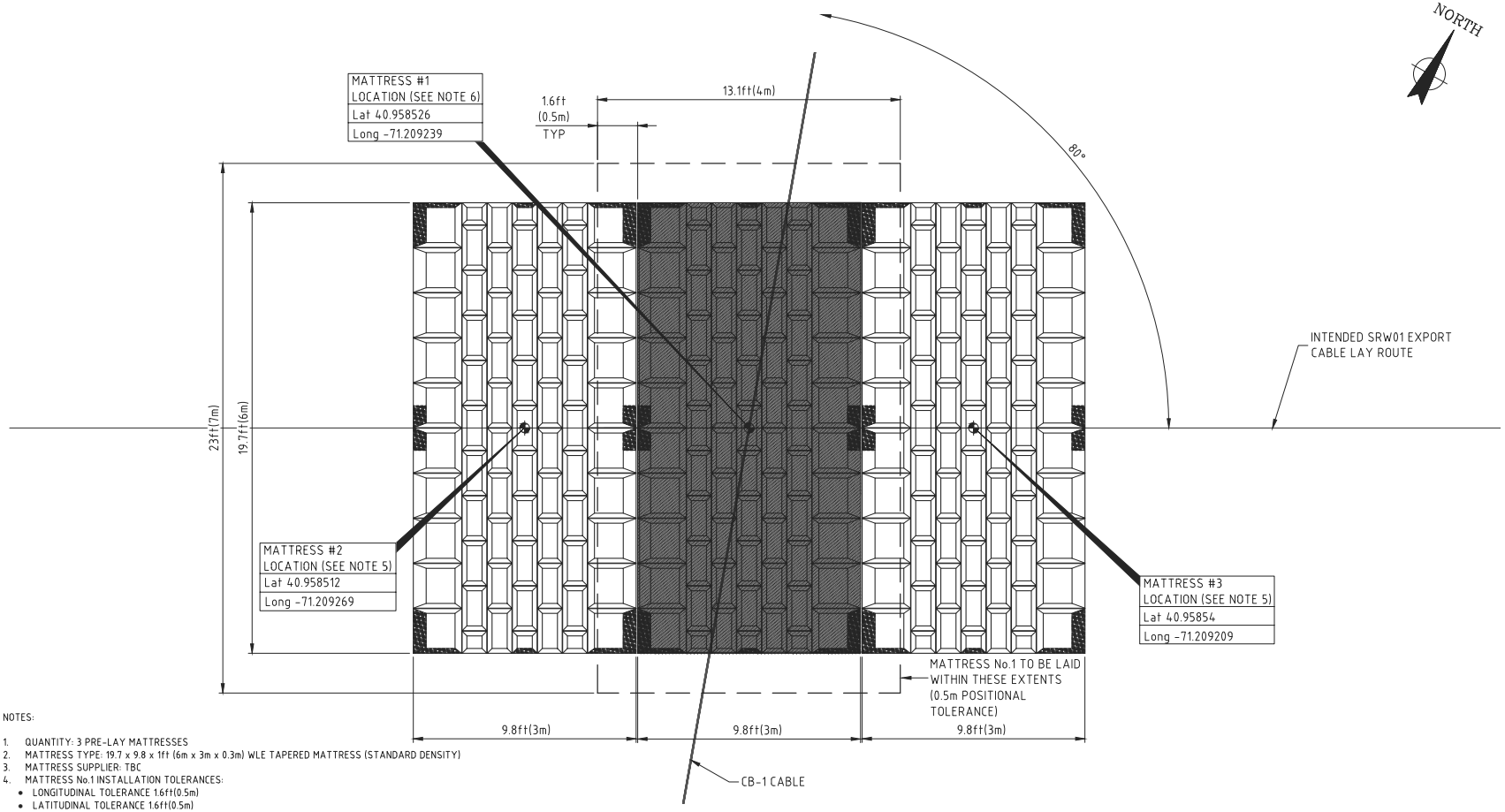
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

1. QUANTITY: 3 PRE-LAY MATTRESSES
2. MATTRESS TYPE: 19.7 x 9.8 x 1ft (6m x 3m x 0.3m) WLE TAPERED MATTRESS (STANDARD DENSITY)
3. MATTRESS SUPPLIER: TBC
4. MATTRESS No.1 INSTALLATION TOLERANCES:
   - LONGITUDINAL TOLERANCE 1.6ft(0.5m)
   - LATITUDINAL TOLERANCE 1.6ft(0.5m)
5. MATTRESSES No.2 & No.3 TO BE LAID AS CLOSE TO BEST CASE AS POSSIBLE, HOWEVER RELEVANT TO MATTRESS No.1 TOLERANCES:
   - MAXIMUM OVERLAP OF 1 BLOCK
   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON CB-1 CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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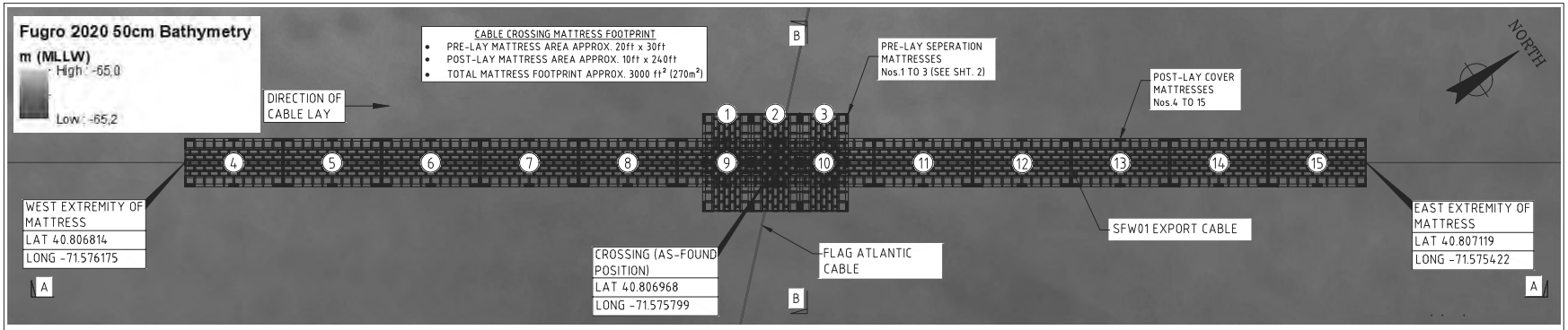
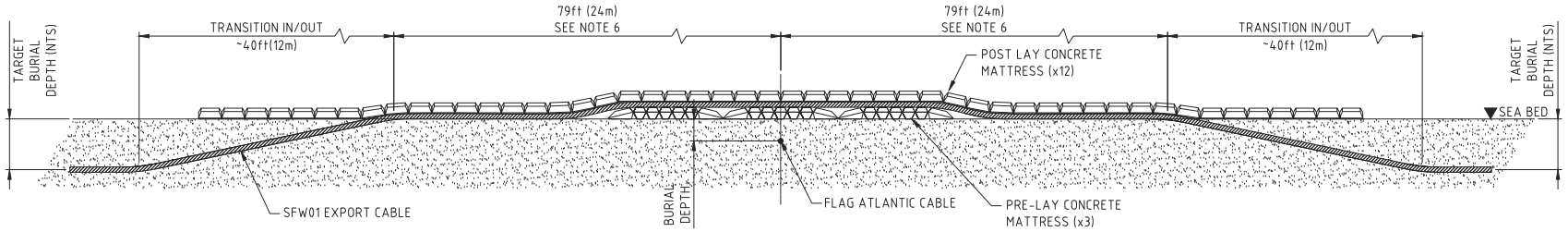
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW



PLAN ON CABLE CROSSING

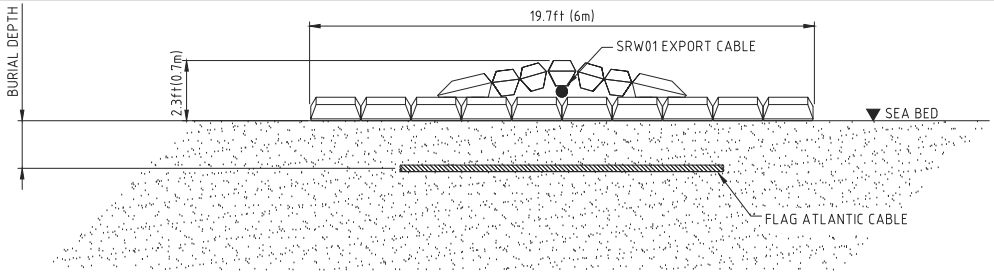
0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

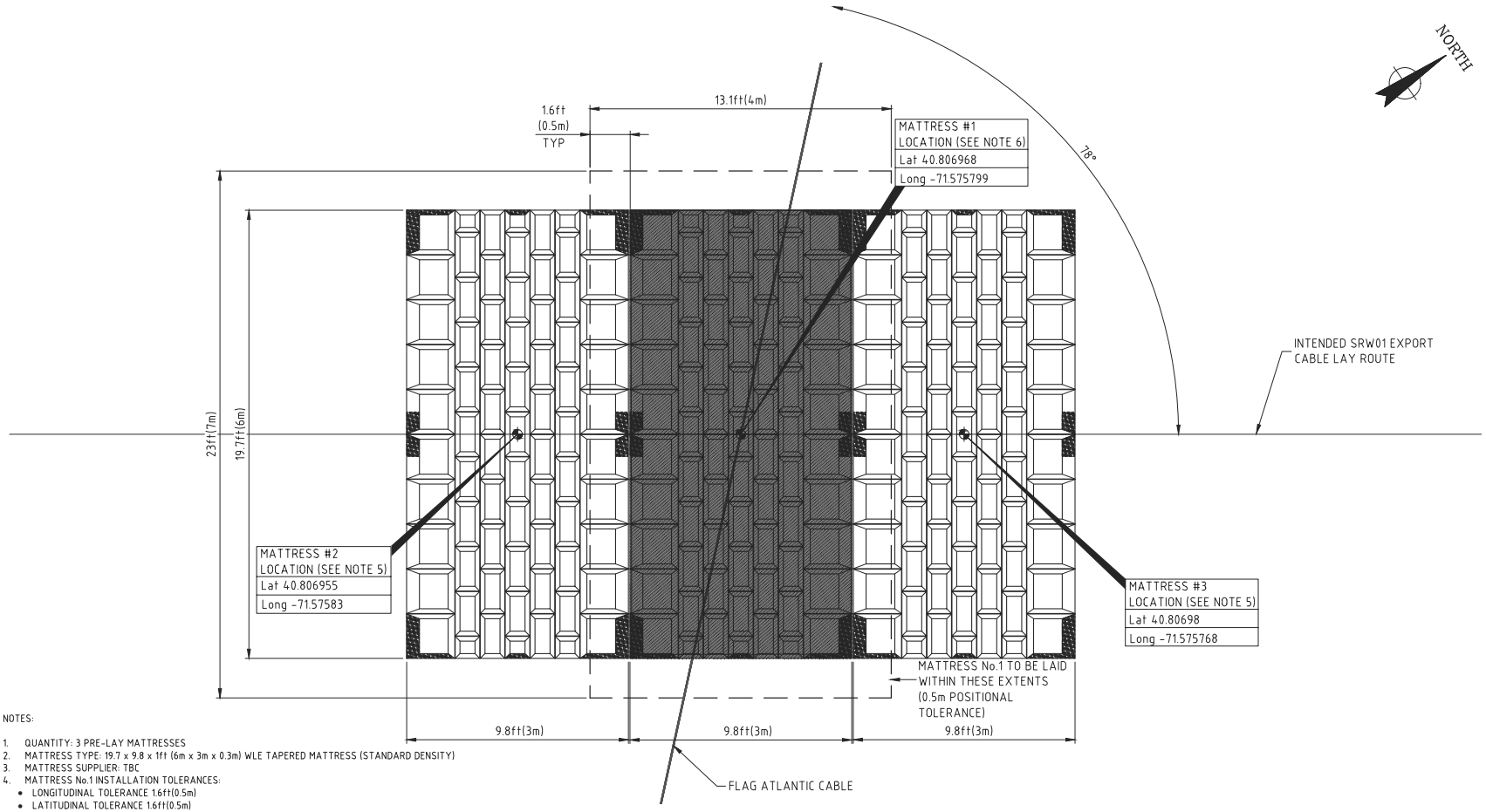
1. FOR FURTHER CROSSING DETAIL REFER TO CROSSING DESIGN PACK & MATTRESS INSTALLATION PROCEDURE
2. COORDINATE SYSTEM - NAD83(2011)UTM ZONE 19N
3. PRE-LAY MATTRESSES: 3 OFF
4. POST LAY MATTRESSES: 12 OFF
5. POST LAY MATTRESSES WILL BE LAID TO FOLLOW "AS LAID" CABLE POSITION.
6. DISTANCE TO TRANSITION OF BURIAL TO BE AGREED WITH ASSET OWNER, AND WILL ALSO DEPEND ON CABLE BURIAL METHOD



SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

Ørsted Headquartered in: Kraftværksvej 53 - 7000 Fredericia - Denmark Tel. +45 9955 1111 www.orsted.com	SRW01 FLAG-ATLANTIC CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

1. QUANTITY: 3 PRE-LAY MATTRESSES
2. MATTRESS TYPE: 19.7 x 9.8 x 1ft (6m x 3m x 0.3m) WLE TAPERED MATTRESS (STANDARD DENSITY)
3. MATTRESS SUPPLIER: TBC
4. MATTRESS No.1 INSTALLATION TOLERANCES:
   - LONGITUDINAL TOLERANCE 1.6ft(0.5m)
   - LATITUDINAL TOLERANCE 1.6ft(0.5m)
5. MATTRESSES No.2 & No.3 TO BE LAID AS CLOSE TO BEST CASE AS POSSIBLE, HOWEVER RELEVANT TO MATTRESS No.1 TOLERANCES:
   - MAXIMUM OVERLAP OF 1 BLOCK
   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON FLAG ATLANTIC CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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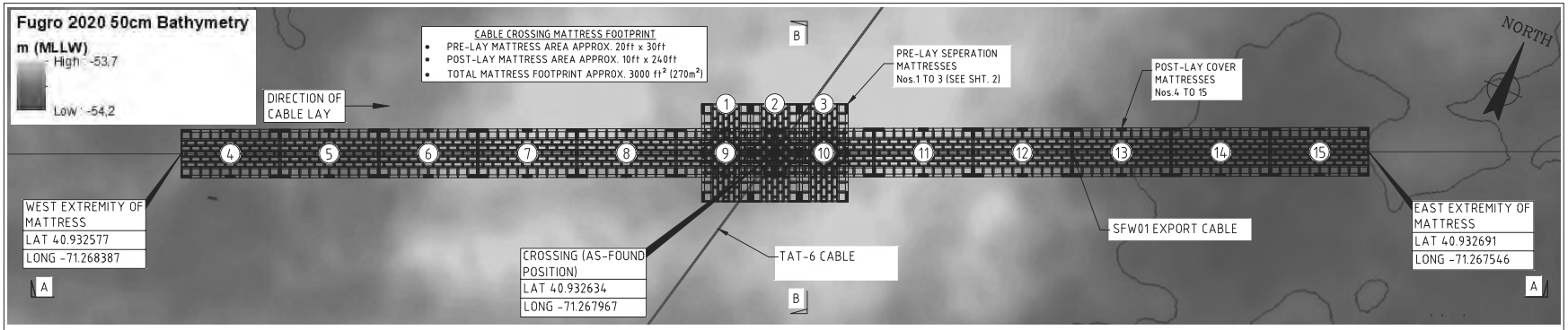
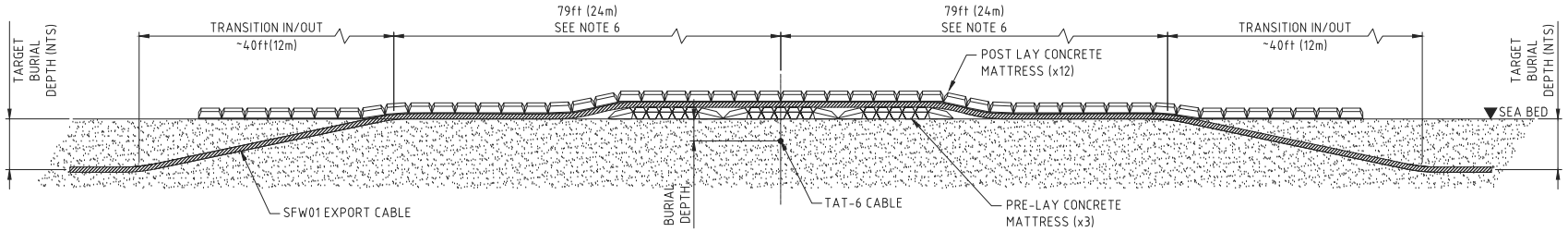
SRW01 FLAG-ATLANTIC CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC		Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW



PLAN ON CABLE CROSSING

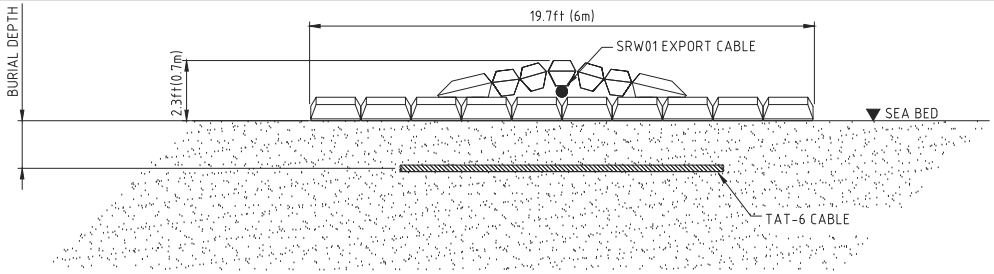
0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

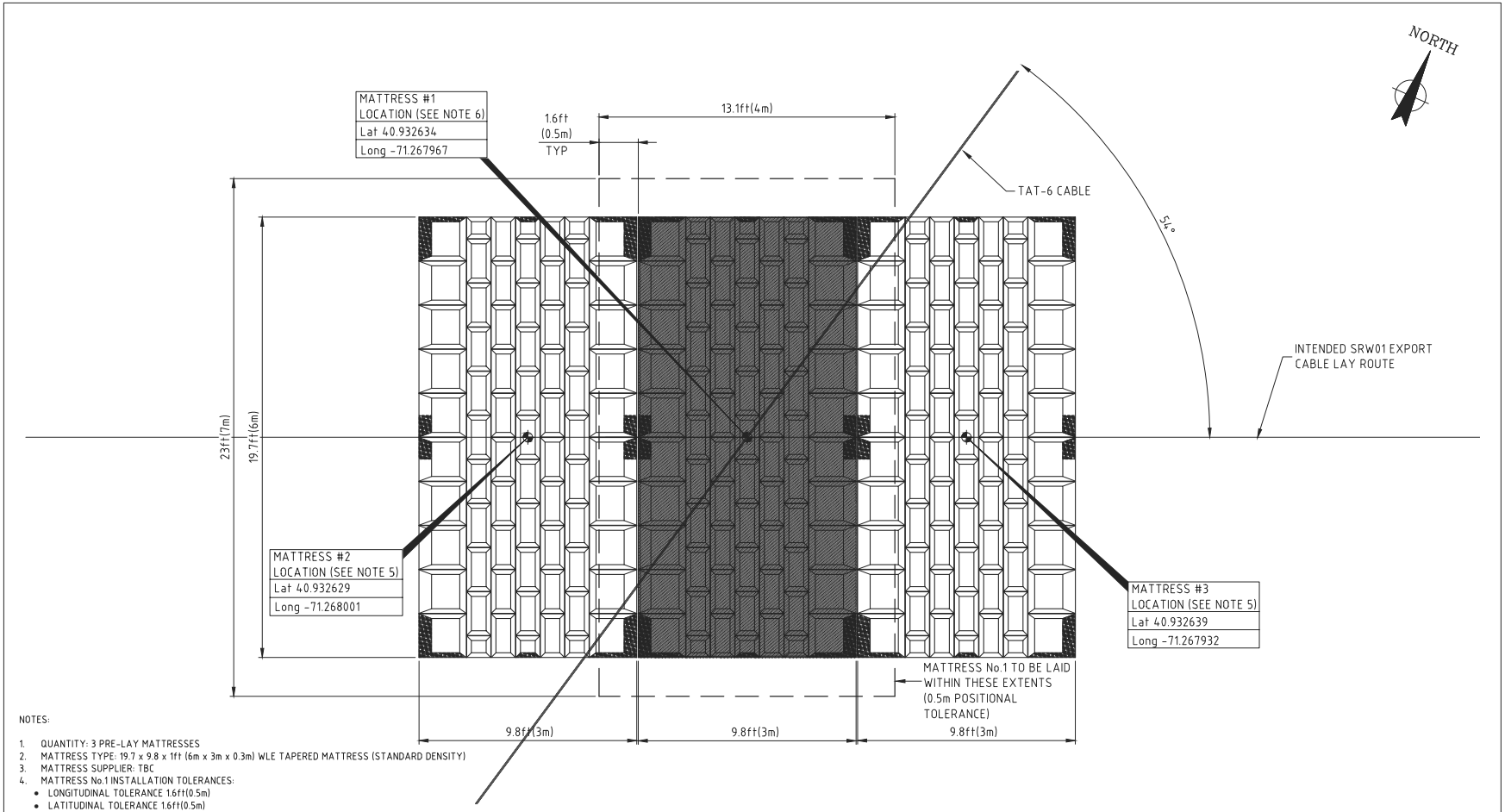
1. FOR FURTHER CROSSING DETAIL REFER TO CROSSING DESIGN PACK & MATTRESS INSTALLATION PROCEDURE
2. COORDINATE SYSTEM - NAD83(2011)UTM ZONE 19N
3. PRE-LAY MATTRESSES: 3 OFF
4. POST LAY MATTRESSES: 12 OFF
5. POST LAY MATTRESSES WILL BE LAID TO FOLLOW "AS LAID" CABLE POSITION.
6. DISTANCE TO TRANSITION OF BURIAL TO BE AGREED WITH ASSET OWNER, AND WILL ALSO DEPEND ON CABLE BURIAL METHOD



SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

Ørsted Headquartered in: Kraftværksvej 53 - 7000 Fredericia - Denmark Tel. +45 9955 1111 www.orsted.com	SRW01 TAT-6 CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

1. QUANTITY: 3 PRE-LAY MATTRESSES
2. MATTRESS TYPE: 19.7 x 9.8 x 1ft (6m x 3m x 0.3m) WLE TAPERED MATTRESS (STANDARD DENSITY)
3. MATTRESS SUPPLIER: TBC
4. MATTRESS No.1 INSTALLATION TOLERANCES:
   - LONGITUDINAL TOLERANCE 1.6ft(0.5m)
   - LATITUDINAL TOLERANCE 1.6ft(0.5m)
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   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON TAT-6 CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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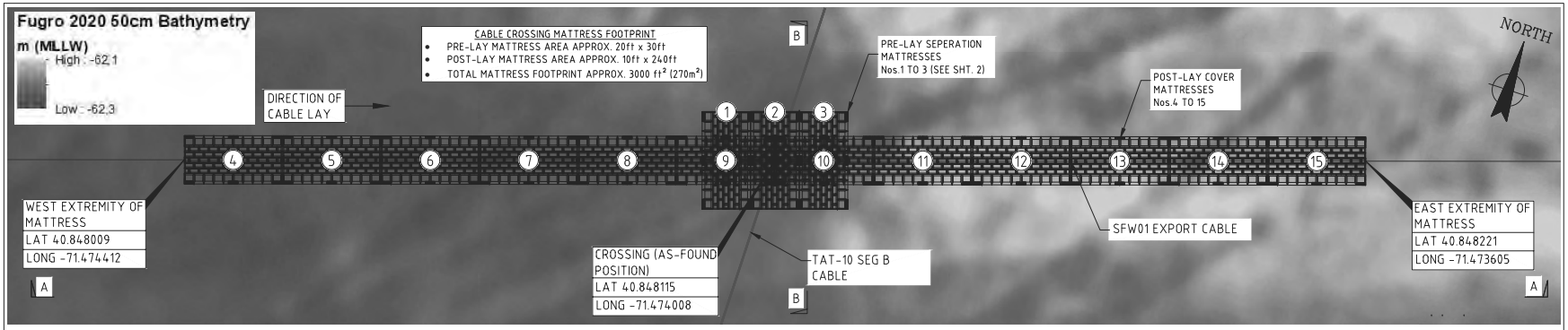
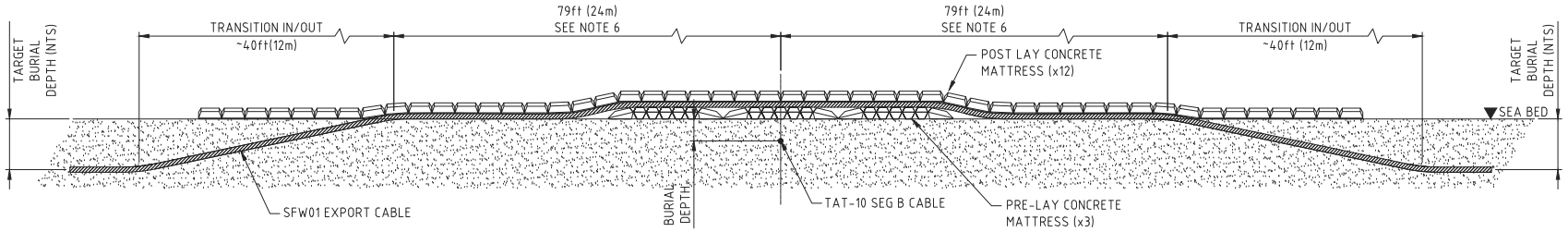
SRW01 TAT-6 CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN	
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW



PLAN ON CABLE CROSSING

0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

1. FOR FURTHER CROSSING DETAIL REFER TO CROSSING DESIGN PACK & MATTRESS INSTALLATION PROCEDURE
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3. PRE-LAY MATTRESSES: 3 OFF
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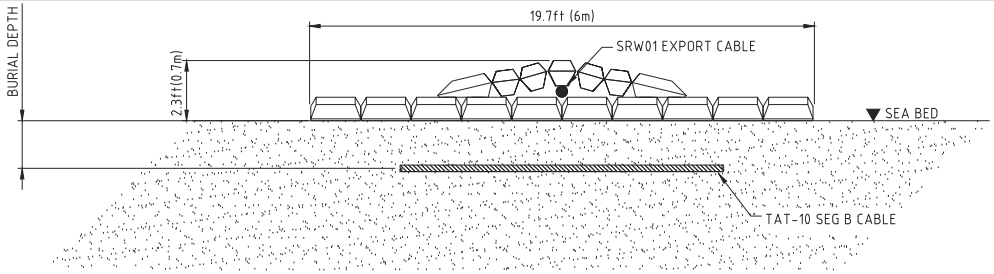
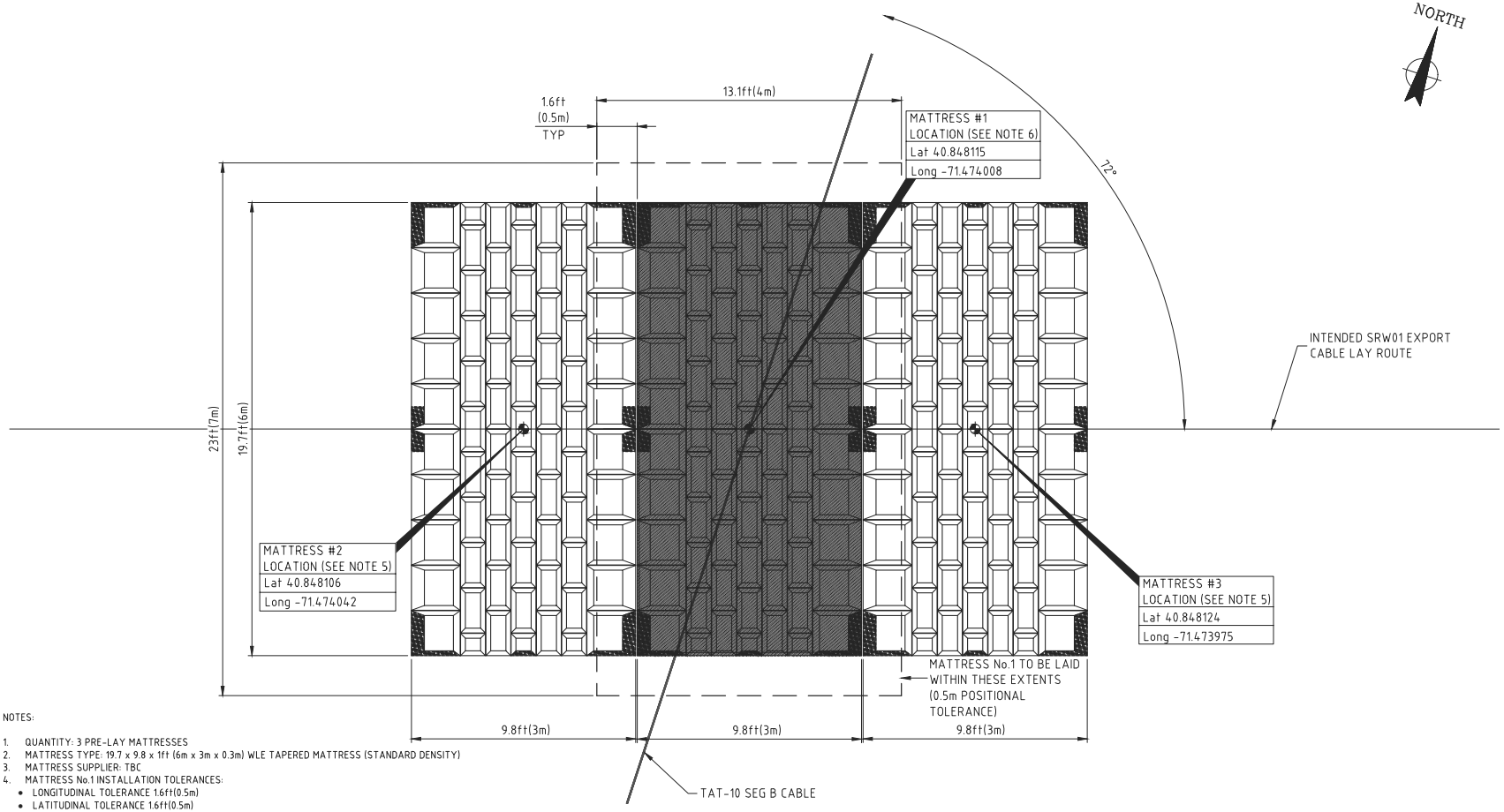


SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

Ørsted Headquartered in: Kraftværksvej 53 - 7000 Fredericia - Denmark Tel. +45 9955 1111 www.orsted.com	SRW01 TAT-10_SEG_B CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

1. QUANTITY: 3 PRE-LAY MATTRESSES
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   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON TAT-10 SEG B CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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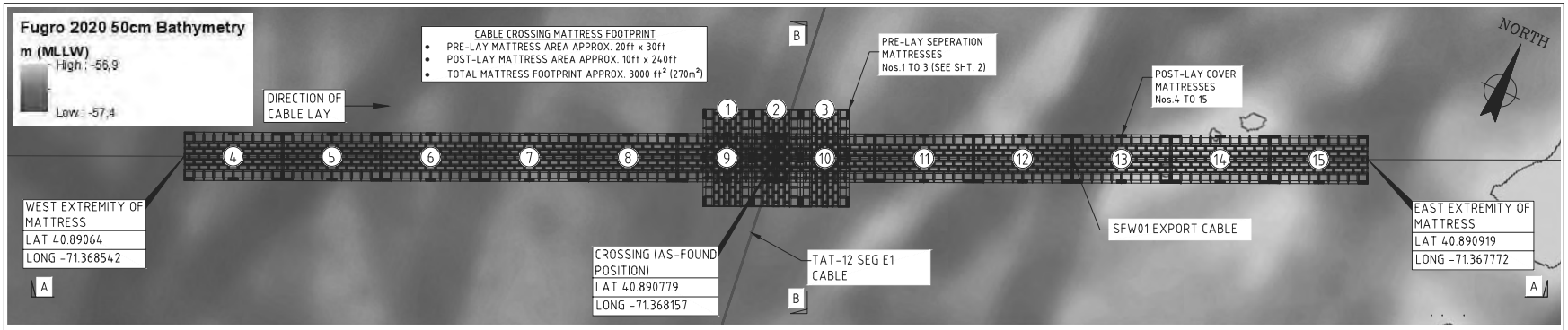
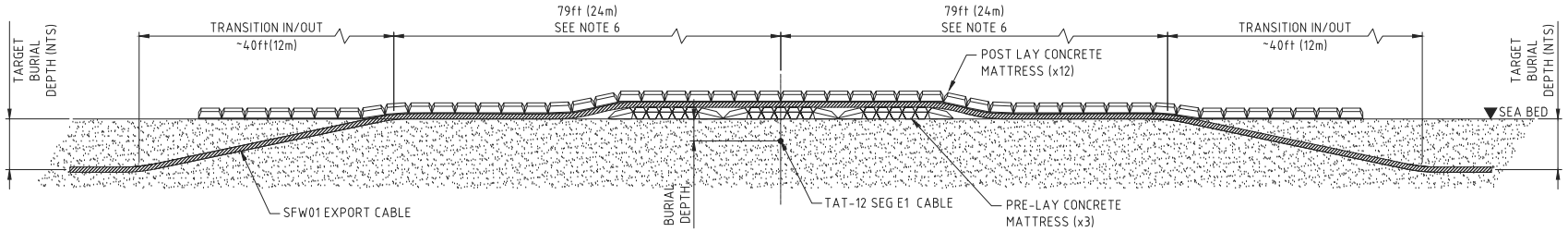
SRW01 TAT-10_SEG_B CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN	
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW



PLAN ON CABLE CROSSING

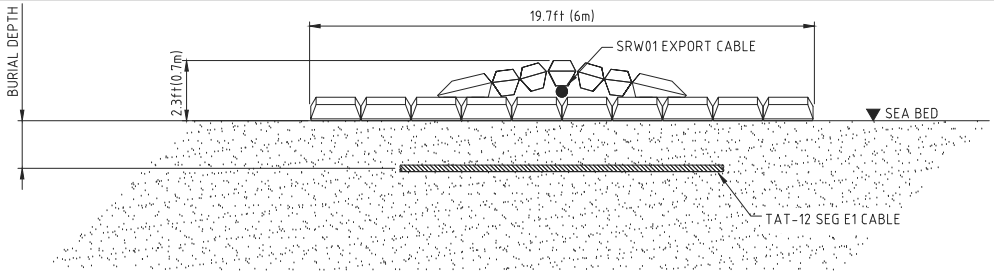
0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

1. FOR FURTHER CROSSING DETAIL REFER TO CROSSING DESIGN PACK & MATTRESS INSTALLATION PROCEDURE
2. COORDINATE SYSTEM - NAD83(2011)UTM ZONE 19N
3. PRE-LAY MATTRESSES: 3 OFF
4. POST LAY MATTRESSES: 12 OFF
5. POST LAY MATTRESSES WILL BE LAID TO FOLLOW "AS LAID" CABLE POSITION.
6. DISTANCE TO TRANSITION OF BURIAL TO BE AGREED WITH ASSET OWNER, AND WILL ALSO DEPEND ON CABLE BURIAL METHOD



SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

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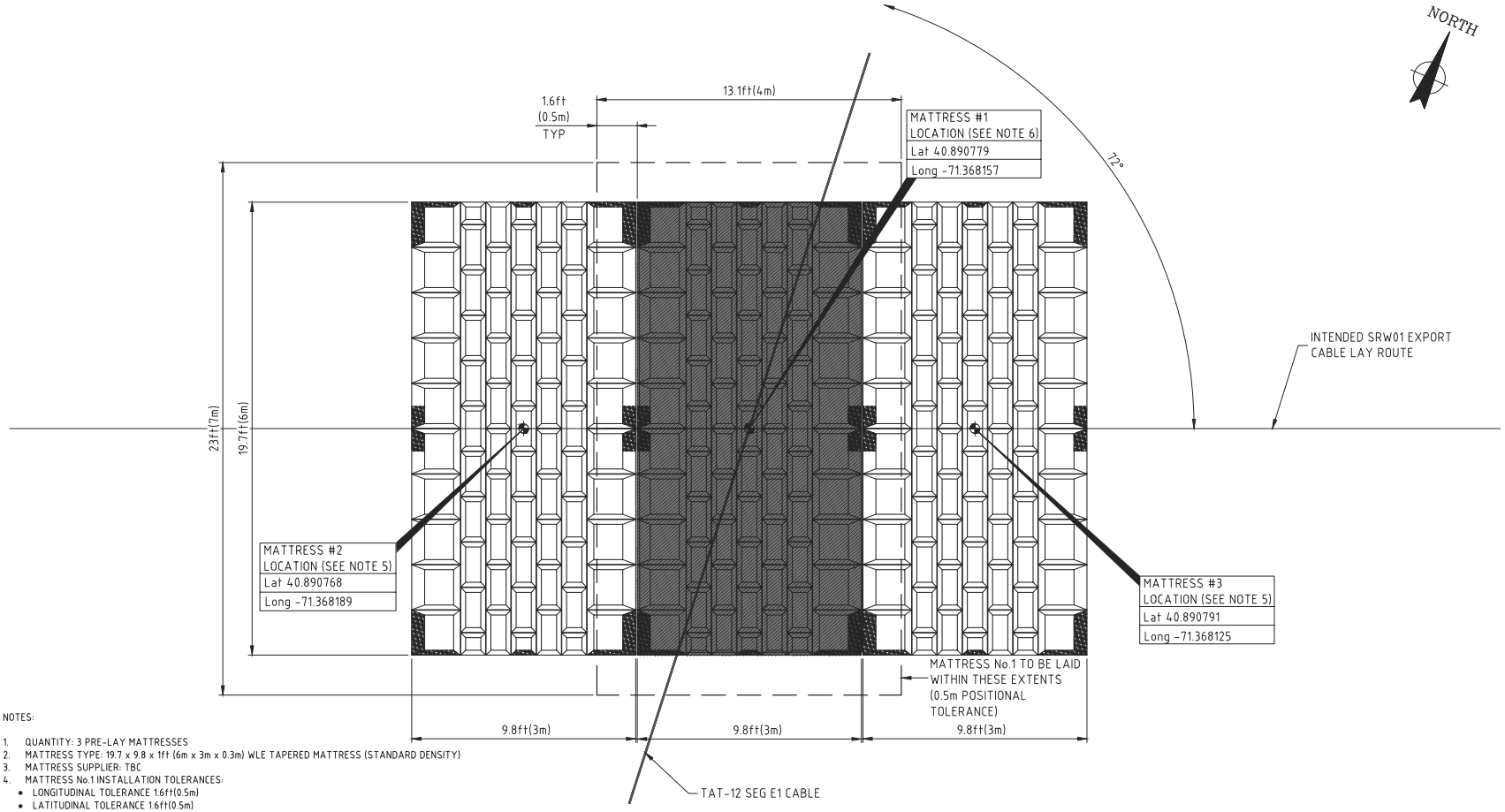
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

1. QUANTITY: 3 PRE-LAY MATTRESSES
2. MATTRESS TYPE: 19.7 x 9.8 x 1ft (6m x 3m x 0.3m) WLE TAPERED MATTRESS (STANDARD DENSITY)
3. MATTRESS SUPPLIER: TBC
4. MATTRESS No.1 INSTALLATION TOLERANCES:
   - LONGITUDINAL TOLERANCE 1.6ft(0.5m)
   - LATITUDINAL TOLERANCE 1.6ft(0.5m)
5. MATTRESSES No.2 & No.3 TO BE LAID AS CLOSE TO BEST CASE AS POSSIBLE, HOWEVER RELEVANT TO MATTRESS No.1 TOLERANCES:
   - MAXIMUM OVERLAP OF 1 BLOCK
   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON TAT-10 SEG B CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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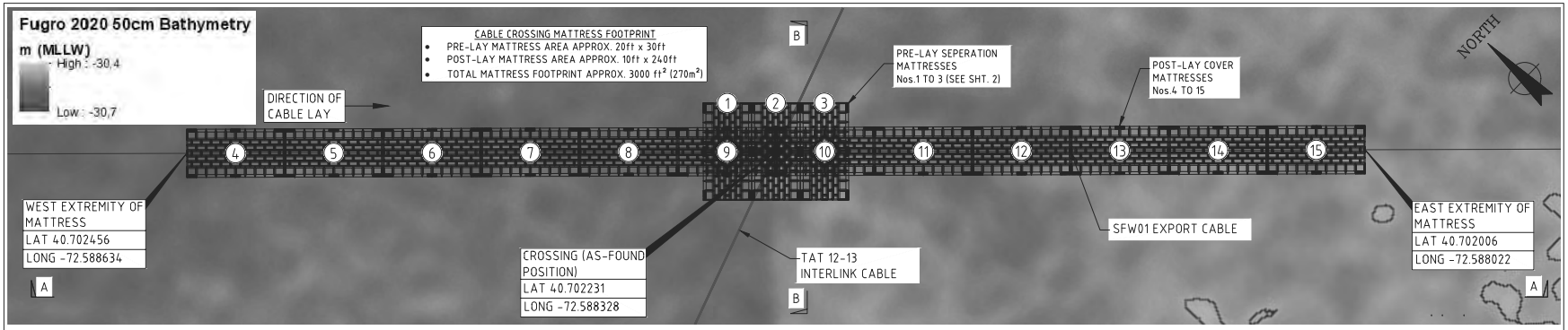
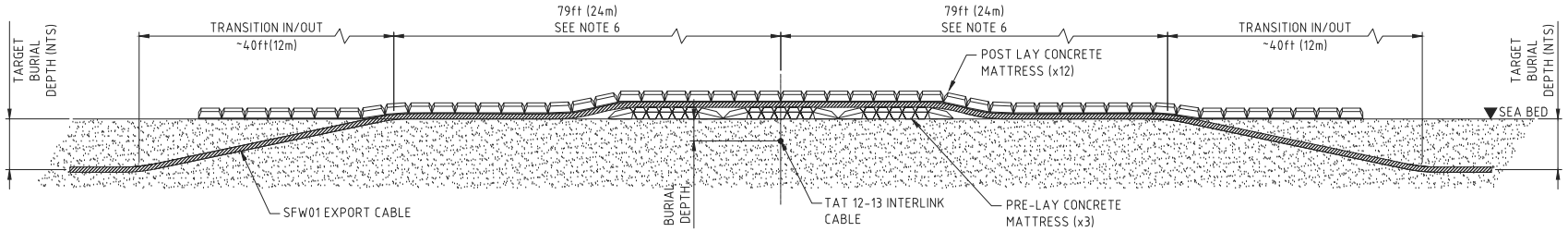
SRW01 TAT-12_SEG_E1 CABLE-CROSSING-DETAILS FOR-INITIAL-REVIEW-AND-COMMENT	Ørsted Document No. TBC	Drawn by NIPWB/XMGRI	Accepted XMGRI	Approved HENMN	
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW



PLAN ON CABLE CROSSING

0m 5m 10m



SECTION A - A
ELEVATION ON MATTRESS CONFIGURATION - (NTS)

NOTES:

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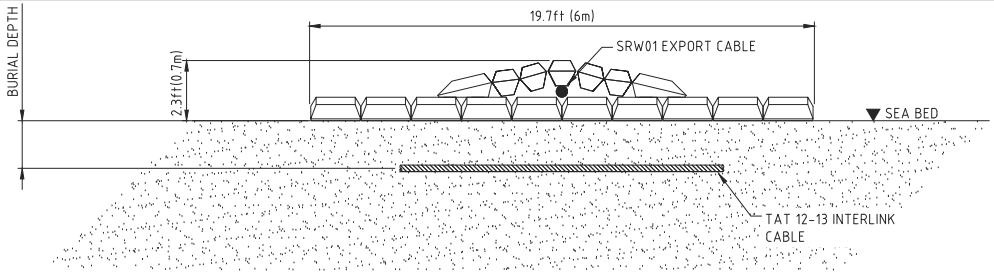

SECTION B - B
END ELEVATION ON MATTRESS CONFIGURATION - (NTS)

SHEET 1 OF 2

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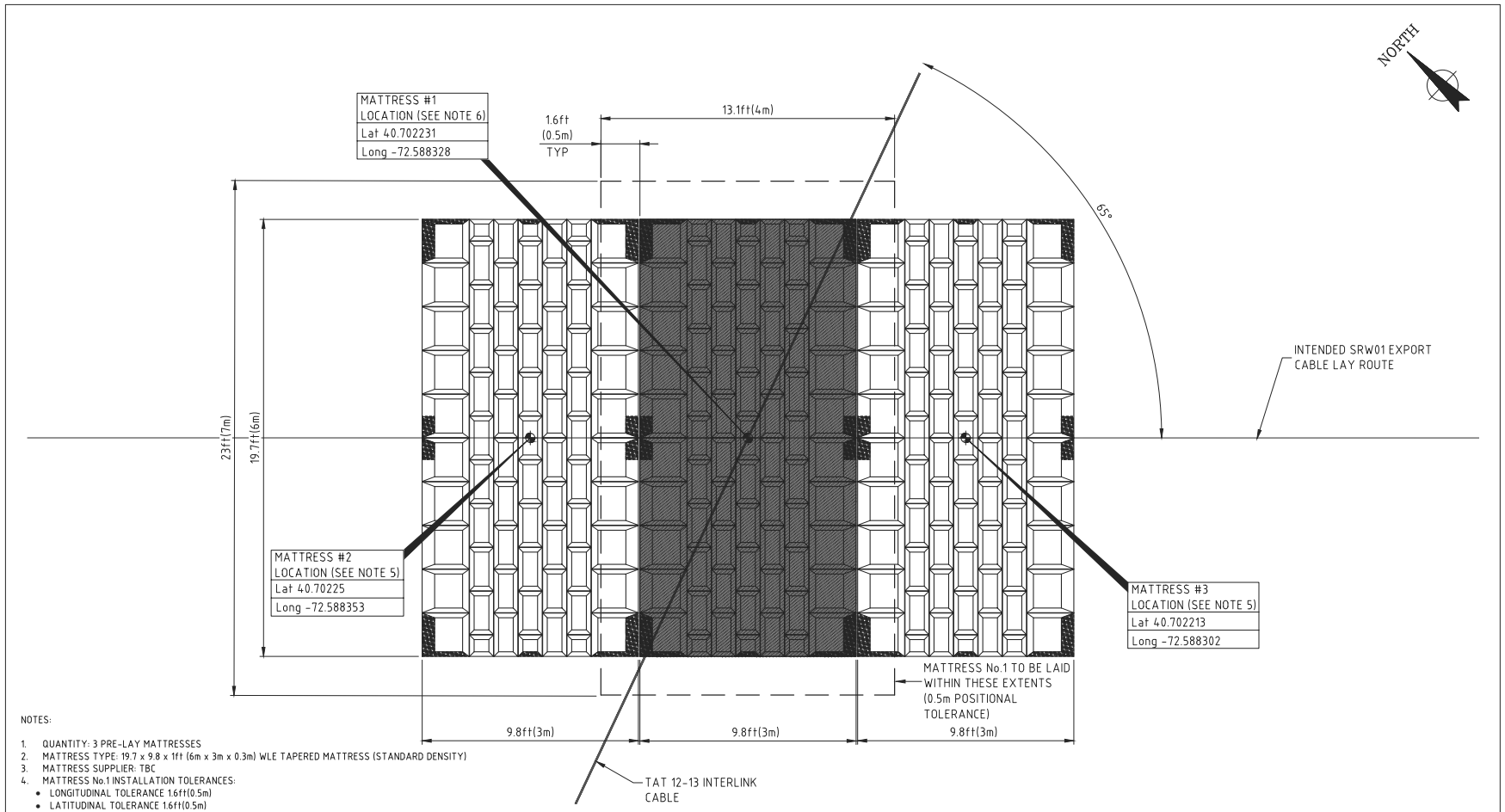
		Scale NTS	Size A3	RDS-PP code	Rev. FOR-INITIAL-REVIEW



NOTES:

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   - LATITUDINAL TOLERANCE 1.6ft(0.5m)
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   - MAXIMUM OVERLAP OF 1 BLOCK
   - MAXIMUM GAP BETWEEN MATTRESSES OF 1.6ft(0.5m)
6. MATTRESS LOCATION SUBJECT TO MINOR ADJUSTMENT AFTER PRE-LAY ROV SURVEY CONFIRMING CROSSING LOCATION.

PLAN ON CB-1 CABLE CROSSING - (SCALE 1:50)
PRE-LAY MATTRESS INSTALLATION

SHEET 2 OF 2

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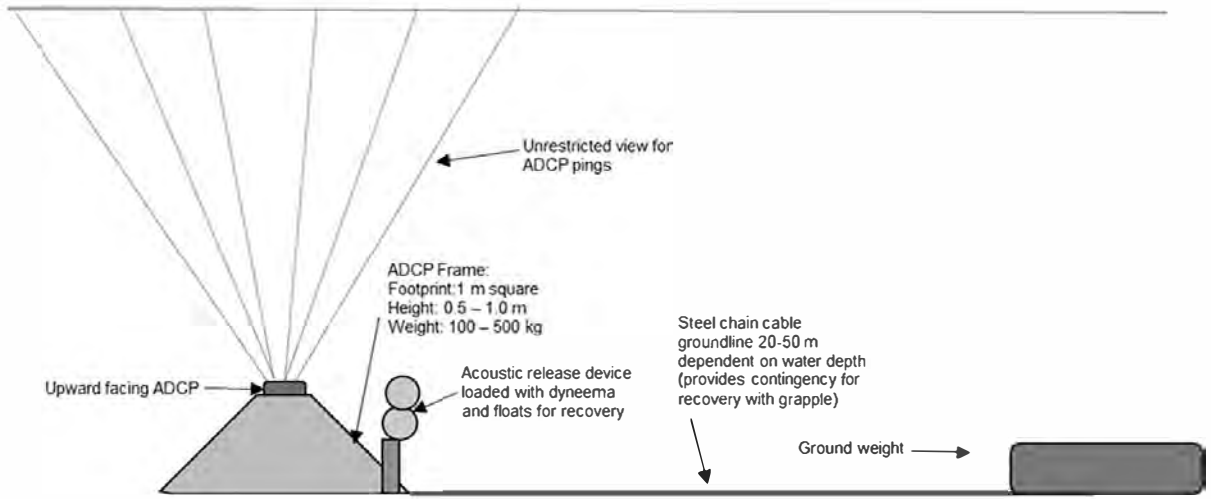
	Scale NTS	Size A3	RDS-PP code		Rev. FOR-INITIAL-REVIEW

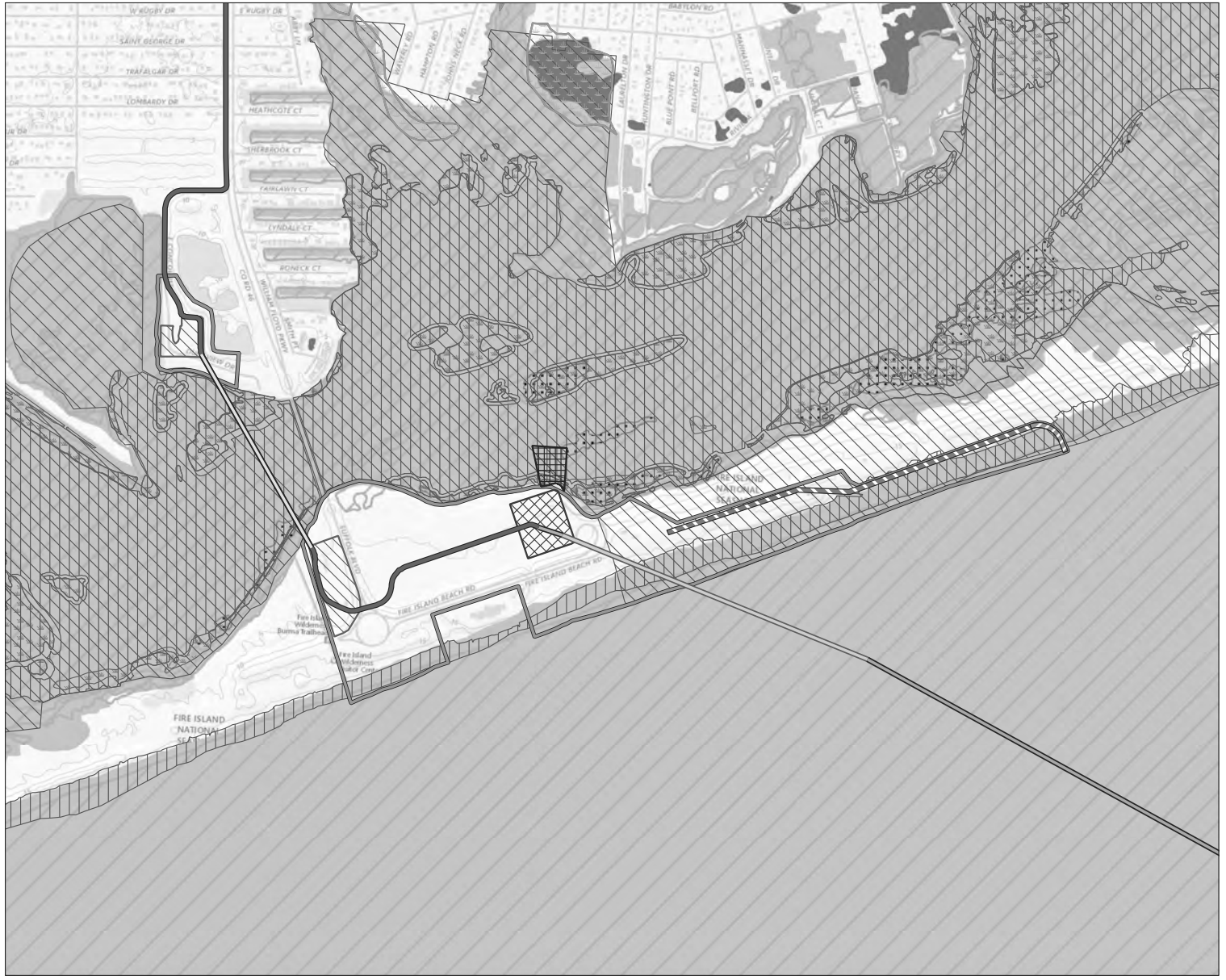
ADCP

Orsted
Acoustic Doppler Current Profiler



Landfall HDD and ICW HDD

Work Areas



Landfall/ICW Study Area

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway Horizontal Directional Drilling (ICW HDD)
- Onshore Transmission Cable
- LIE Service Road Route
- Landfall/ICW Study Area
- Landfall Work Area
- Temporary Landing Structure Area
- ICW Work Area
- Pipe Sea Access
- Pipe Stringing Area
- NYSDEC Wetlands
- NYSDEC Statewide Seagrass
- NYSDOS Seagrass
- NYSDEC Tidal Wetlands - NYC and Long Island
- NYSDOS Significant Coastal Fish and Wildlife Habitats
- NYS Natural Heritage Community Occurrences

NWI Wetlands
- Estuarine and Marine Wetlands
- Freshwater Wetlands

Note

1. The cable route centerline and trenchless crossing work areas are indicative and subject to final engineering design.
2. No fill will occur in any mapped wetlands with the exception of Narrow Bay for components of the Temporary Landing Structure.

Sources
NYSDEC, NYSDOS, NYS Natural Heritage Program, NYS GIS Clearinghouse, USFWS

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	AP

0 1,000 feet
0 300 meters

N

Scale at 11x17: 1:12,000
NAD 1983 2011 UTM Zone 19N

REFERENCE MAP

V:\1958\active_Task Owner and other Non-BC\1958 Jobs\2028113199\03_data\gis_cad\gis\MXDs\ACOE\2028113199_4.4.1-1_Landfall.mxd Revised: 2022-07-13 By: gcarpenter

Pipe Stringing Area

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Onshore Transmission Cable–LIE Service Road Route
- Landfall Work Area
- Pipe Sea Access
- Pipe Stringing Area
- Sunrise Wind New York Cable Corridor
- Town Boundary

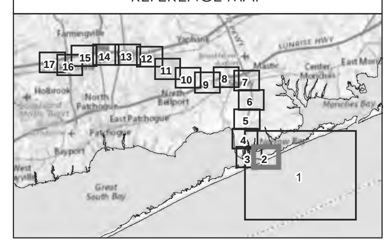
Notes
1. The cable centerline is indicative and subject to final engineering and design.

Sources
NYS GIS Clearinghouse
BOEM Submerged Lands Act (SLA) Boundary, 2017
NAIP 2019

Date	06/24/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	JYP

0 600 feet
0 0.1 nm
0 0.2 km
N
Scale at 11x17: 1:7,200
NAD 1983 2011 UTM Zone 18N FT

REFERENCE MAP



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Temporary Equipment

ORSTED - SUNRISE WIND

TEMPORARY LANDING STRUCTURE

SUFFOLK COUNTY, NEW YORK

LOCATION MAP

SITE MAP

SHEET NO.	DRAWING NO.	DRAWING TITLE
		GENERAL
1	G-1	TITLE SHEET AND DRAWING INDEX
2	G-2	GENERAL NOTES
3	G-3	SITE LAYOUT
4	G-4	STIE PLAN
		STRUCTURAL
5	S-1	TEMPORARY PIER - PLAN & ELEVATION
6	S-2	TEMPORARY PIER - SECTIONS
7	S-3	PILE DETAILS & SCHEDULE
8	S-4	STRUCTURAL FRAMING DETAILS
9	S-5	ABUTMENT & SHORESIDE INTERFACE DETAILS

1

DRAWING INDEX

REVISED 100% SUBMITTAL

MARK	REVISION DESCRIPTION	BY	APP.	DATE
REV 1	REVISED DWG LIST	ER	JS	3/31/24

WSP USA Inc.
16200 Park Row
Suite 200
Houston, TX 77084
TEL: (832) 384-7814

DRAWN BY ER
DESIGN BY BA
CHECK BY DAS
PROJ MGR JS

ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK

TITLE SHEET AND DRAWING LIST

DRAWING NO. G-1
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:21 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\01_G01.dwg

GENERAL NOTES

CODES AND STANDARDS

1. CODES & STANDARDS SHALL BE BASED ON THE LATEST EDITION AS OF DATE SUBMITTED FOR PERMIT.
2. STRUCTURES SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, LATEST VERSION.
3. DESIGN WIND SPEEDS SHALL BE PER THE NEW YORK BUILDING CODE.
4. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION OF ACI "SPECIFICATIONS FOR CONCRETE CONSTRUCTION" (ACI 301) AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
5. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION THEREOF SHALL CONFORM TO THE LATEST VERSION OF AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360) AND CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES (AISC 303), AND RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS.
6. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).
7. WELDING OF ALUMINUM SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - ALUMINUM" (AWS D1.2).
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - REINFORCING STEEL"(AWS D1.4).
9. WELDING OF STAINLESS STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - STAINLESS STEEL" (AWS D1.6).

GENERAL

1. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE DESIGNER BEFORE BEGINNING AFFECTED WORK. THE DESIGNER WILL RESOLVE ANY SUCH CONFLICT. REFER ALSO TO PROJECT SPECIFICATIONS.
2. ALL SHOP DRAWINGS AND MATERIAL CERTIFICATIONS FOR CONCRETE ELEMENTS, REINFORCING STEEL, MISCELLANEOUS STEEL, FENDER SYSTEM AND ALL OTHER DETAILS SHALL BE SUBMITTED TO AND REVIEWED BY THE DESIGNER PRIOR TO FABRICATION.
3. VERIFY DIMENSIONS AND DETAILS, EXISTING AND NEW, PRIOR TO FABRICATION OR CONSTRUCTION. ENSURE COORDINATES ARE NOTED AS TO WHICH DATUM IS BEING USED.
4. PERFORM WORK IN ACCORDANCE WITH ALL APPROVED LOCAL REGULATIONS, APPROVED PERMIT REQUIREMENTS, APPLICABLE STATUTORY AND REGULATORY REQUIREMENTS, AND ALL PERTINENT AND APPLICABLE BEST MANAGEMENT PRACTICES.

PROJECT DATUM

1. HORIZONTAL DATUM IS BASED ON WORLD GEODETIC SYSTEM 83 UNIVERSAL TRANSVERSE MERCATOR ZONE 18F.
2. VERTICAL DATUM IS BASED ON MEAN LOW WATER (MLW) .
3. ALL COORDINATES AND ELEVATIONS LISTED IN THE DRAWINGS AND SPECIFICATIONS ARE REFERENCED TO THE AFOREMENTIONED DATUMS.
4. ALL DIMENSIONS ARE IN FEET & INCHES, UNLESS NOTED OTHERWISE.
5. SITE TIDAL DATUM ELEVATIONS:

PROJECT SURVEY

1. CONTOURS SHOWN ON THE DRAWINGS ARE BASED ON THE BATHYMETRIC SURVEY RECEIVED IN OCTOBER 2022.
2. CONTRACTOR SHALL INDEPENDENTLY VERIFY ALL EXISTING CONDITIONS AND LOCATIONS SHOWN AND BRING TO THE DESIGNER'S ATTENTION IF OTHER CONDITIONS NOT SHOWN HEREIN ARE PRESENT WHICH MAY BE AFFECTED BY THE MARINE WORK. THE APPROVED PERMIT REQUIREMENTS WILL BE RESPECTED.
3. TEMPORARY PILES/STRUCTURES WILL BE REMOVED ON COMPLETION OF THE PROJECT PRIOR TO PROJECT HANDOVER.
4. DESIGN AND CONSTRUCTION WILL LAY EMPHASIS ON MAINTAINING OR KEEPING INTACT EXISTING INFRASTRUCTURE, STRUCTURES, AND UTILITIES TO THE EXTENT POSSIBLE AS INDICATED IN THE PERMIT.
5. DEBRIS AND TRASH WILL BE HANDLED PER APPROVED PROTOCOLS. THE INTENT IS TO ADHERE TO ALL PERMIT REQUIREMENTS AND EMPLOY BEST MANAGEMENT PRACTICES.

OPERATION

1. MATERIAL WILL BE BROUGHT VIA ROAD TO SMITH POINT MARINA WHERE A TEMPORARY PILE-SUPPORTED RELIEVING PLATFORM WILL BE INSTALLED. THIS WILL BE USED TO LOAD EQUIPMENT ONTO BARGES WITH A RO-RO OPERATION. THE RELIEVING PLATFORM WILL SERVE AS A BRIDGE TO THE BARGE IN ORDER TO AVOID PLACING ANY ADDITIONAL SURCHARGE ON THE EXISTING MARINA RETAINING WALL.
2. THE BARGE WILL THEN SAIL (UNDER TUG ASSISTANCE) TO THE TEMPORARY PIER ACROSS THE CHANNEL. THE BARGE'S RAMP WILL BE LOWERED ON TO THE TEMPORARY PIER. CARGO WILL BE UNLOADED WITH A RO-RO OPERATION TO THE STAGING AREA.
3. THE TEMPORARY PIER WILL ALSO BE USED TO LOAD EQUIPMENT ONTO OCEAN BARGES FOR TRANSPORTATION TO THE CONSTRUCTION SITE.
4. BARGES ARE OPERATED WITH TUGS AT ALL TIMES.

1

CONCRETE (AS USED)

1. FOR CONCRETE MATERIAL REQUIREMENTS, REFER TO SPECIFICATIONS.
2. CONSTRUCTION JOINTS SHALL BE PROVIDED ONLY AS NOTED ON THE DRAWINGS AND AS SPECIFICALLY PERMITTED BY THE DESIGNER.
3. ALL EXPOSED CORNERS SHALL BE CHAMFERED ¾ INCHES UNLESS SHOWN OTHERWISE.
4. CONCRETE COMPRESSIVE STRENGTHS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

MEMBER	MIN COMPRESSIVE STRENGTH AT 28 DAYS (PSI)
CONCRETE	5000

6. CONCRETE CLEAR COVER REQUIREMENTS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

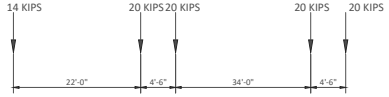
A.	TOP AND SIDE SURFACES	2 IN
B.	SURFACES AGAINST WHICH FRESH CONC WILL BE PLACED	1 IN
C.	ALL OTHER LOCATIONS UNLESS SPECIFIED OTHERWISE	3 IN

REINFORCEMENT (AS USED)

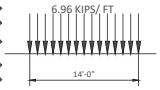
1. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60 EXCEPT REINFORCING STEEL TO BE WELDED SHALL BE ASTM A706, GRADE 60. BAR SIZES SHALL CONFORM TO U.S. CUSTOMARY SIZES AS SHOWN. ALL REINFORCING BAR BEND DIMENSIONS SHOWN ARE OUT-TO-OUT.
2. WIRE FOR SPIRAL REINFORCEMENT SHALL CONFORM TO ASTM A82.
3. FOR ACTUAL REINFORCING DETAILING, REFER TO SHOP DRAWINGS. ALL REINFORCEMENT DETAILING SHALL BE PER LATEST VERSION OF ACI-318.
4. SPLICING OF LONGITUDINAL REINFORCEMENT OVER 40 FEET IN LENGTH, EXCEPT AS SPECIFICALLY NOTED ON THE DRAWINGS, SHALL BE PERMITTED. SPLICES SHALL BE STAGGERED WITH NO MORE THAN 50% OF THE BARS BEING SPLICED AT ANY ONE LOCATION. MINIMUM LENGTH OF LAP SPLICE SHALL BE 50 TIMES THE BAR DIAMETER. SPLICES SHALL BE INCREASED FOR TOP BAR CONDITIONS AS PER ACI 318. MINIMUM SPACING BETWEEN LAP SPLICES SHALL BE PER SPECIFICATIONS.
5. PROVIDE CORNER BARS AT ALL WALL, CURB, AND CURB WALL CORNERS. CORNER BARS SHALL MATCH THE NUMBER/SPACING AND DIAMETER OF ALL HORIZONTAL REINFORCEMENT AT THE CORNER. SPLICE CORNER BAR TO TERMINATED STRAIGHT BAR WITH A MINIMUM SPLICE LENGTH OF 50 BAR DIAMETERS.

LOAD CRITERIA

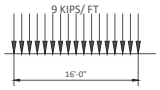
RIG 31 - AXLE LOAD



CRAWLER - AXLE LOAD



PC490-LC11 - AXLE LOAD



PILES

1. ALL STEEL PIPE PILES SHALL CONFORM TO ASTM A252 GRADE 3 (MODIFIED TO 50 KSI) OR API 5L MIN X50 KSI OR APPROVED EQUIVALENT. REFER TO SPECIFICATIONS.
2. PILES SHALL BE DRIVEN CONTINUOUSLY TO AN ULTIMATE CAPACITY OF 200 TONS AND A MINIMUM EMBEDMENT OF 50 FT. IF PRACTICAL REFUSAL (DEFINED AS 20 BLOWS/IN FOR A MINIMUM OF 2 IN) IS ACHIEVED PRIOR TO MINIMUM EMBEDMENT, CONTRACTOR SHALL NOTIFY THE ENGINEER. TIP ELEVATIONS SHOWN ARE ESTIMATED AND BASED ON GEOTECHNICAL DATA FROM A NEARBY SITE, AND NOT INTENDED TO REPRESENT ACTUAL SOIL CONDITIONS.

MISCELLANEOUS STEEL

1. WHERE APPLICABLE, STEEL PLATES AND BARS SHALL MEET THE REQUIREMENTS OF ASTM A572, GRADE 50, UNLESS NOTED OTHERWISE.
2. WHERE APPLICABLE, WIDE FLANGE SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A572, GRADE 50, UNLESS NOTED OTHERWISE.
3. WHERE APPLICABLE, CHANNEL AND ANGLE SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A36 UNLESS NOTED OTHERWISE.
4. WHERE APPLICABLE, RECTANGULAR AND ROUND HSS SECTIONS SHALL CONFORM TO ASTM A500, GRADE C, UNLESS OTHERWISE NOTED.
5. ALL MISC. STEEL SHALL HAVE A MINIMUM THICKNESS OF ½ INCHES UNLESS OTHERWISE NOTED.
6. ALL CONNECTORS SHALL BE HOT DIP GALVANIZED ASTM F3125 GRADE 325 BOLTS WITH STANDARD WASHER AND HEAVY HEX NUT, UNLESS OTHERWISE NOTED.

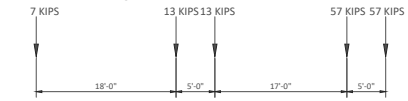
LOAD CRITERIA

PIER LOADING CRITERIA:

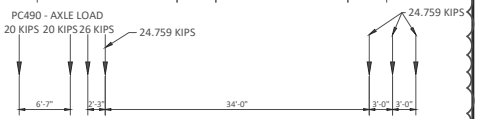
UNIFORM LIVE LOAD:	500 PSF	
UNIFORM DEAD LOAD:	SELF WEIGHT	
LATERAL LOAD:	9,000 LBS	
H-324 HK250C	EMPTY WEIGHT:	89 300 LBS
H-397 HK300T-HT	EQUIPMENT WEIGHT:	69 000 LBS

HANDRAILS SHALL BE ABLE TO WITHSTAND A 200 LB FORCE IN A DOWNWARD OR OUTWARD DIRECTION

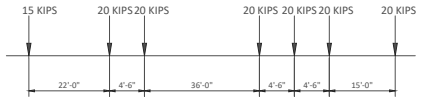
MIRK TRAILER - AXLE LOAD



PC490 - AXLE LOAD



TRL-242 - AXLE LOAD



REVISED 100% SUBMITTAL

MARK	REVISION DESCRIPTION	BY	APP.	DATE
REV 1	REVISED NOTES	ER	JS	3/31/24

WSP USA Inc.
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Houston, TX 77084
TEL: (832) 384-7814

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PROJ MGR JS

ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK

GENERAL NOTES

DRAWING NO. G-2
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by USER67352 on Mar 31, 2024 6:21 PM File: C:\Users\US367352\WSP O365\Houston CADD - Projects\31300229000\CADD\Dwgs\01_G02.dwg

1 SITE PLAN LAYOUT
SCALE: 1" = 300'
300 0 300 600
scale feet

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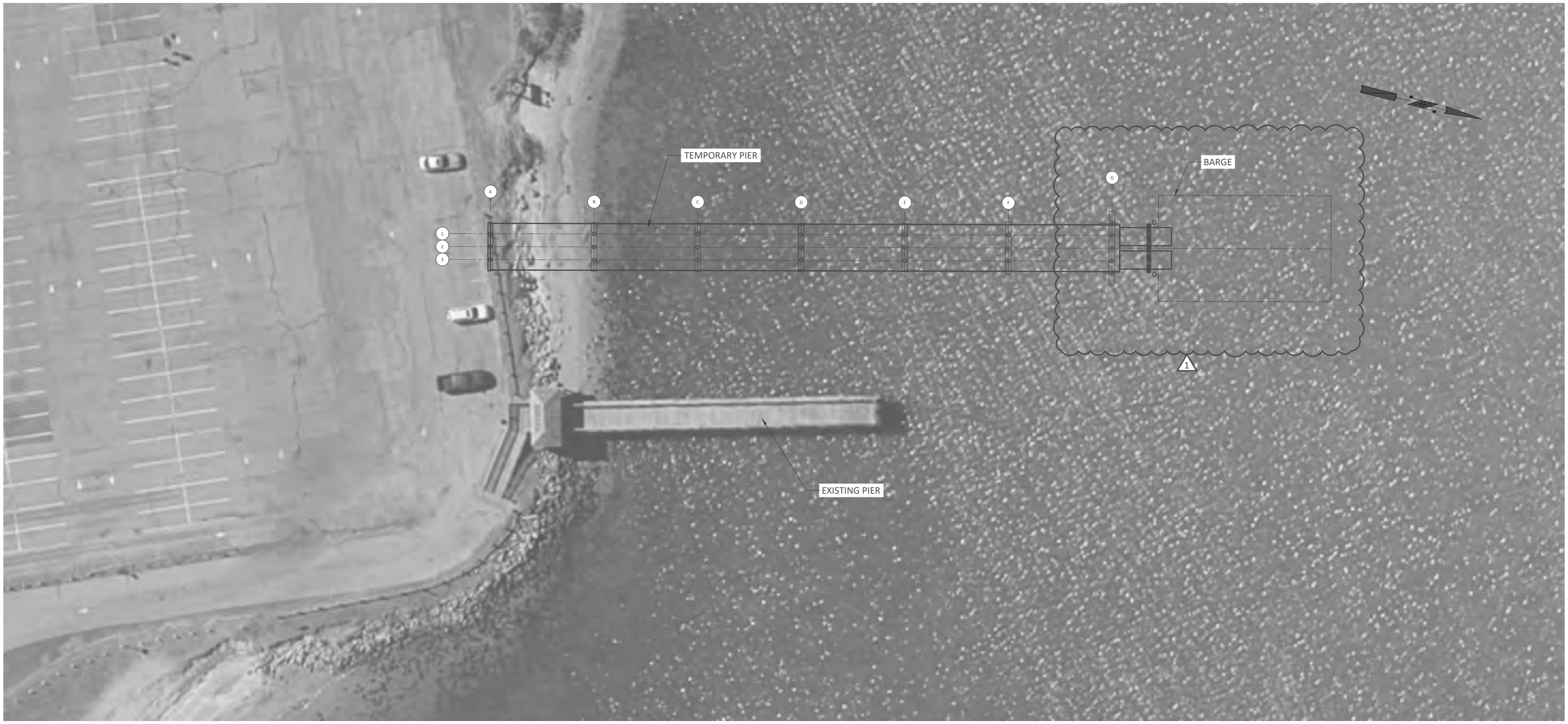
ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK

SITE LAYOUT

DRAWING NO. G-3
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:22 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\01_G03.dwg



SITE PLAN
SCALE:
1" = 20'
20 0 20 40
scale feet

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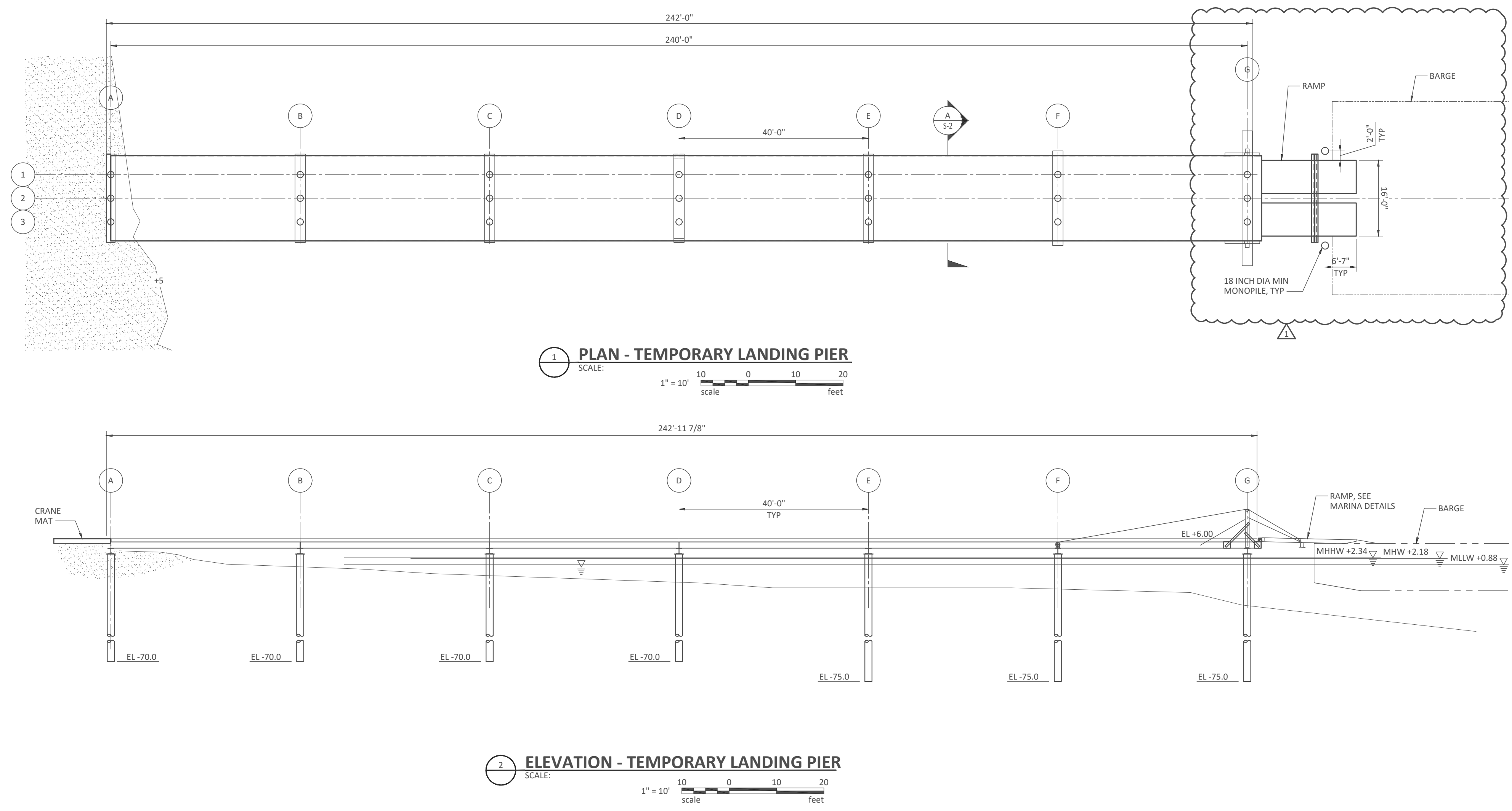
ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK

SITE PLAN

DRAWING NO. G-4
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:23 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\01_G04.dwg



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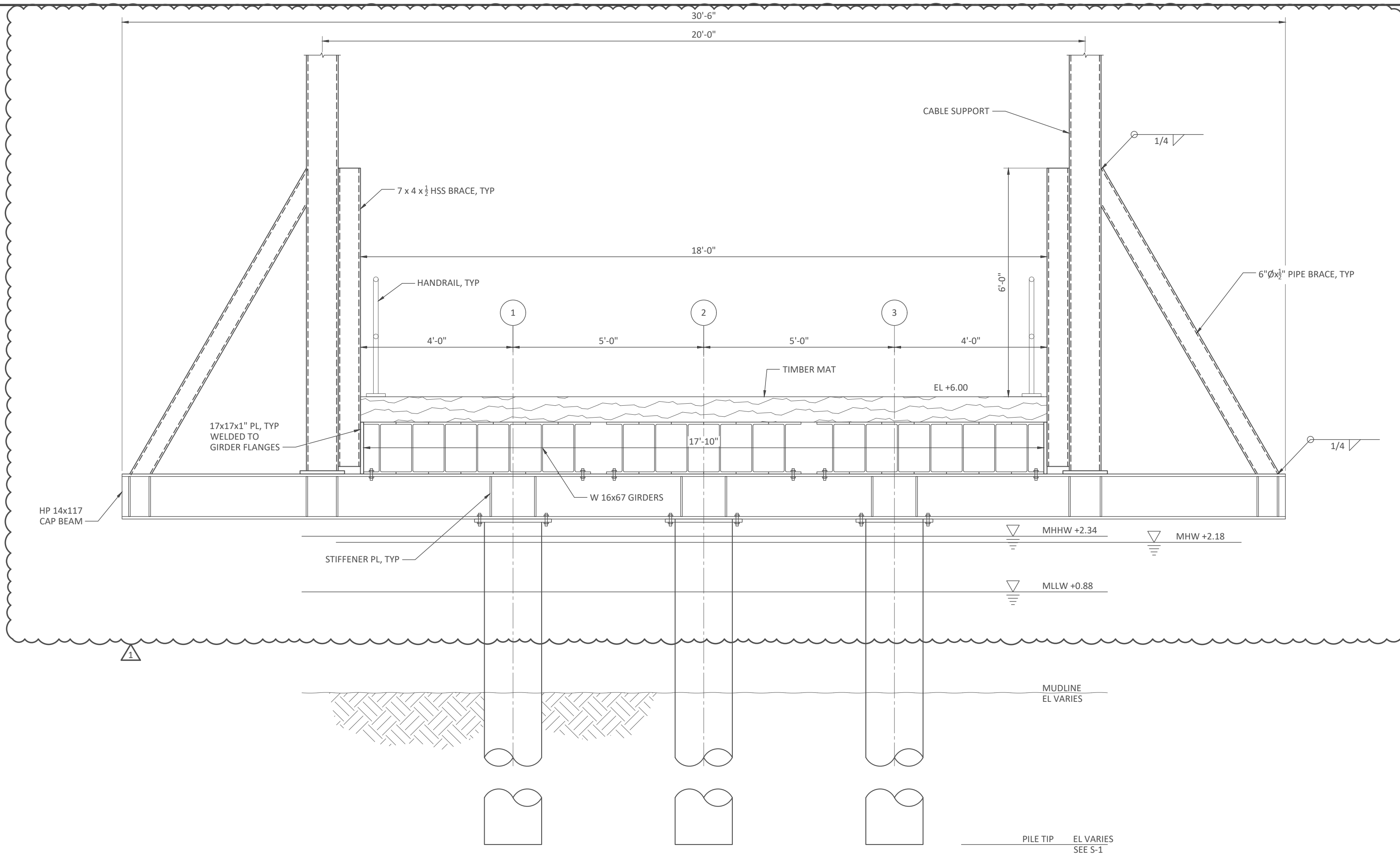
ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK
TEMPORARY PIER
PLAN AND ELEVATION

DRAWING NO. S-1
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.



SECTION - TEMP PIER

SCALE: 3/4" = 1'-0"

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ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK
TEMPORARY PIER
SECTION

DRAWING NO. S-2
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

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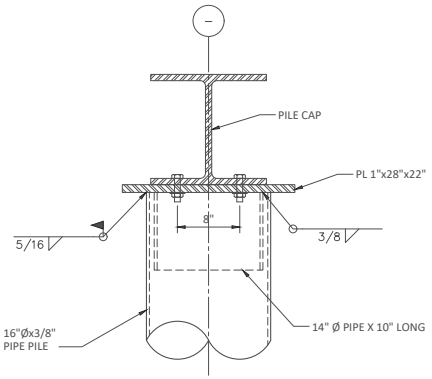
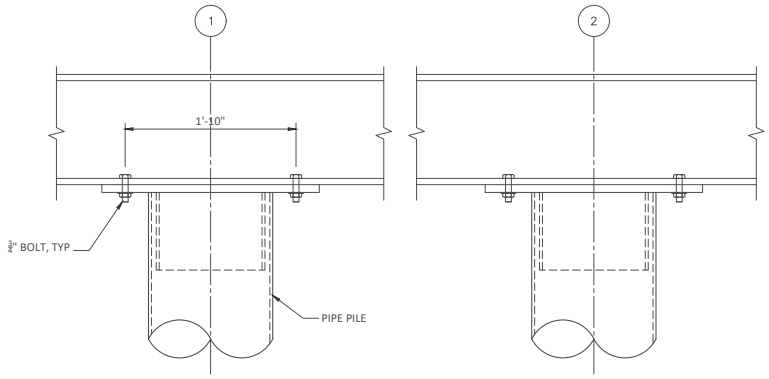
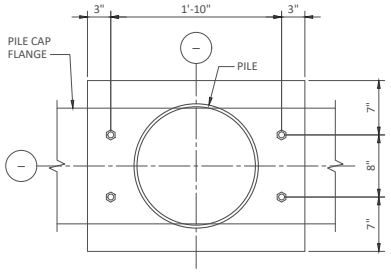
LANDING PIER PILES						
PILE ID	SIZE	APPROXIMATE EXISTING MUDLINE ELEV. (ft.)	PILE CUT-OFF ELEV. (ft.)	STEEL PIPE TIP ELEV. (ft.)	DRIVING ALLOWANCE ELEV. (ft.)	ESTIMATED LENGTH (ft.)
A1	16"x3/8"	5	2.75	-70	5	100
A2	16"x3/8"	5	2.75	-70	5	100
A3	16"x3/8"	5	2.75	-70	5	100
B1	16"x3/8"	0	2.75	-70	5	100
B2	16"x3/8"	0	2.75	-70	5	100
B3	16"x3/8"	0	2.75	-70	5	100
C1	16"x3/8"	-1	2.75	-70	5	100
C2	16"x3/8"	-1	2.75	-70	5	100
C3	16"x3/8"	-1	2.75	-70	5	100
D1	16"x3/8"	-2	2.75	-70	5	100
D2	16"x3/8"	-2	2.75	-70	5	100
D3	16"x3/8"	-2	2.75	-70	5	100
E1	16"x3/8"	-3	2.75	-75	5	100
E2	16"x3/8"	-3	2.75	-75	5	100
E3	16"x3/8"	-3	2.75	-75	5	100
F1	16"x3/8"	-3.5	2.75	-75	5	100
F2	16"x3/8"	-3.5	2.75	-75	5	100
F3	16"x3/8"	-3.5	2.75	-75	5	100
G1	16"x3/8"	-4.5	2.75	-75	5	100
G2	16"x3/8"	-4.5	2.75	-75	5	100
G3	16"x3/8"	-4.5	2.75	-75	5	100



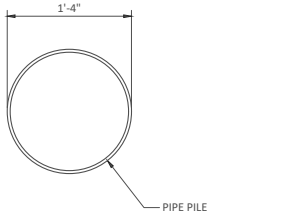
2 **DETAIL - PILE CONNECTION**
SCALE: 1–1/2" = 1'–0" (8 0 8 16 scale inches)



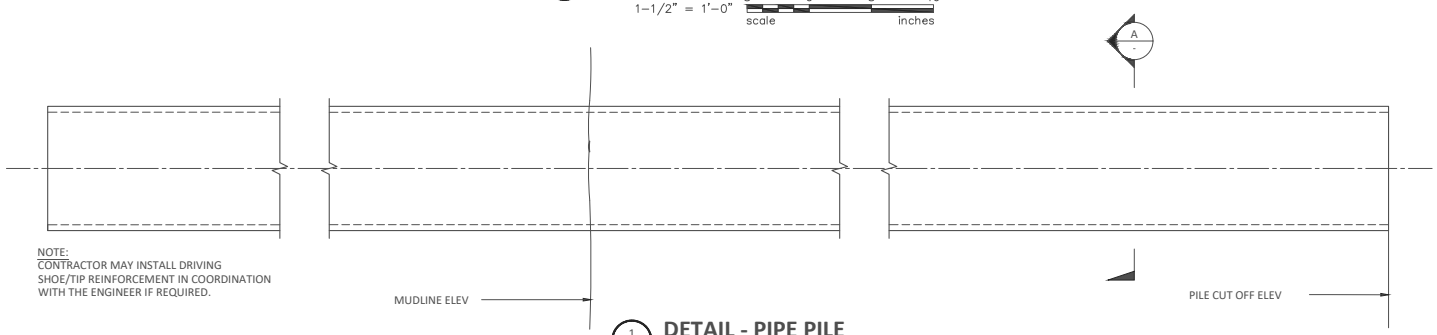
3 **ELEVATION - PILE CONNECTION**
SCALE: 1–1/2" = 1'–0" (8 0 8 16 scale inches)



4 **DETAIL - PILE CONNECTION**
SCALE: 1–1/2" = 1'–0" (8 0 8 16 scale inches)



A **DETAIL - PIPE PILE**
SCALE: 1–1/2" = 1'–0" (8 0 8 16 scale inches)



1 **DETAIL - PIPE PILE**
SCALE: 1–1/2" = 1'–0" (8 0 8 16 scale inches)

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WSP USA Inc.
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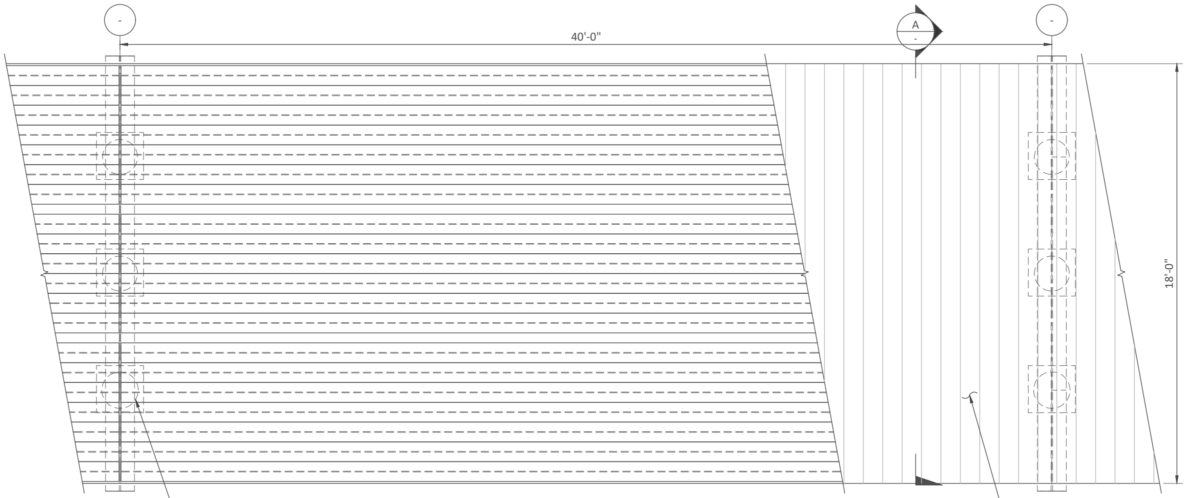
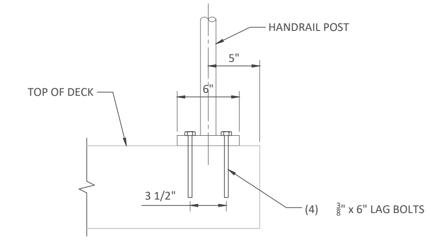
ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK
TEMPORARY PIER
PILE DETAILS AND SCHEDULE

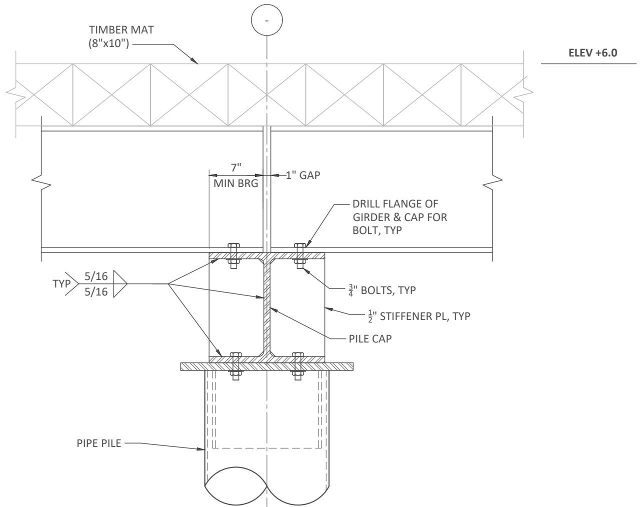
DRAWING NO. S-3
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.



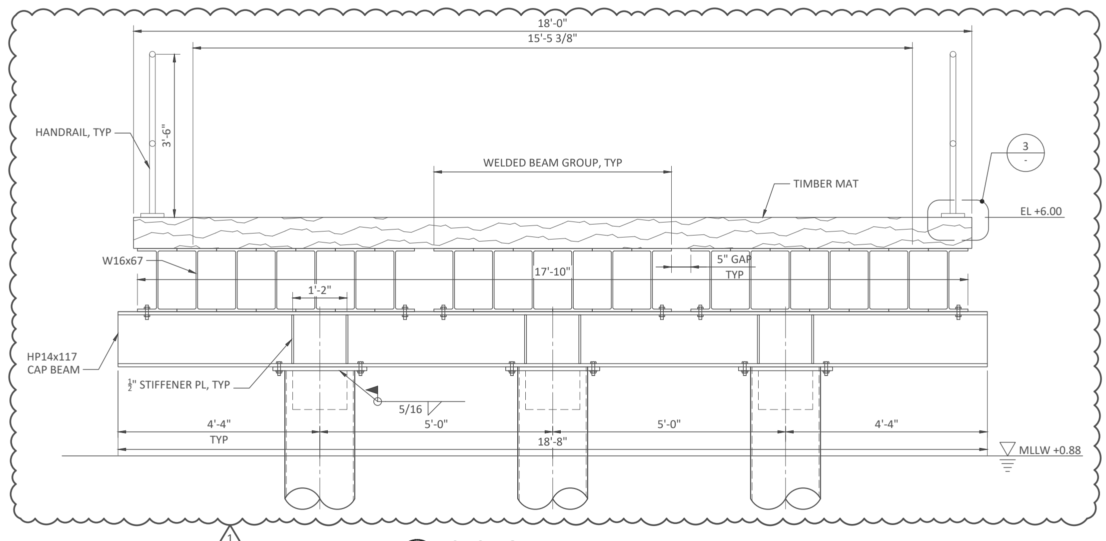
DETAIL - PIER MODULE
SCALE: 3/8" = 1'-0"



DETAIL - HANDRAIL
SCALE: 1" = 6'



DETAIL - PILE CONNECTION
SCALE: 1-1/2" = 1'-0"



SECTION - PIER
SCALE: 3/4" = 1'-0"

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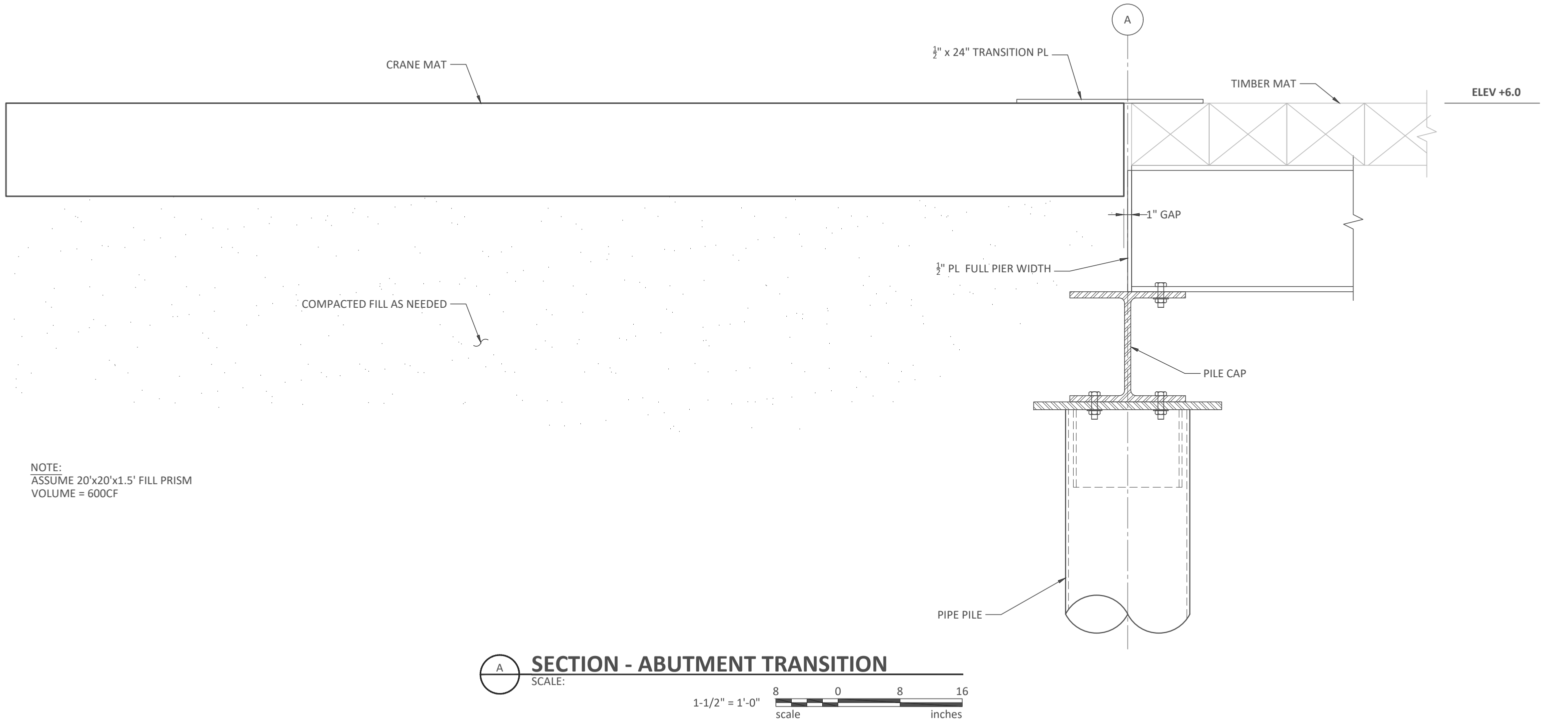
ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK
TEMPORARY PIER
STRUCTURAL FRAMING DETAILS

DRAWING NO. S-4
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.



NOTE:
ASSUME 20'x20'x1.5' FILL PRISM
VOLUME = 600CF

A SECTION - ABUTMENT TRANSITION

SCALE: 1-1/2" = 1'-0"

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ORSTED SUNRISE WIND
TEMPORARY LANDING STRUCTURE
NARROW BAY, SUFFOLK COUNTY, NEW YORK
TEMPORARY PIER
ABUTMENT AND SHORESIDE INTERFACE DETAILS

DRAWING NO. S-5
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

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ORSTED - SUNRISE WIND

TEMPORARY SMITH POINT MARINA MODIFICATIONS

SUFFOLK COUNTY, NEW YORK

LOCATION MAP

SHEET NO.	DRAWING NO.	DRAWING TITLE
		GENERAL
1	G-1	TITLE SHEET AND DRAWING INDEX
2	G-2	GENERAL NOTES
3	G-3	GENERAL LAYOUT
		STRUCTURAL
4	S-1	LANDING STRUCTURE PLAN
5	S-2	PLATFORM PLAN
6	S-3	PLATFORM SECTION - SHEET 1
7	S-4	PLATFORM SECTION - SHEET 2
8	S-5	RAMP ASSEMBLY DETAILS
9	S-6	RAMP DETAILS - SHEET 1
10	S-7	RAMP DETAILS - SHEET 2

DRAWING INDEX

SITE MAP

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ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

TITLE SHEET AND DRAWING INDEX

DRAWING NO.	G-1
PROJECT NO.	31300229
DATE:	3/31/24
SHEET NO.	

GENERAL NOTES

CODES AND STANDARDS

1. CODES & STANDARDS SHALL BE BASED ON THE LATEST EDITION AS OF DATE SUBMITTED FOR PERMIT.
2. STRUCTURES SHALL CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, LATEST VERSION.
3. DESIGN WIND SPEEDS SHALL BE PER THE NEW YORK BUILDING CODE.
4. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST VERSION OF ACI "SPECIFICATIONS FOR CONCRETE CONSTRUCTION" (ACI 301) AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
5. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION THEREOF SHALL CONFORM TO THE LATEST VERSION OF AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360) AND CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES (AISC 303), AND RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS.
6. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).
7. WELDING OF ALUMINUM SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - ALUMINUM" (AWS D1.2).
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - REINFORCING STEEL"(AWS D1.4).
9. WELDING OF STAINLESS STEEL SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE - STAINLESS STEEL" (AWS D1.6).

GENERAL

1. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE DESIGNER BEFORE BEGINNING AFFECTED WORK. THE DESIGNER WILL RESOLVE ANY SUCH CONFLICT. REFER ALSO TO PROJECT SPECIFICATIONS.
2. ALL SHOP DRAWINGS AND MATERIAL CERTIFICATIONS FOR CONCRETE ELEMENTS, REINFORCING STEEL, MISCELLANEOUS STEEL, FENDER SYSTEM AND ALL OTHER DETAILS SHALL BE SUBMITTED TO AND REVIEWED BY THE DESIGNER PRIOR TO FABRICATION.
3. VERIFY DIMENSIONS AND DETAILS, EXISTING AND NEW, PRIOR TO FABRICATION OR CONSTRUCTION. ENSURE COORDINATES ARE NOTED AS TO WHICH DATUM IS BEING USED.
4. PERFORM WORK IN ACCORDANCE WITH ALL APPROVED LOCAL REGULATIONS, APPROVED PERMIT REQUIREMENTS, APPLICABLE STATUTORY AND REGULATORY REQUIREMENTS, AND ALL PERTINENT AND APPLICABLE BEST MANAGEMENT PRACTICES.

PROJECT DATUM

1. HORIZONTAL DATUM IS BASED ON WORLD GEODETIC SYSTEM 83 UNIVERSAL TRANSVERSE MERCATOR ZONE 18F.
2. VERTICAL DATUM IS BASED ON MEAN LOW WATER (MLW) .
3. ALL COORDINATES AND ELEVATIONS LISTED IN THE DRAWINGS AND SPECIFICATIONS ARE REFERENCED TO THE AFOREMENTIONED DATUMS.
4. ALL DIMENSIONS ARE IN FEET & INCHES, UNLESS NOTED OTHERWISE.
5. SITE TIDAL DATUM ELEVATIONS:

PROJECT SURVEY

1. CONTOURS SHOWN ON THE DRAWINGS ARE BASED ON THE BATHYMETRIC SURVEY RECEIVED IN OCTOBER 2022.
2. CONTRACTOR SHALL INDEPENDENTLY VERIFY ALL EXISTING CONDITIONS AND LOCATIONS SHOWN AND BRING TO THE DESIGNER'S ATTENTION IF OTHER CONDITIONS NOT SHOWN HEREIN ARE PRESENT WHICH MAY BE AFFECTED BY THE MARINE WORK. THE APPROVED PERMIT REQUIREMENTS WILL BE RESPECTED.
3. TEMPORARY PILES/STRUCTURES WILL BE REMOVED ON COMPLETION OF THE PROJECT PRIOR TO PROJECT HANDOVER.
4. DESIGN AND CONSTRUCTION WILL LAY EMPHASIS ON MAINTAINING OR KEEPING INTACT EXISTING INFRASTRUCTURE, STRUCTURES, AND UTILITIES TO THE EXTENT POSSIBLE AS INDICATED IN THE PERMIT.
5. DEBRIS AND TRASH WILL BE HANDLED PER APPROVED PROTOCOLS. THE INTENT IS TO ADHERE TO ALL PERMIT REQUIREMENTS AND EMPLOY BEST MANAGEMENT PRACTICES.

OPERATION

1. MATERIAL WILL BE BROUGHT VIA ROAD TO SMITH POINT MARINA WHERE A TEMPORARY PILE-SUPPORTED RELIEVING PLATFORM WILL BE INSTALLED. THIS WILL BE USED TO LOAD EQUIPMENT ONTO BARGES WITH A RO-RO OPERATION. THE RELIEVING PLATFORM WILL SERVE AS A BRIDGE TO THE BARGE IN ORDER TO AVOID PLACING ANY ADDITIONAL SURCHARGE ON THE EXISTING MARINA RETAINING WALL.
2. THE BARGE WILL THEN SAIL (UNDER TUG ASSISTANCE) TO THE TEMPORARY PIER ACROSS THE CHANNEL. THE BARGE'S RAMP WILL BE LOWERED ON TO THE TEMPORARY PIER. CARGO WILL BE UNLOADED WITH A RO-RO OPERATION TO THE STAGING AREA.
3. THE TEMPORARY PIER WILL ALSO BE USED TO LOAD EQUIPMENT ONTO OCEAN BARGES FOR TRANSPORTATION TO THE CONSTRUCTION SITE.
4. BARGES ARE OPERATED WITH TUGS AT ALL TIMES.

CONCRETE (AS USED)

1. FOR CONCRETE MATERIAL REQUIREMENTS, REFER TO SPECIFICATIONS.
2. CONSTRUCTION JOINTS SHALL BE PROVIDED ONLY AS NOTED ON THE DRAWINGS AND AS SPECIFICALLY PERMITTED BY THE DESIGNER.
3. ALL EXPOSED CORNERS SHALL BE CHAMFERED ¾ INCHES UNLESS SHOWN OTHERWISE.
4. CONCRETE COMPRESSIVE STRENGTHS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

MEMBER	MIN COMPRESSIVE STRENGTH AT 28 DAYS (PSI)
CONCRETE	5000

6. CONCRETE CLEAR COVER REQUIREMENTS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

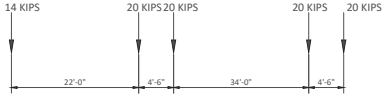
A.	TOP AND SIDE SURFACES	2 IN
B.	SURFACES AGAINST WHICH FRESH CONC WILL BE PLACED	1 IN
C.	ALL OTHER LOCATIONS UNLESS SPECIFIED OTHERWISE	3 IN

REINFORCEMENT (AS USED)

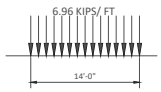
1. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60 EXCEPT REINFORCING STEEL TO BE WELDED SHALL BE ASTM A706, GRADE 60. BAR SIZES SHALL CONFORM TO U.S. CUSTOMARY SIZES AS SHOWN. ALL REINFORCING BAR BEND DIMENSIONS SHOWN ARE OUT-TO-OUT.
2. WIRE FOR SPIRAL REINFORCEMENT SHALL CONFORM TO ASTM A82.
3. FOR ACTUAL REINFORCING DETAILING, REFER TO SHOP DRAWINGS. ALL REINFORCEMENT DETAILING SHALL BE PER LATEST VERSION OF ACI-318.
4. SPLICING OF LONGITUDINAL REINFORCEMENT OVER 40 FEET IN LENGTH, EXCEPT AS SPECIFICALLY NOTED ON THE DRAWINGS, SHALL BE PERMITTED. SPLICES SHALL BE STAGGERED WITH NO MORE THAN 50% OF THE BARS BEING SPLICED AT ANY ONE LOCATION. MINIMUM LENGTH OF LAP SPLICE SHALL BE 50 TIMES THE BAR DIAMETER. SPLICES SHALL BE INCREASED FOR TOP BAR CONDITIONS AS PER ACI 318. MINIMUM SPACING BETWEEN LAP SPLICES SHALL BE PER SPECIFICATIONS.
5. PROVIDE CORNER BARS AT ALL WALL, CURB, AND CURB WALL CORNERS. CORNER BARS SHALL MATCH THE NUMBER/SPACING AND DIAMETER OF ALL HORIZONTAL REINFORCEMENT AT THE CORNER. SPLICE CORNER BAR TO TERMINATED STRAIGHT BAR WITH A MINIMUM SPLICE LENGTH OF 50 BAR DIAMETERS.

LOAD CRITERIA

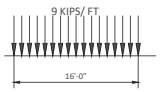
RIG 31 - AXLE LOAD



CRAWLER - AXLE LOAD



PC490-LC11 - AXLE LOAD



PILES

1. ALL STEEL PIPE PILES SHALL CONFORM TO ASTM A252 GRADE 3 (MODIFIED TO 50 KSI) OR API 5L MIN X50 KSI OR APPROVED EQUIVALENT. REFER TO SPECIFICATIONS.
2. PILES SHALL BE DRIVEN CONTINUOUSLY TO AN ULTIMATE CAPACITY OF 200 TONS AND A MINIMUM EMBEDMENT OF 50 FT. IF PRACTICAL REFUSAL (DEFINED AS 20 BLOWS/IN FOR A MINIMUM OF 2 IN) IS ACHIEVED PRIOR TO MINIMUM EMBEDMENT, CONTRACTOR SHALL NOTIFY THE ENGINEER. TIP ELEVATIONS SHOWN ARE ESTIMATED AND BASED ON GEOTECHNICAL DATA FROM A NEARBY SITE, AND NOT INTENDED TO REPRESENT ACTUAL SOIL CONDITIONS.

MISCELLANEOUS STEEL

1. WHERE APPLICABLE, STEEL PLATES AND BARS SHALL MEET THE REQUIREMENTS OF ASTM A572, GRADE 50, UNLESS NOTED OTHERWISE.
2. WHERE APPLICABLE, WIDE FLANGE SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A572 GRADE 50, UNLESS NOTED OTHERWISE.
3. WHERE APPLICABLE, CHANNEL AND ANGLE SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A36 UNLESS NOTED OTHERWISE.
4. WHERE APPLICABLE, RECTANGULAR AND ROUND HSS SECTIONS SHALL CONFORM TO ASTM A500, GRADE C, UNLESS OTHERWISE NOTED.
5. ALL MISC. STEEL SHALL HAVE A MINIMUM THICKNESS OF ¼ INCHES UNLESS OTHERWISE NOTED.
6. ALL CONNECTIONS SHALL BE HOT DIP GALVANIZED ASTM F3125 GRADE 325 BOLTS WITH STANDARD WASHER AND HEAVY HEX NUT, UNLESS NOTED OTHERWISE.

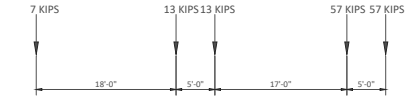
LOAD CRITERIA

PIER LOADING CRITERIA:

UNIFORM LIVE LOAD:	500 PSF	
UNIFORM DEAD LOAD:	SELF WEIGHT	
H-324 HK250C	EMPTY WEIGHT:	89 300 LBS
H-397 HK300T-HT	EQUIPMENT WEIGHT:	69 000 LBS

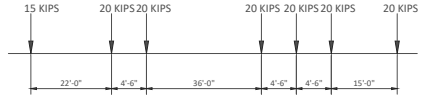
HANDRAILS SHALL BE ABLE TO WITHSTAND A 200 LB FORCE IN A DOWNWARD OR OUTWARD DIRECTION

MIRK TRAILER - AXLE LOAD



PC490 - AXLE LOAD

TRL-242 - AXLE LOAD



1

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MARK	REVISION DESCRIPTION	BY	APP.	DATE
REV 1	REVISED NOTES	ER	JS	3/31/24

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Houston, TX 77084
TEL: (832) 384-7814

DRAWN BY DAS
DESIGN BY BA
CHECK BY DAS
PROJ MGR JS

ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

GENERAL NOTES

DRAWING NO. G-2
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

1 / - SITE PLAN LAYOUT
SCALE: 1" = 300'
300 0 300 600
scale feet

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Sunrise Wind
Ørsted
BRENNAN
Laney

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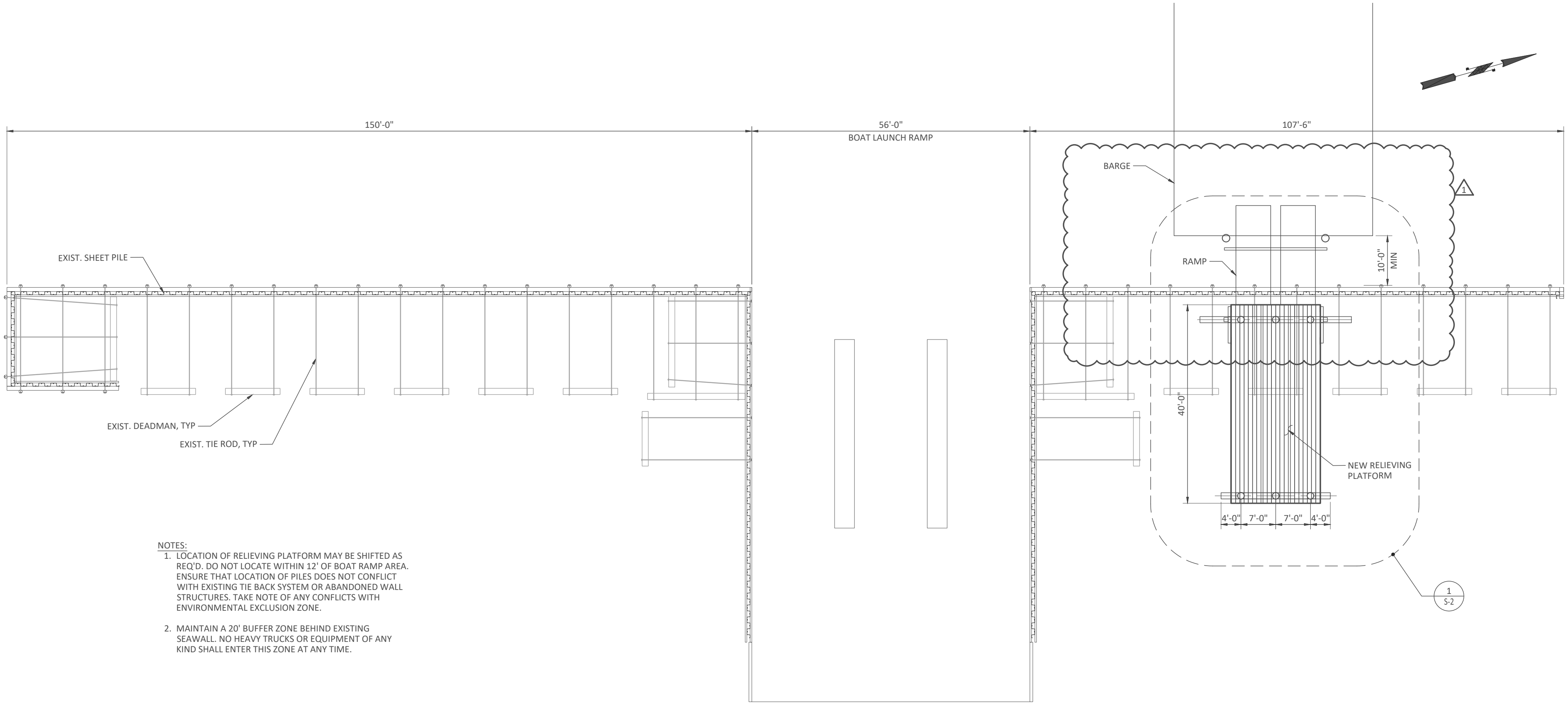
DESIGN BY BA
CHECK BY DAS
PROJ MGR JS

ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

GENERAL LAYOUT

DRAWING NO. G-3
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:28 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\03_G03.dwg



NOTES:
1. LOCATION OF RELIEVING PLATFORM MAY BE SHIFTED AS REQ'D. DO NOT LOCATE WITHIN 12' OF BOAT RAMP AREA. ENSURE THAT LOCATION OF PILES DOES NOT CONFLICT WITH EXISTING TIE BACK SYSTEM OR ABANDONED WALL STRUCTURES. TAKE NOTE OF ANY CONFLICTS WITH ENVIRONMENTAL EXCLUSION ZONE.

2. MAINTAIN A 20' BUFFER ZONE BEHIND EXISTING SEAWALL. NO HEAVY TRUCKS OR EQUIPMENT OF ANY KIND SHALL ENTER THIS ZONE AT ANY TIME.

1 - PLAN - SMITH POINT MARINA

SCALE: 1" = 10'

10 0 10 20 scale feet

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REV 1	REVISED DETAILS	ER	JS	3/31/24

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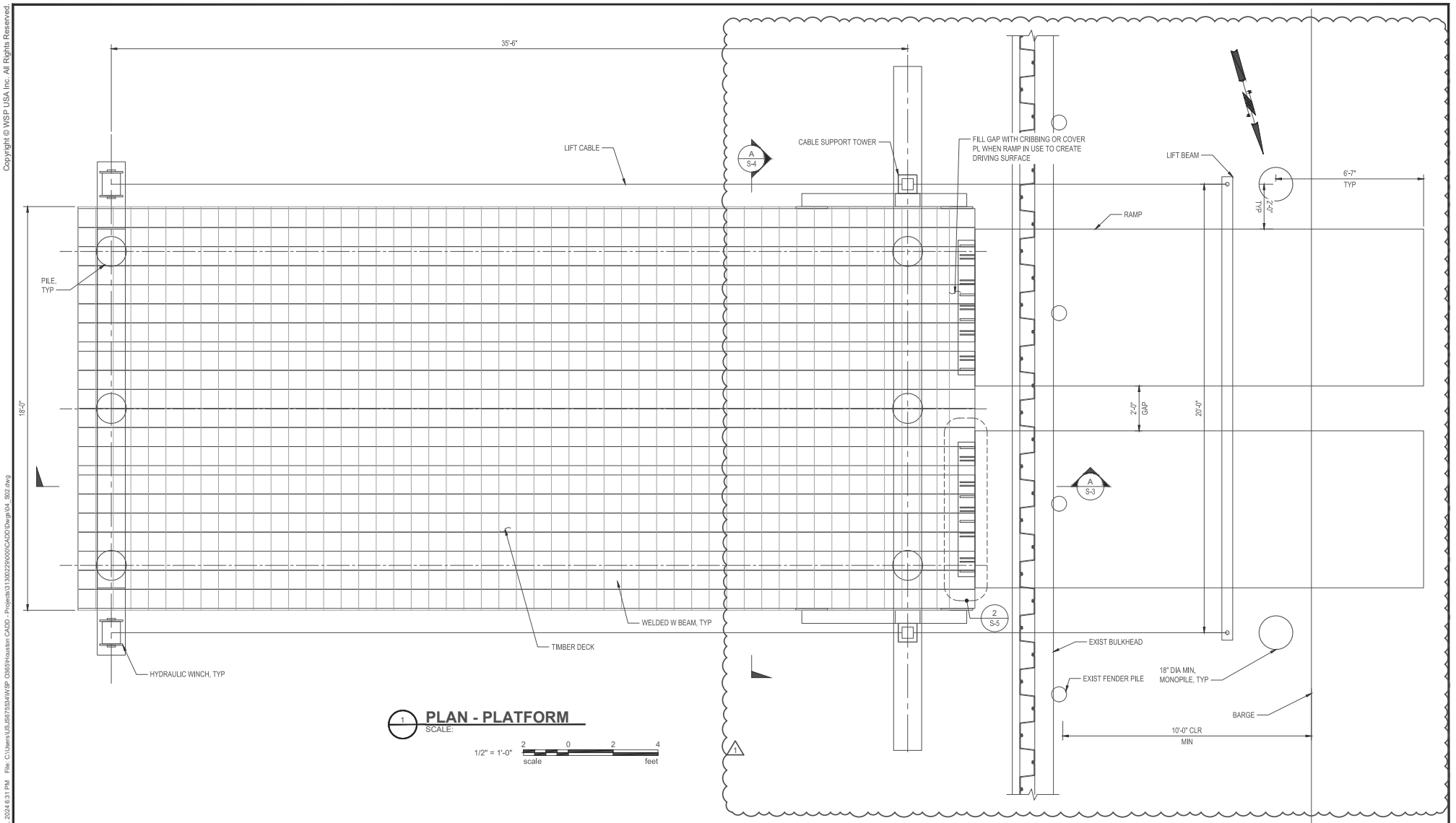
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

LANDING STRUCTURE PLAN

DRAWING NO. S-1
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.



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REV 1	REVISED DETAILS	ER	JS	3/31/24

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CHECK BY	DAS
PROJ MGR	JS

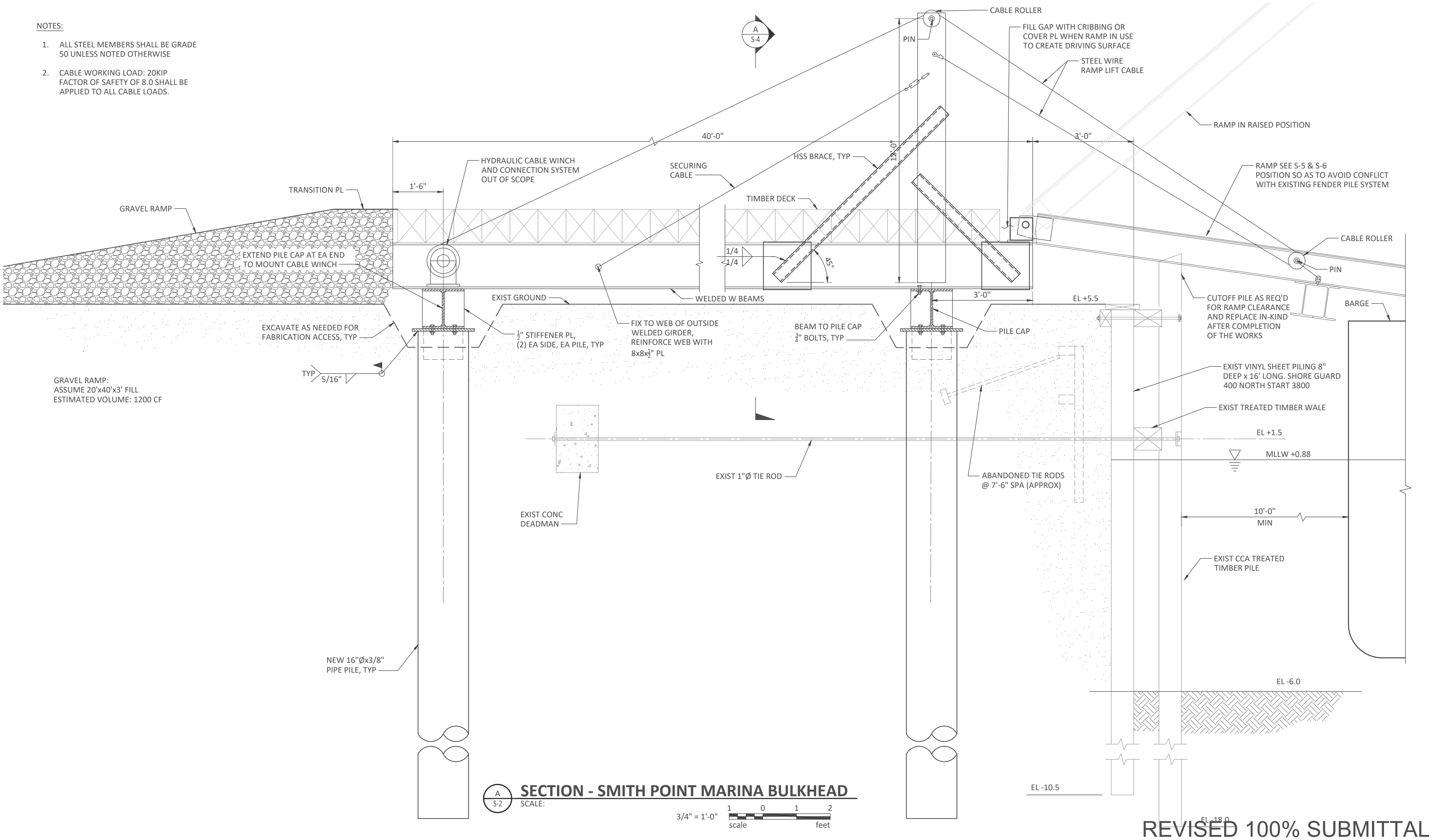
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

PLATFORM PLAN

DRAWING NO.	S-2
PROJECT NO.	31300229
DATE:	3/31/24
SHEET NO.	

NOTES:

1. ALL STEEL MEMBERS SHALL BE GRADE 50 UNLESS NOTED OTHERWISE
2. CABLE WORKING LOAD: 20KIP FACTOR OF SAFETY OF 8.0 SHALL BE APPLIED TO ALL CABLE LOADS.



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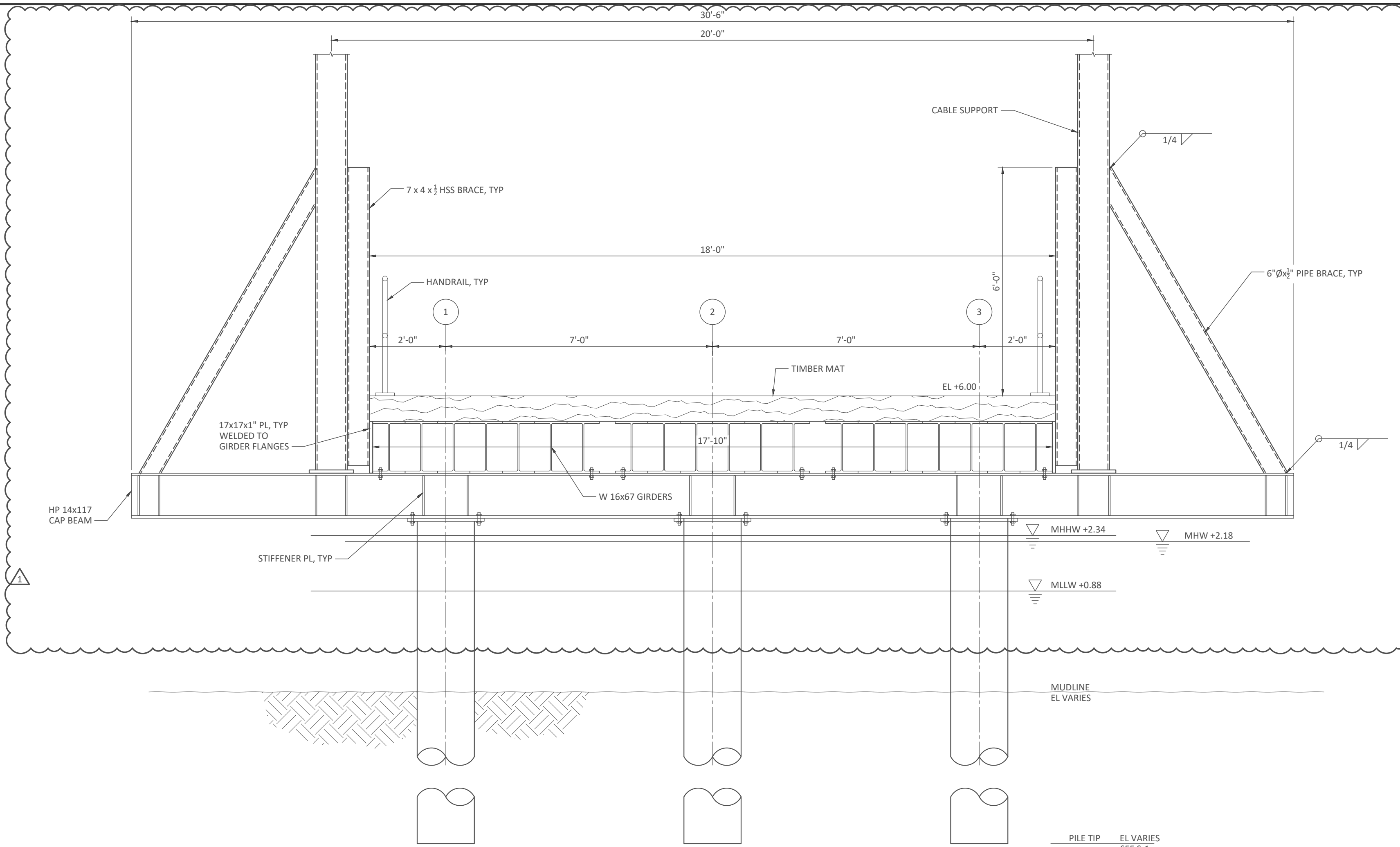
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

PLATFORM SECTION - SHEET 1

DRAWING NO. S-3
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:31 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\04_S03.dwg



SECTION - PLATFORM AT MARINA

A / -

SCALE: 3/4" = 1'-0"

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MARK	REVISION DESCRIPTION	BY	APP.	DATE
REV 1	REVISED DETAILS	ER	JS	3/31/24

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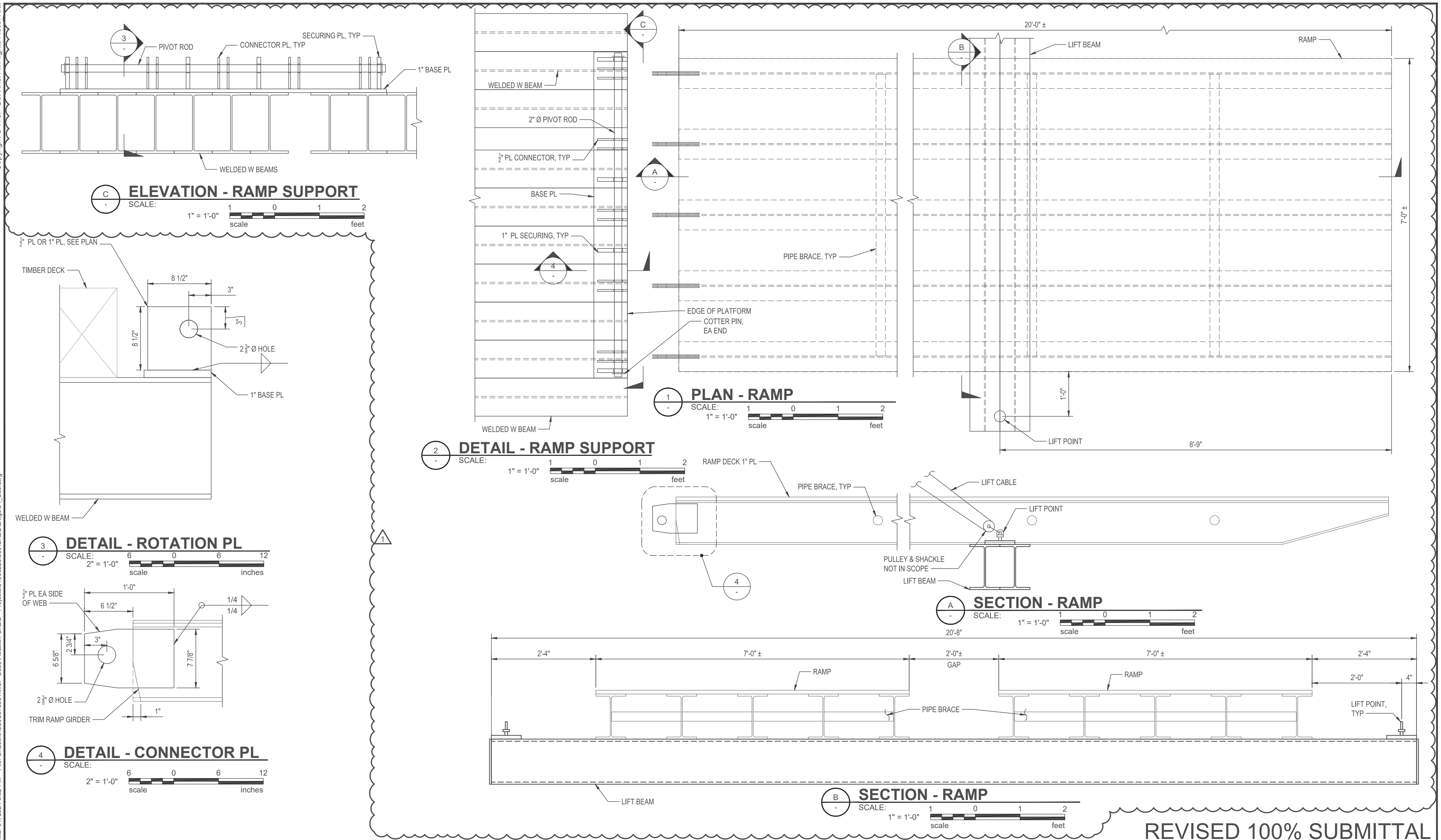
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

PLATFORM SECTION - SHEET 2

DRAWING NO. S-4
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Last Saved by: USER675512 on: Mar 31, 2024 6:32 PM File: C:\Users\USJS675534\WSP O365\Houston CADD - Projects\31300229\000\CADD\Dwgs\04_S04.dwg



MARK	REVISION DESCRIPTION	BY	APP.	DATE
REV 1	REVISED DETAILS	ER	JS	3/31/24

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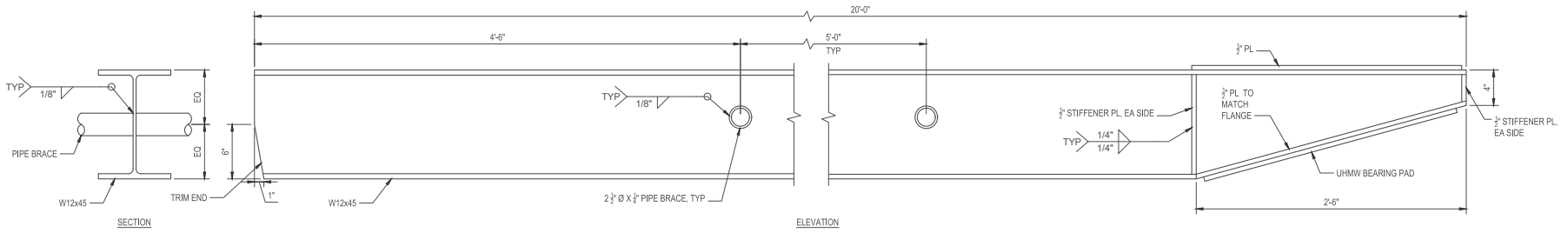
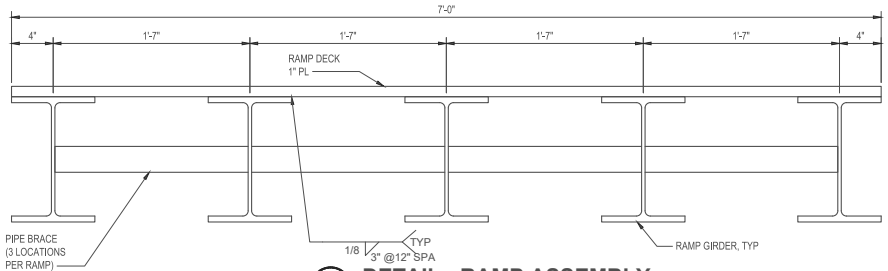
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

RAMP ASSEMBLY DETAILS

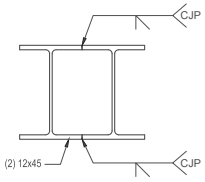
DRAWING NO. S-5
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

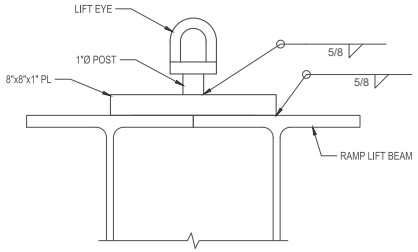


1 - **DETAIL - RAMP GIRDER**
SCALE: 2" = 1'-0"
6 0 6 12
scale inches

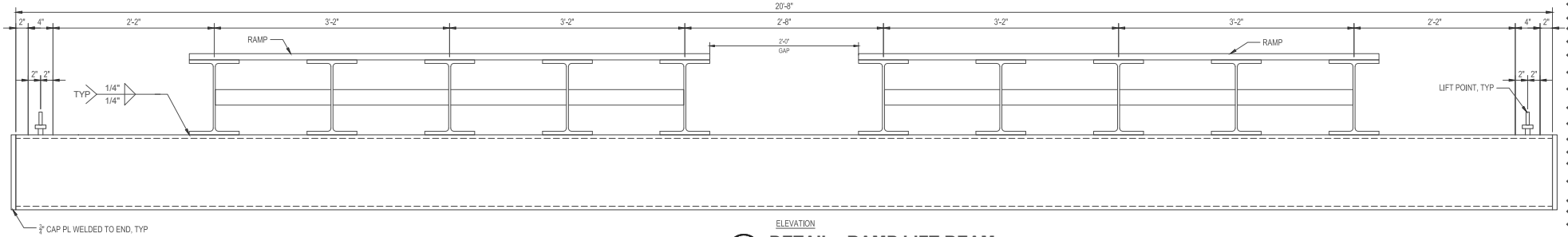


2 - **DETAIL - RAMP ASSEMBLY**
SCALE: 2" = 1'-0"
6 0 6 12
scale inches





4 - **DETAIL - LIFT POINT**
SCALE: 4" = 1'-0"
3 0 3 6
scale inches



ELEVATION

3 - **DETAIL - RAMP LIFT BEAM**
SCALE: 1-1/2" = 1'-0"
1 0 1 2
scale feet

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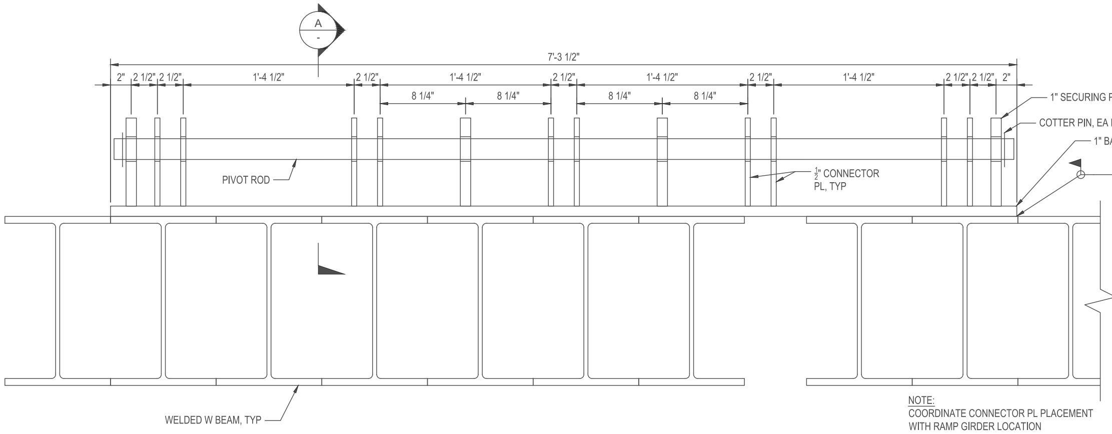
DRAWN BY DAS
DESIGN BY MM
CHECK BY DAS
PROJ MGR JS

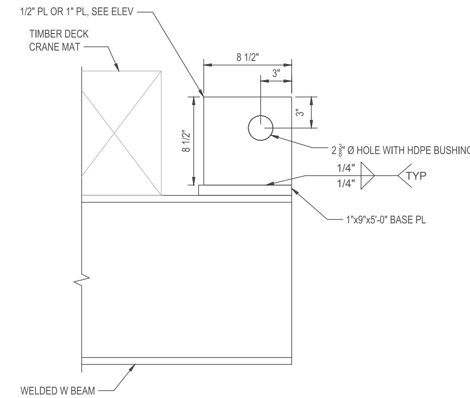
ORSTED SUNRISE WIND
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

RAMP DETAILS - SHEET 1

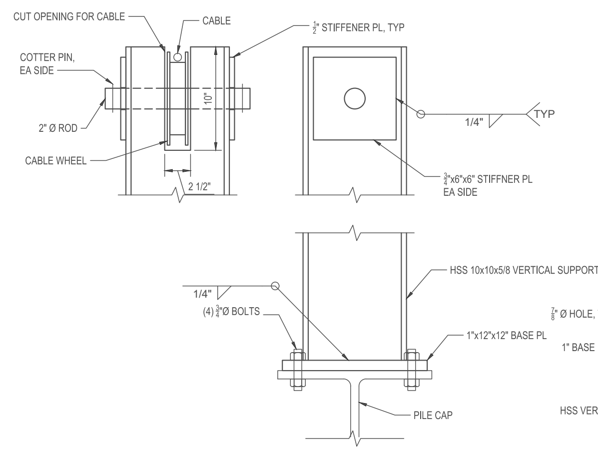
DRAWING NO. **S-6**
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.



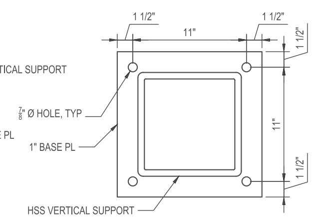
1 DETAIL - RAMP SUPPORT
SCALE: 2" = 1'-0"



A SECTION - ROTATION PL
SCALE: 2" = 1'-0"



2 DETAIL - CABLE SUPPORT
SCALE: 2" = 1'-0"



3 DETAIL - CABLE SUPPORT BASE
SCALE: 2" = 1'-0"

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REV 1	REVISED DETAILS	ER	JS	3/31/24

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PROJ MGR JS

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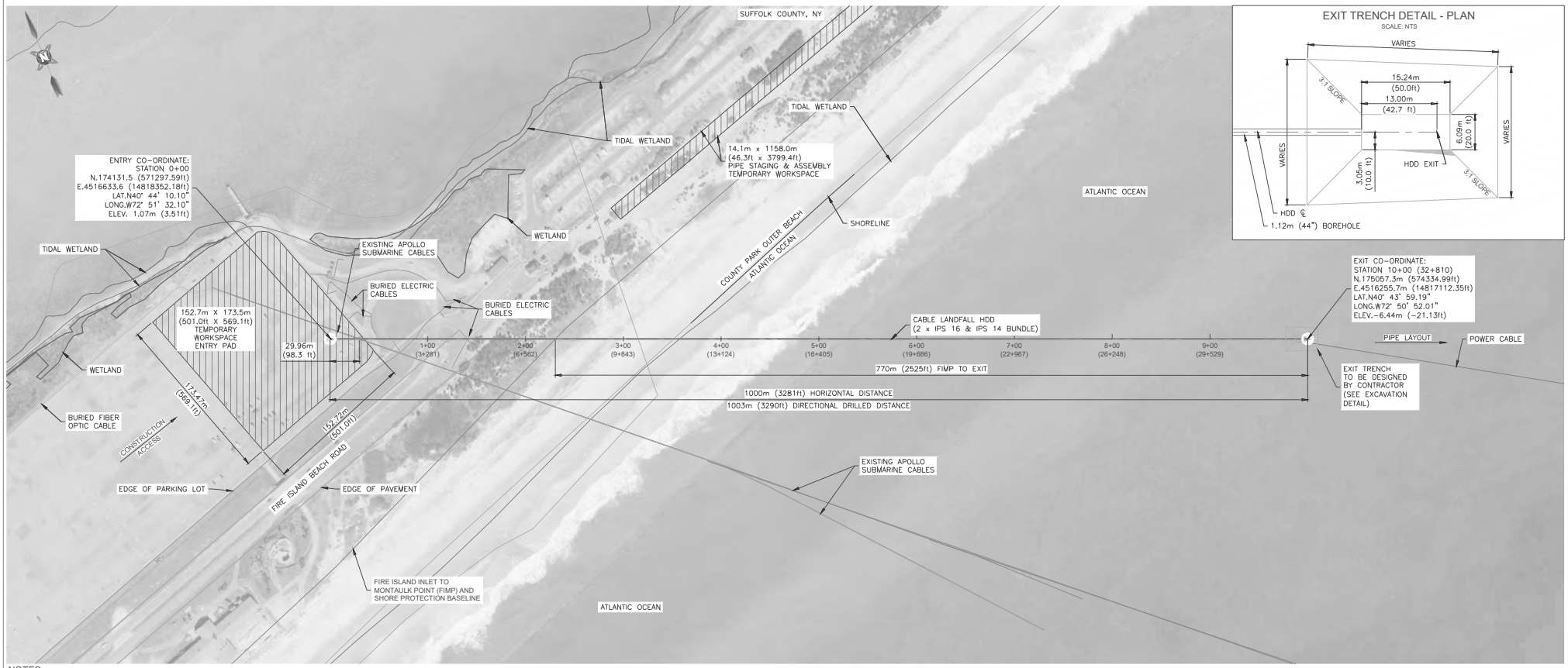
TEMPORARY MARINA MODIFICATIONS
SMITH POINT MARINA, SUFFOLK COUNTY, NEW YORK

RAMP DETAILS - SHEET 2

DRAWING NO. S-7
PROJECT NO. 31300229
DATE: 3/31/24
SHEET NO.

Landfall HDD



PLAN VIEW
SCALE 1:2000

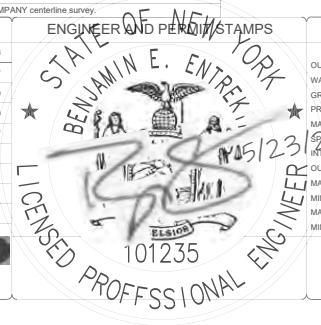
EXIT TRENCH DETAIL - PLAN
SCALE: NTS

NOTES:
1. ALL COORDINATES SHOWN ARE IN NAD83(2011) UTM ZONE 19N.
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO VERTICAL DATUM NAVD 88.
3. FOR HDD PROFILE AND BUNDLE CROSS-SECTION DETAIL, REFER TO DRAWING NO. 3114-EG-0402.
4. FOR HDD CONSTRUCTION NOTES, REFER TO DRAWING 3114-EG-0403.

Pilot Hole Tolerances	
Item	Tolerance
Pilot entry angle	Increase angle up to 1° (higher), but no decrease in angle allowed or adjust as required as long as design profile radius is not compromised.
Pilot entry location	As staked by COMPANY. No change without COMPANY approval.
Pilot exit angle	Increase angle up to 1° (higher). Decrease up to 2° (flatter), but design profile radius cannot be compromised.
Pilot exit location	Up to 20 feet longer or 10 feet shorter than exit stake. Between 5 feet left and 5 feet right of COMPANY survey centerline.
Pilot depth	Up to 5 feet decrease in pipe design depth allowed except under critical areas such as roads, utilities, etc., near the entry and exit points. Up to 10 feet increase in depth allowed. Best efforts shall be made to stay at or below pipe design profile depth.
Pilot alignment	Shall remain within 5 feet left or right of COMPANY centerline survey.

REFERENCE DOCUMENT NO.	DATE
1. Suffolk County project data Nov 2019 (07077445_A)	2021-06-16
2. COORDINATE SYSTEM: NAD 1983 2011 UTM ZONE 19N	2022-09-27
3. SRW01_104_Apollo_North_As_Built_20200622_RevA (07092867_A)	2021-11-09
4. 41.01628S9.00 SRW Landfall Geo Data Report - FINAL 2021-08-10 (07277573_A)	2021-08-10
5. 04.00157428 SRW01 Measured and Derived Parameters Report_ISSUE4 sealed...	2021-12-07

ENGINEER AND PERMIT STAMPS



HDD SPECIFICATIONS	IPS 14	IPS 16
OUTSIDE DIAMETER (OD)(mm)	355.6	406.4
WALL THICKNESS (WT)(mm)	32.3 (DR 11)	37 (DR11)
GRADE	PE4710	PE4710
PRODUCT	HVDC	HVDC
MATERIAL	HDPE	HDPE
SPECIFICATIONS	ASTM F1962	ASTM F1962
INTERNAL COATING	NONE	NONE
OUTER COATING	NONE	NONE
MAX. OPER. PRESSURE (kPa)	N/A	N/A
MIN. TEST PRESSURE (kPa)	N/A	N/A
MAX. OPER. TEMP (°C)	N/A	N/A
MIN. INSTALLATION TEMP (°C)	N/A	N/A

DRAWING STATUS	DATE	DRN	CHK	DES	GEO	APR	CR
ISSUED FOR PERMIT	2023-05-23	RC	MAL	GB	SG	JT	SM
ISSUED FOR PERMIT	2022-11-21	RC	MAL	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-28	RC	AN	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-18	RC	AN	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-05	RC	AN	GB	N/A	JT	SM
ISSUED FOR REVIEW	2021-12-23	RER	MAL	RC	N/A	KP	SM

CCI POND & Associates Inc.

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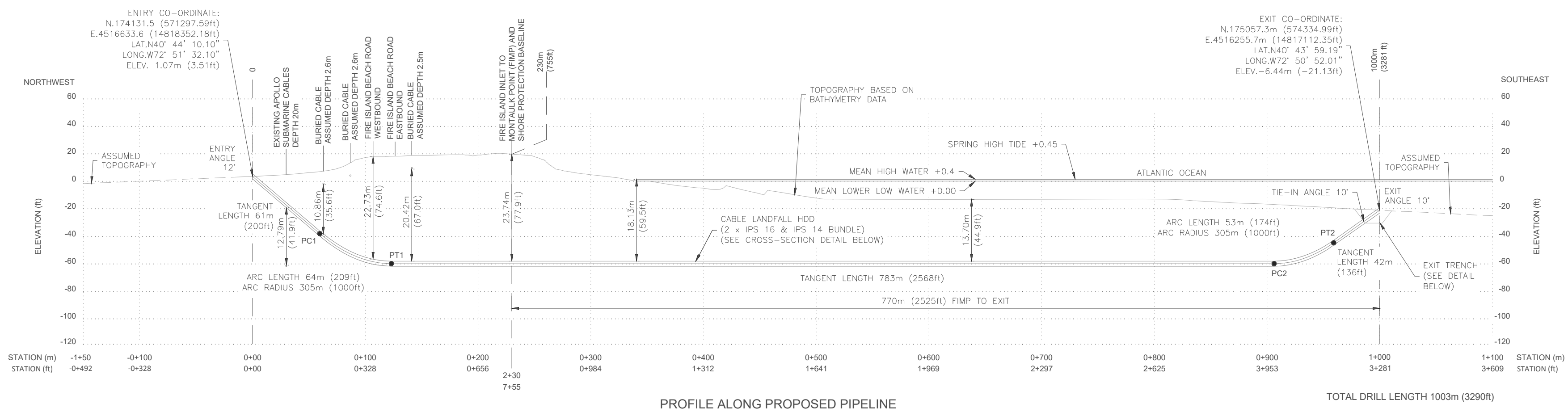
ORSTED - SUNRISE OFFSHORE WIND FARM PROJECT
SUNRISE WIND LANDFALL CROSSING
PLAN - IPS 16/14 BUNDLE
FIRE ISLAND, BROOKHAVEN
SUFFOLK COUNTY, NEW YORK

SCALE	DWG. #	REVISION	SHEET
AS SHOWN	3114-EG-0401	F	1 OF 3

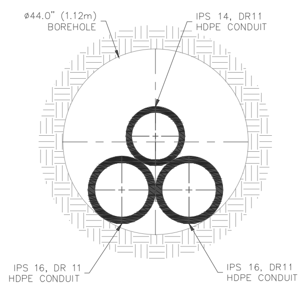
File Name: C:\Users\gunnar.busch.CCI\OneDrive - CCI Inc\Desktop\My Engineering Files\Projects\3114\PPNBRS 2011 UTM- 19 0401 (2014) REV E (8.5x11).dwg Date/Time: 2023-04-24 / 19:26 PM Last Saved By: Gunnar Busch



PROFILE ALONG PROPOSED PIPELINE

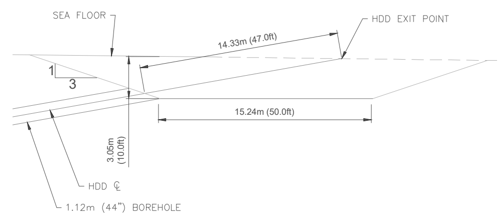
SCALE 1:2000 HORIZONTAL
SCALE 1:500 VERTICAL

TOTAL DRILL LENGTH 1003m (3290ft)



BOREHOLE CROSS-SECTION

SCALE: NTS



EXIT TRENCH DETAIL - PROFILE

SCALE: 1H:1V

NOTES:

1. ALL COORDINATES SHOWN ARE IN NAD83(2011) UTM ZONE 19N.
2. ALL ELEVATIONS SHOWN ARE IN REFERENCE TO VERTICAL DATUM NAVD 88.
3. FOR HDD PLAN DETAIL, REFER TO DRAWING NO. 3114-EG-0401
4. FOR HDD CONSTRUCTION NOTES, REFER TO DRAWING 3114-EG-0403.

Pilot Hole Tolerances

Item	Tolerance
Pilot entry angle	Increase angle up to 1° (higher), but no decrease in angle allowed or adjust as required as long as design profile radius is not compromised.
Pilot entry location	As staked by COMPANY. No change without COMPANY approval.
Pilot exit angle	Increase angle up to 1° (higher). Decrease up to 2° (flatter), but design profile radius cannot be compromised.
Pilot exit location	Up to 20 feet longer or 10 feet shorter than exit stake. Between 5 feet left and 5 feet right of COMPANY survey centerline.
Pilot depth	Up to 5 feet decrease in pipe design depth allowed except under critical areas such as roads, utilities, etc., near the entry and exit points. Up to 10 feet increase in depth allowed. Best efforts shall be made to stay at or below pipe design profile depth.
Pilot alignment	Shall remain within 5 feet left or right of COMPANY centerline survey.

HORIZONTAL DIRECTIONAL DRILL DATA

	HORIZONTAL DRILL STATION		DIRECTIONAL DRILL STATION		ELEVATION	
DESCRIPTION	meters	feet	meters	feet	meters	feet
ENTRY @ 12°	0+00.00	0+00.00	0+00.00	0+00.00	1.07	3.51
PC1 = 305m RADIUS	0+059.73	1+95.95	0+61.06	2+00.33	-11.63	-38.15ft
PT1	0+123.10	4+03.86ft	1+24.90	4+09.77	-18.29	-60.00
PC2 = 305m RADIUS	9+06.18	29+73.02ft	9+07.98	29+78.92	-18.29	-60.00
PT2	9+59.11	31+46.67ft	9+61.18	31+53.46	-13.66	-44.81
EXIT @ 10°	10+00.05	32+80.99ft	10+02.75	32+89.85	-6.44	-21.13
H DISTANCE	10+00.05	32+80.99ft				
HDD PIPE LENGTH	10+02.75	32+89.85ft				

REFERENCE DOCUMENT NO.	DATE
1. Suffolk County project data Nov 2019 (07077445_A)	2021-06-16
2. COORDINATE SYSTEM: NAD 1983 2011 UTM ZONE19N	2022-09-27
3. SRW01_104_Apollo_North_As_Built_20200622_RevA (07092867_A)	2021-11-09
4. 41.0162858.00 SRW Landfall Geo Data Report - FINAL 2021-08-10 (07277573_A)	2021-08-10
5. 04.00157428 SRW01 Measured and Derived Parameters Report_ISSUE4 sealed...	2021-12-07

ENGINEER AND PERMIT STAMPS

STATE OF NEW YORK
BENJAMIN E. ENTREKIN
LICENSED PROFESSIONAL ENGINEER
01235

HDD SPECIFICATIONS

	IPS 14	IPS 16
OUTSIDE DIAMETER (OD)(mm)	355.6	406.4
WALL THICKNESS (WT)(mm)	32.3 (DR 11)	37 (DR11)
GRADE	PE4710	PE4710
PRODUCT	HVDC	HVDC
MATERIAL	HDPE	HDPE
SPECIFICATIONS	ASTM F1962	ASTM F1962
INTERNAL COATING	NONE	NONE
OUTER COATING	NONE	NONE
MAX. OPER. PRESSURE (kPa)	N/A	N/A
MIN. TEST PRESSURE (kPa)	N/A	N/A
MAX. OPER. TEMP (°C)	N/A	N/A
MIN. INSTALLATION TEMP (°C)	N/A	N/A

DRAWING STATUS	DATE	DRN	CHK	DES	GEO	APR	CR
ISSUED FOR PERMIT	2023-04-23	RC	MAL	GB	SG	JT	SM
ISSUED FOR PERMIT	2022-11-21	RC	MAL	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-28	RC	AN	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-20	RC	AN	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-18	RC	AN	GB	N/A	JT	SM
ISSUED FOR REVIEW	2021-10-05	RER	MAL	RC	N/A	KP	SM

CCI & Associates Inc. POND

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ORSTED - SUNRISE OFFSHORE WIND FARM PROJECT
SUNRISE WIND LANDFALL CROSSING
PROFILE - IPS 16/14 BUNDLE
FIRE ISLAND, BROOKHAVEN
SUFFOLK COUNTY, NEW YORK

SCALE	DWG. #	REVISION	SHEET
AS SHOWN	3114-EG-0402	F	2 OF 3

NOTES

1. All dimensions are in meters unless otherwise specified. All dimensions are to the centerline of borehole unless otherwise specified.
2. All drill path lengths are rounded to the nearest foot and angles are rounded to the nearest degree, unless otherwise specified.
3. This drawing is based on information provided from various sources. Consulting Company does not take responsibility for the accuracy of information provided by others.
4. The crossing shall be constructed in accordance with ASTM F1962 and Company Construction Specifications.

CONSTRUCTION

1. Assumed final borehole size is 44".
2. The Contractor shall submit a Drilling Execution Plan for Company approval (prior to start of drilling operations) meeting the minimum requirements of the Contract Documents. Any deviation from the Execution Plan shall only be allowed with Company approval.
3. The Contractor shall verify topographical survey information represented on this drawing in the field prior to construction. Contractor shall inform the Owner of any topographical discrepancies identified.
4. The design drill path and existing utilities being crossed shall have a minimum separation of 10ft, unless otherwise specified.
5. Contractor shall supply and use an approved annular pressure tool capable of operating within the expected pressure range. Annular pressure information provided is based on a Jetting assembly for a 12 1/4" pilot hole.
6. The locations of existing utilities, pipelines and structures shown on the drawing are approximate and shall be verified in the field by the Contractor prior to start of any excavation or pilot hole operations. Verification shall be in accordance with Company specifications and procedures. The Contractor shall ensure any utilities, pipelines and structures in the area are protected and not damaged by the construction.
7. The Contractor shall take specific precautions in protecting existing utilities, pipelines and structures at the entry and exit sites. Such precautions may include: entry/exit pits excavated below existing utilities, casing or sheet piling used to protect pipelines, ramping/matting and special drilling precautions employed during drilling. These precautions shall be used to ensure the drilling tools, pipe and conduit pipe maintain a safe distance from the existing pipelines, utilities and structures.
8. The Contractor shall assess the need for temporary casing, including both small diameter "wash–over" type casing during pilot hole, and large diameter hammered–in place casing. If large diameter casing is utilized, casing shall be sized to accommodate the final ream pass and shall utilize centralizer casing within the temporary conductor casing. Casing diameter, wall thickness, grade, and drive shoe design shall be determined by the Contractor. A Contractor's Casing Plan shall be submitted and approved by Company prior to casing installation. All temporary casings shall be removed at completion unless otherwise noted.
9. The pilot hole shall be drilled along the design drill path with the designated design radius of curvature shown in the drawing. The pilot hole shall be within the designated tolerances shown in the HDD profile drawing.
10. The minimum radius for this crossing is 305m (1,000ft).
11. This engineered design is based on the following minimum equipment requirements that the Contractor shall have onsite:
    a. Drilling Equipment:
    - Drilling Rig with a minimum pull force of 660,000 lbs;
    - If using a forward reaming methodology, a device shall be supplied to provide tension on the drilling string on exit side (excavator, winch or second drill rig);
    - Drill Pipe 6 5/8" (inspected as per the HDD specification);
    - Drill Bit – 12 1/4" in diameter or larger (provide details, condition, and supplier);
    - Mud Motor or larger capable of running within its specified maximum load range (provide details, condition, and supplier);
    - Annular Pressure Tool (0 to 510 psi range);
    - Reamers designed for the formation (provide manufacturer's operating specifications, condition, and supplier);
    - Magnetic and/or gyroscopic steering system;
    - Casing (specifications and details to be provided for approval).

    b. Drilling Fluid Recycling Equipment:
    - Pump Capacity (Operable Rate – 530 gpm);
    - Shakers (Operable Rate – 530 gpm);
    - Centrifuge/Desander/Desilter (Minimum Capacity of 400 gpm per minute).
    - Engineered Drilling Fluid Plan must be able to be implemented in the field with the proposed equipment.

    c. This is a minimum list of equipment and should not be considered a directive on how to complete the work. The Contractor is responsible for the execution of the work under its Approved Execution Plan and shall supply all necessary equipment to complete its plan at its own cost. All equipment shall be supplied in good working order, maintained, fueled and serviced.
12. Drilling Fluid is assumed to have a maximum density of 9.6 lbs/gallon and 1.0% sand content;
13. HDPE conduits shall be prepared on land and floated to HDD exit location for pullback.
14. HDPE conduits shall be filled with water in preparation for pullback. Installation of conduits requires all 3 HDPE conduits to be fully ballasted.
15. Contractor shall evaluate borehole ream size and may provide alternative proposed ream size for review and approval.
16. Contractor shall evaluate design radius in relation to proposed ream size and downhole equipment, and may provide alternative proposed drillpath design radii for review and approval.

ENVIRONMENTAL

17. Emergency response spill kits must be on–site and available for use for the duration of the project.
18. Contractor's proposed drilling fluid composition, including all expected additives, shall be reviewed and approved by the Owner's representative prior to construction.
19. The watercourse must be monitored for a potential release of drilling fluid and to assess the immediate effects of the works on the aquatic environment in accordance with applicable Federal and State regulations.

GEOTECHNICAL

20. A geotechnical investigation was completed at this site by Fugro USA Marine, Inc. See Report No. 04.00157482–03.
21. The Contractor should independently evaluate the crossing with due consideration given to the suitability of its proposed equipment and construction procedures. Proposed construction means and methods shall be submitted to Company for approval but remain the sole responsibility of the Contractor.

REFERENCE DOCUMENT NO.	DATE
1. Suffolk County project data Nov 2019 (07077445_A)	2021-06-16
2. COORDINATE SYSTEM: NAD 1983 2011 UTM ZONE 19N	2022-09-27
3. SRW01_104_Apollo_North_As_Built_20200622_RevA (07092867_A)	2021-11-09
4. 41.0162858.00 SRW Landfall Geo Data Report - FINAL 2021-08-10 (07277573_A)	2021-08-10
5. 04.00157428 SRW01 Measured and Derived Parameters Report_ISSUE4 sealed....	2021-12-07

CCI

ENGINEER AND PERMIT STAMPS

PRELIMINARY
NOT FOR
CONSTRUCTION

HDD SPECIFICATIONS

	IPS 14	IPS 16
OUTSIDE DIAMETER (OD)(mm)	355.6	406.4
WALL THICKNESS (WT)(mm)	32.3 (DR 11)	37 (DR11)
GRADE	PE4710	PE4710
PRODUCT	HVDC	HVDC
MATERIAL	HDPE	HDPE
SPECIFICATIONS	ASTM F1962	ASTM F1962
INTERNAL COATING	NONE	NONE
OUTER COATING	NONE	NONE
MAX. OPER. PRESSURE (kPa)	N/A	N/A
MIN. TEST PRESSURE (kPa)	N/A	N/A
MAX. OPER. TEMP (°C)	N/A	N/A
MIN. INSTALLATION TEMP (°C)	N/A	N/A

DRAWING STATUS	DATE	DRN	CHK	DES	GEO	APR	CR
ISSUED FOR REVIEW	2022-10-18	RC	AN	GB	SG	JT	SM
ISSUED FOR REVIEW	2022-10-05	RC	AN	GB	N/A	JT	SM

Sunrise Wind | Powered by Ørsted & Eversource

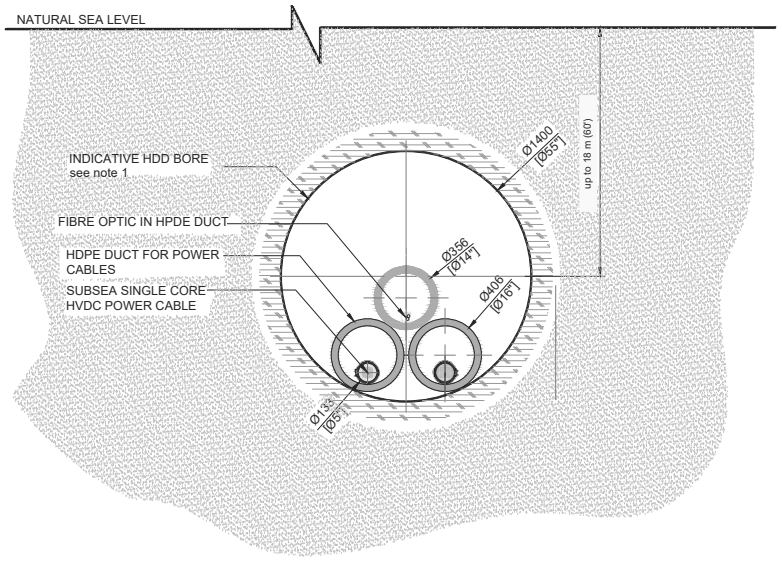
ORSTED - SUNRISE OFFSHORE WIND FARM PROJECT

SUNRISE WIND LANDFALL CROSSING
CONSTRUCTION NOTES IPS 16/14 BUNDLE

FIRE ISLAND, BROOKHAVEN
SUFFOLK COUNTY, NEW YORK

SCALE	DWG. #	REVISION	SHEET
	3114-EG-0403	B	3 of 3

File Name: W:\US Current Jobs\3114-Orsted-Sunrise Wind Project\Eng\Drawings\01-Sunrise Wind\FR\NSRS 2011 UTM-19 0401 (2014) REV D (8.5x11).dwg Date/Time: 2022-10-28 / 11:38:14 AM Last Saved By: Gunnar.Busch



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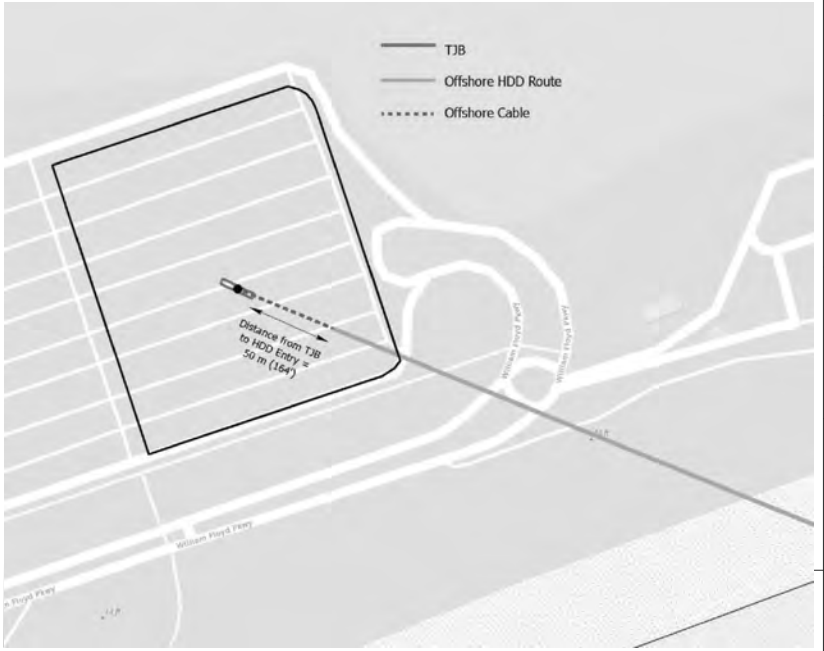


NOTE :

1. **BORE DIMENSION AND CONDUIT SIZES WILL BE DETERMINED IN DUE COURSE. THE SIZES SHOWN ARE INDICATIVE AND SUBJECT TO CHANGE.**

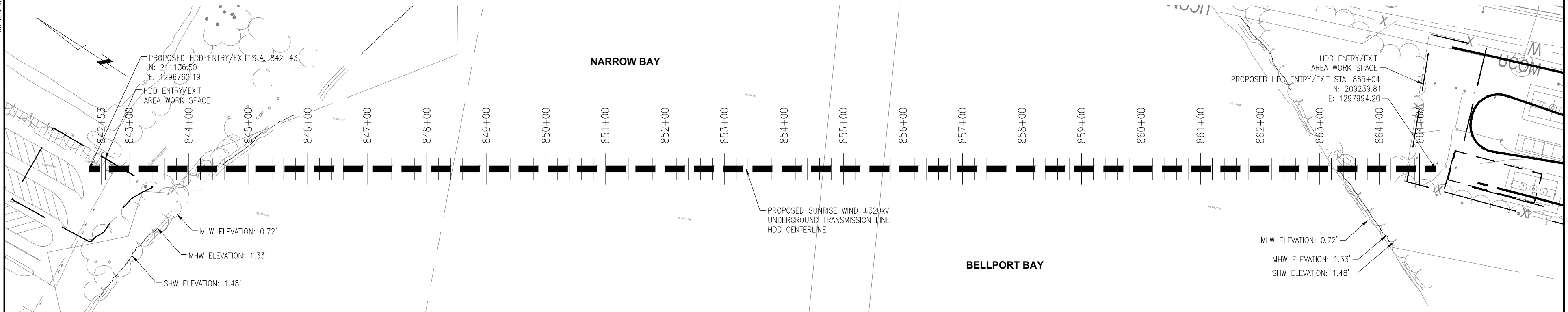
Rev.	Date	Accep.	Appr.	Description
A	20-July-2022	GEMSM	STNIC	-

Drawn by	Accepted GEMSM	Approved STNIC
Scale as shown / Size A3	Ørsted Document No.	
Supplier	Supplier Document No.	

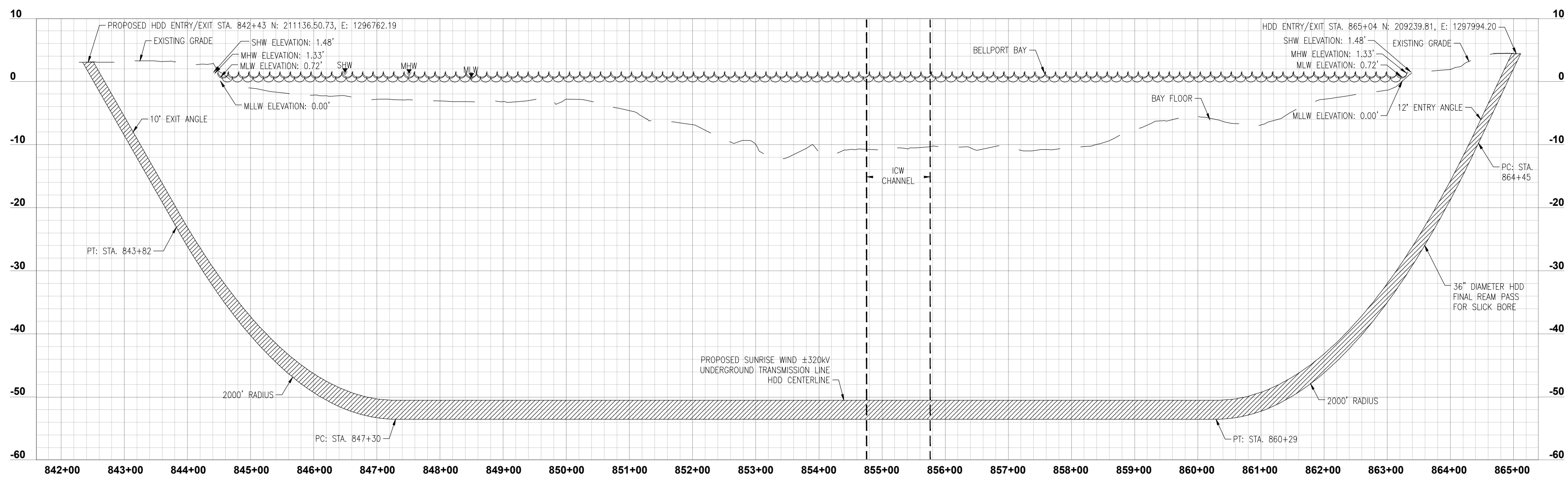
Sunrise Wind | Powered by Ørsted & Eversource

SUNRISE WIND
HDD CROSS SECTION- LANDFALL
FIRE ISLAND

ICW HDD



INTRA-COASTAL HDD PLAN VIEW



INTRA-COASTAL HDD PROFILE VIEW

THREE BUSINESS DAYS BEFORE YOU DIG CALL
NEW YORK CALL BEFORE YOU DIG
TOLL FREE
1-800-272-4480

"FOR CURRENT EVERSOURCE PROPERTY RIGHTS REFER TO PROPERTY RECORD MAPPING – LOCATED IN TRANSMISSION SURVEY ENGINEERING/ROW DEPARTMENT"

NOTES:

1. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO EVERSOURCE ENERGY. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG: 1.800.272.4480.

PRELIMINARY
NOT FOR CONSTRUCTION

VERTICAL SCALE: 0 4 8 16 24 FEET

HORIZONTAL SCALE: 0 40 80 160 240FEET

POWER ENGINEERS
www.powereng.com

REVISIONS DURING CONSTRUCTION

C	4/19/23	ISSUED FOR REVIEW – 70%	GAS	LB	DM
B	5/23/22	ISSUED FOR REVIEW – 70%	ERS	LB	DM
A	1/11/22	ISSUED FOR REVIEW – 30%	ERS	LB	DM

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
–	–	–	–	–	–	–

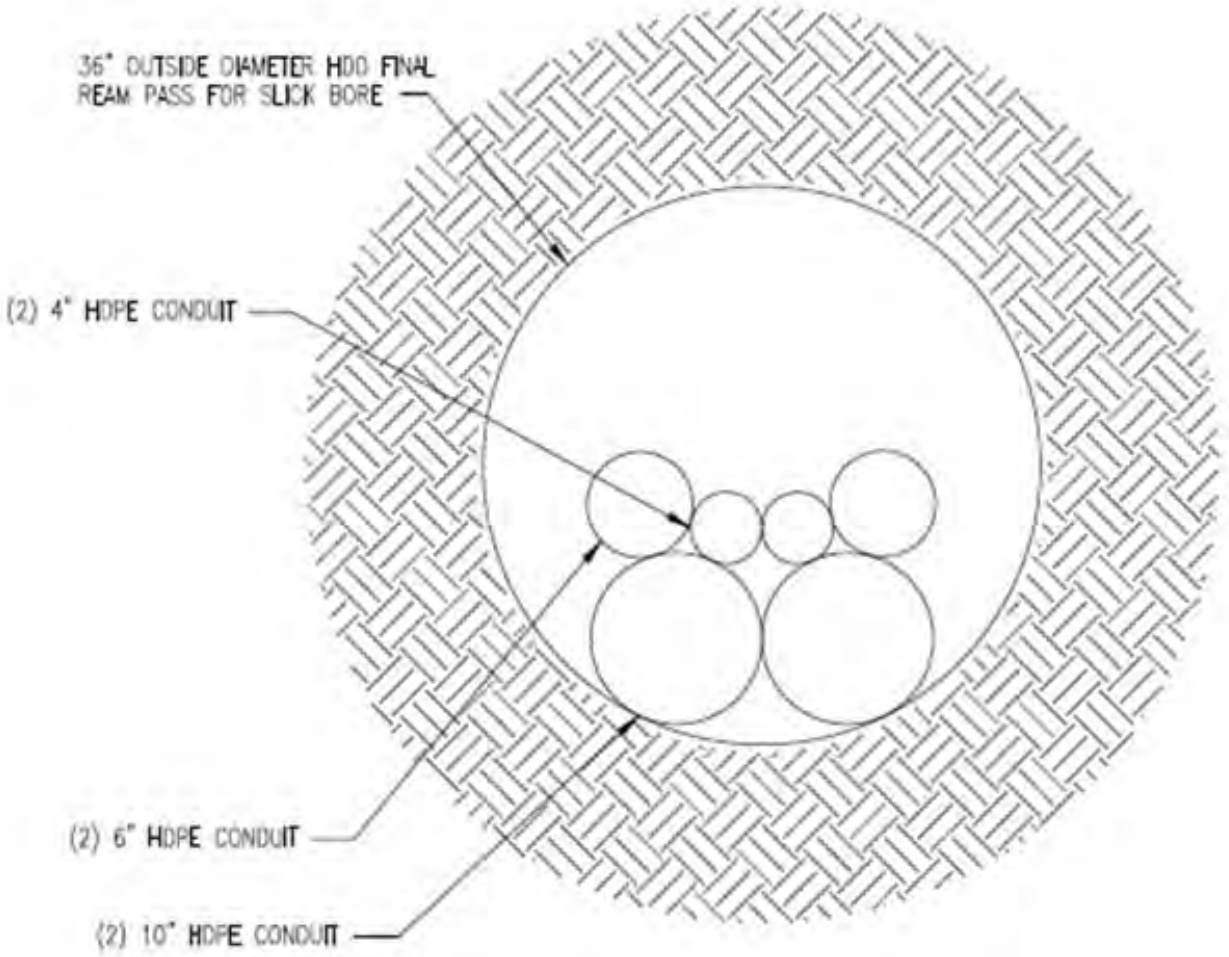
EVERSOURCE ENERGY

TITLE
SUNRISE WIND
±320kV UNDERGROUND TRANSMISSION LINE
TRENCHLESS DESIGN – INTRA-COASTAL HDD
BROOKHAVEN, SUFFOLK COUNTY, NEW YORK

BY ERS	CHKD JF	APP DM	APP
DATE 1/11/2020	DATE 1/11/2020	DATE 1/11/2020	DATE
H-SCALE N.T.S.	SIZE	FIELD BOOK & PAGES	
V-SCALE N.T.S.	V.S.	R.E. DWG	
R.E. PROJ. NUMBER 171405		NUSCO	SHEET 1 OF 1

NU VER: 02/2012

4/17/2023 5:34 PM – dedmiston – C:\pw_working\powereng_dedmiston\pw_prod_pw01\d4044537\DC_Plan And Profiles_Trenchless.dwg – 1of1-Intracoastal HDD-USACE

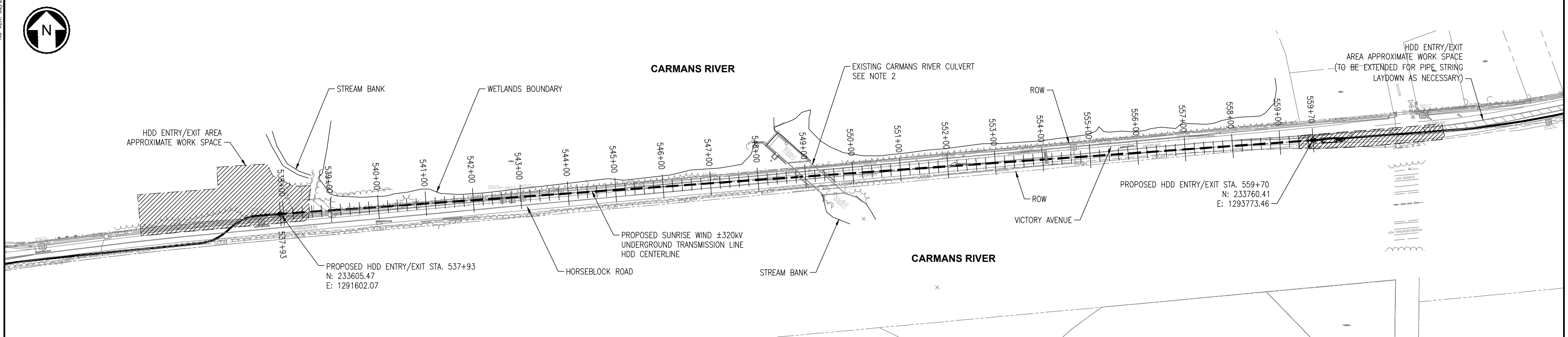


TYPICAL HDD SLICK BORE DETAIL

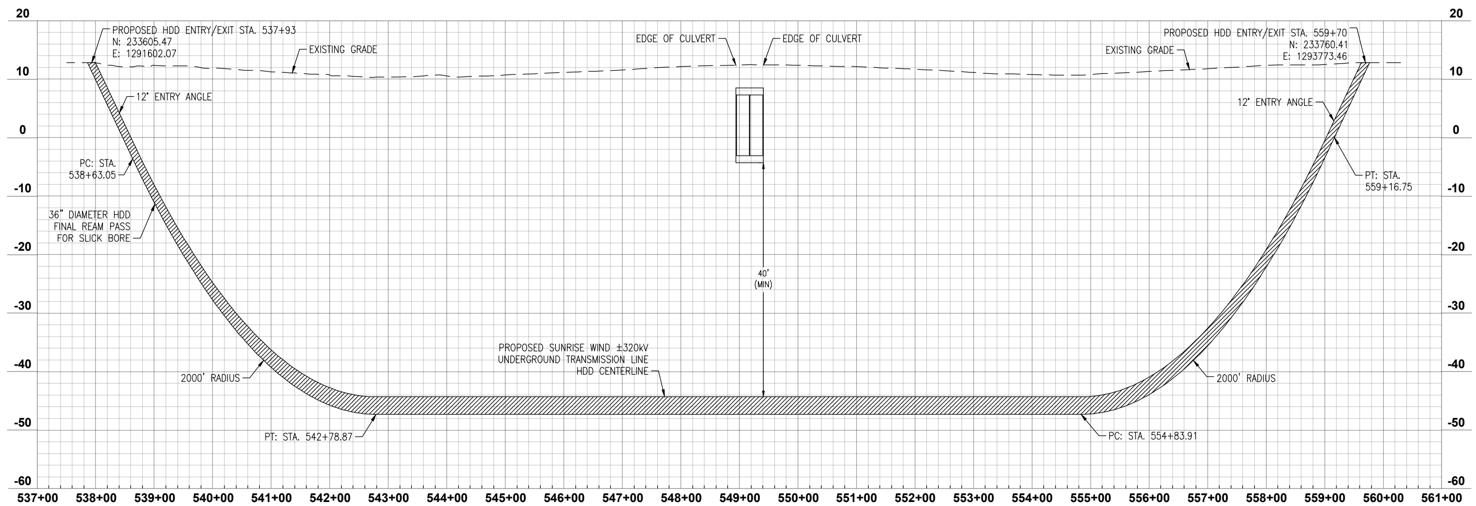
DETAIL 4

SCALE N.T.S. 48001p001

Carmans River HDD



CARMANS RIVER HDD PLAN VIEW



CARMANS RIVER HDD PROFILE VIEW

NOTES:

1. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED AND NOTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO EVERSOURCE ENERGY. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG: 1.800.272.4480.

2. THE CARMANS RIVER HDD WILL BE INSTALLED DIRECTLY BELOW EXISTING GRADE ASSOCIATED WITH HORSEBLOCK ROAD/VICTORY AVENUE. AT THIS LOCATION, CARMANS RIVER TRAVERSES THROUGH A CULVERT (102' X 36') AND THE CARMANS RIVER HDD WILL BE LOCATED AT LEAST 40' BELOW THIS CULVERT.

THREE BUSINESS DAYS BEFORE YOU DIG CALL
NEW YORK CALL BEFORE YOU DIG
TOLL FREE
1-800-272-4480

PRELIMINARY
NOT FOR CONSTRUCTION

0 5 10 20 30 FEET — VERTICAL SCALE

0 50 100 200 300 FEET — HORIZONTAL SCALE

POWER ENGINEERS www.powereng.com

REVISIONS DURING CONSTRUCTION

C	9/20/22	ISSUED FOR REVIEW - 70%	GAS	LB	DM
B	5/23/22	ISSUED FOR REVIEW - 70%	ERS	LB	DM
A	1/11/22	ISSUED FOR REVIEW - 30%	ERS	LB	DM

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP
-	-	-	-	-	-	-

EVERSOURCE ENERGY

SUNRISE WIND
±320kV UNDERGROUND TRANSMISSION LINE
TRENCHLESS DESIGN - CARMANS RIVER HDD
BROOKHAVEN, NEW YORK

BY ERS	CHKD JF	APP DM	APP
DATE 1/11/2020	DATE 1/11/2020	DATE 1/11/2020	DATE
H-SCALE N.T.S.	SIZE	FIELD BOOK & PAGES	
V-SCALE N.T.S.	V.S.	R.E. DWG	
R.E. PROJ. NUMBER	171405	NUSCO	SHEET 1 OF 1

NU VER: 02/2012

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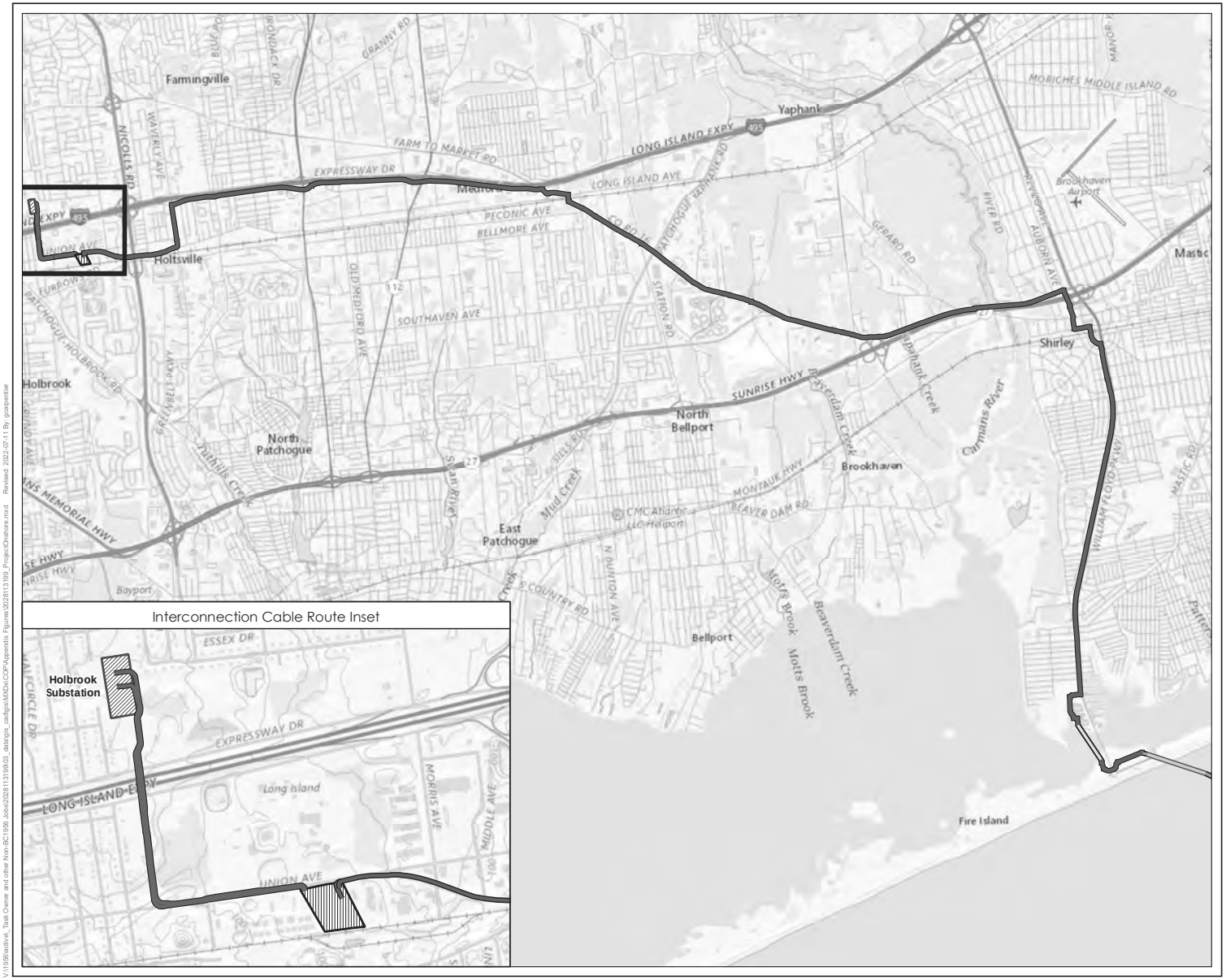
Wetlands



Onshore Facilities

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Farm (SRWF)
- Sunrise Wind Export Cable (SRWEC–OCS)
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
- Onshore Transmission Cable
  LIE Service Road Route
- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation

Notes
1. SRWEC route will have one landfall location. Routes are indicative and subject to engineering design changes.

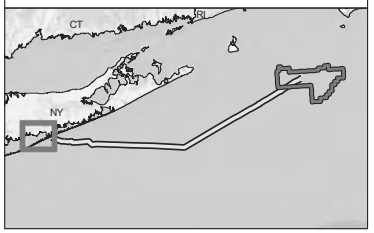
Sources
Base map: USGS The National Map

Date	07/11/2022
Project Number	2028113199
Prepared By	PB
Reviewed By	LJ

0 1 mile
0 1.5 km
N

Scale at 11x17: 1:63,360
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



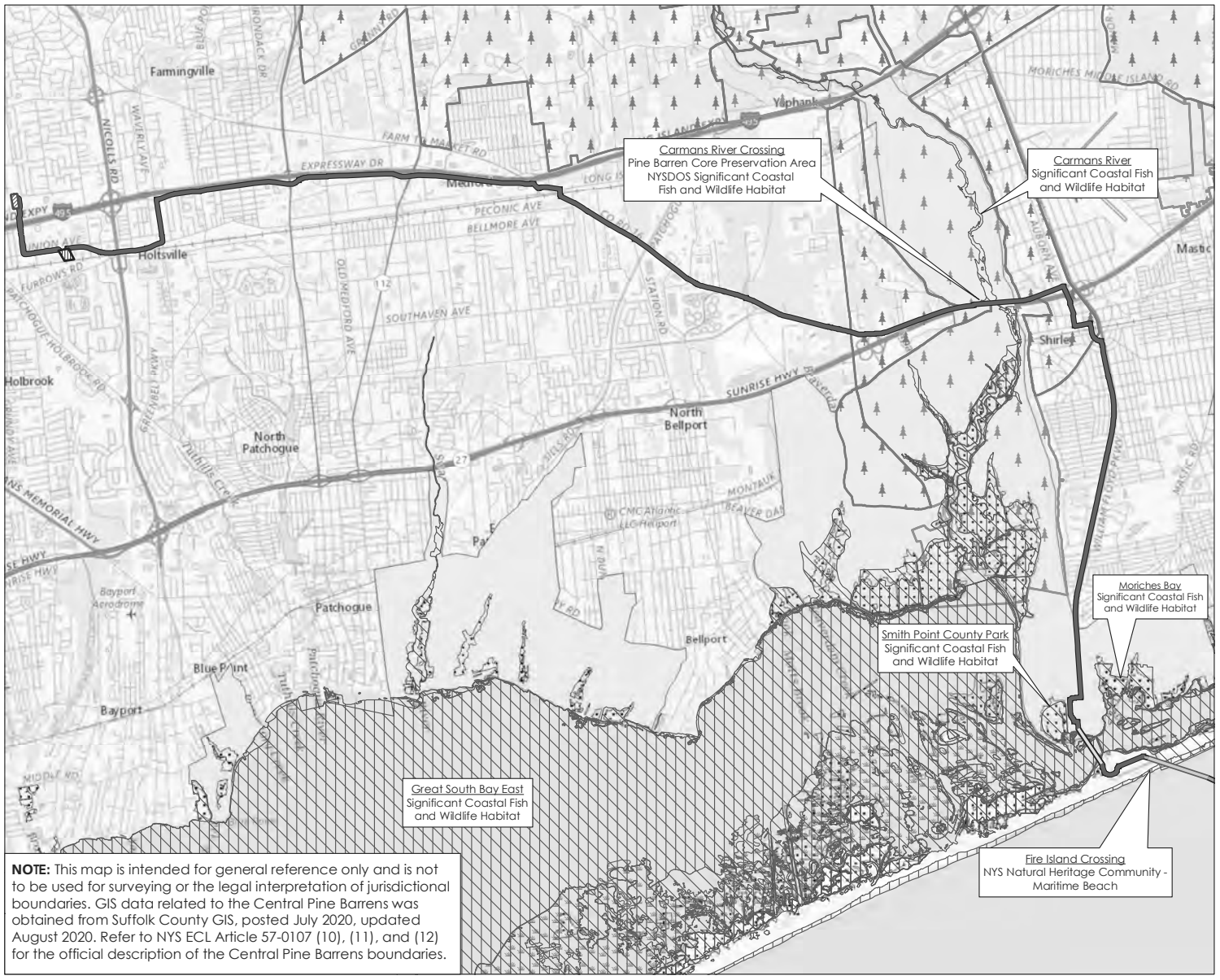


Figure 1
Significant and Critical Natural Communities and

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Farm (SRWF)
- Sunrise Wind Export Cable (SRWEC–OCS)
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
- Onshore Transmission Cable–LIE Service Road Route
- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation
- NYSDOS Significant Coastal Fish and Wildlife Habitat
- NYS Natural Heritage Community Occurrences
- NYSDEC Statewide Seagrass
- NYSDOS 2018 Long Island South Shore Estuary Benthic Habitat
- NYSDEC Critical Environmental Areas Coastal Zone Area South
- Pine Barren Core Preservation Area
- Pine Barren Compatible Growth Area

Note
1. Routes are indicative and subject to engineering design changes.
2. GIS data related to the boundaries of the Core Preservation Area and Compatible Growth Area was provided by the Pine Barrens Commision on April 9, 2021.

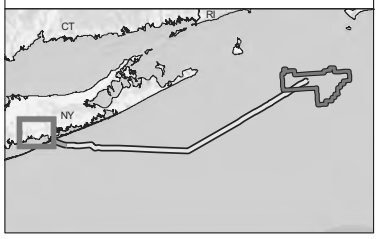
Sources
NYSDEC, NYSDOS, NYS Natural Heritage Program, NYS GIS Clearinghouse, Suffolk County GIS

Date	07/11/2022
Project Number	2028113199
Prepared By	PB
Reviewed By	LJ

0 1 mile
0 1.5 km
N

Scale at 11x17: 1:63,360
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



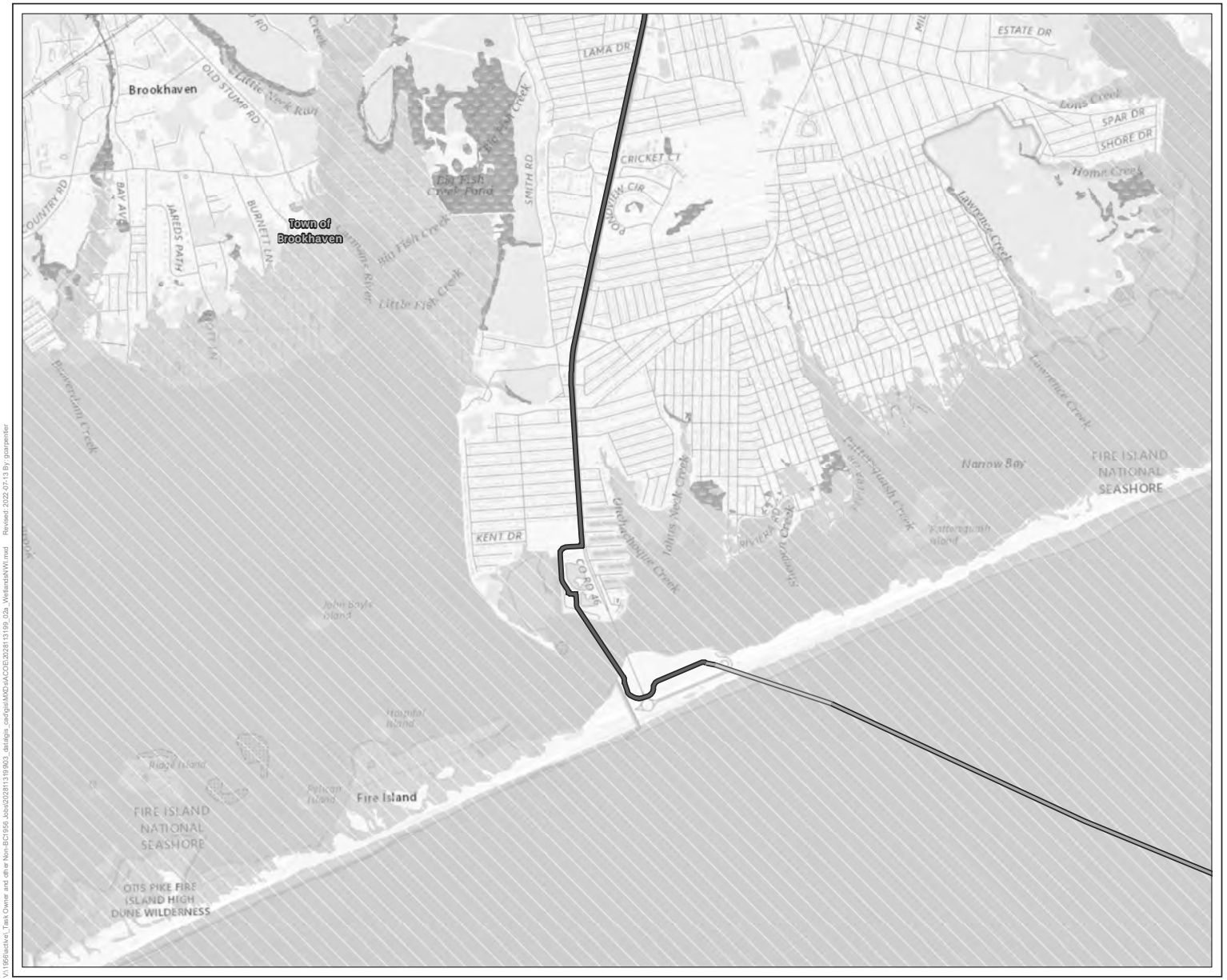


Figure 2a
Wetlands and Waterbodies – NWI
Sheet 1 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
- Onshore Transmission Cable
- LIE Service Road Route
- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation
- Town Boundary

NWI Wetlands
- Estuarine and Marine Wetlands
- Freshwater Wetlands

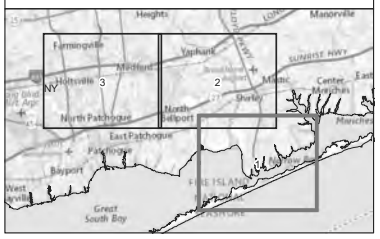
Notes
1. The cable route centerline and trenchless crossing work areas are indicative and subject to final engineering design.
2. No fill will occur in any mapped wetlands with the exception of Narrow Bay for components of the Temporary Landing Structure.

Sources
U.S. Fish and Wildlife Service, 2021
NYS Office of IT Services GPO, NYS Boundaries, 2018
USGS Topo Map

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 0.5 mile
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



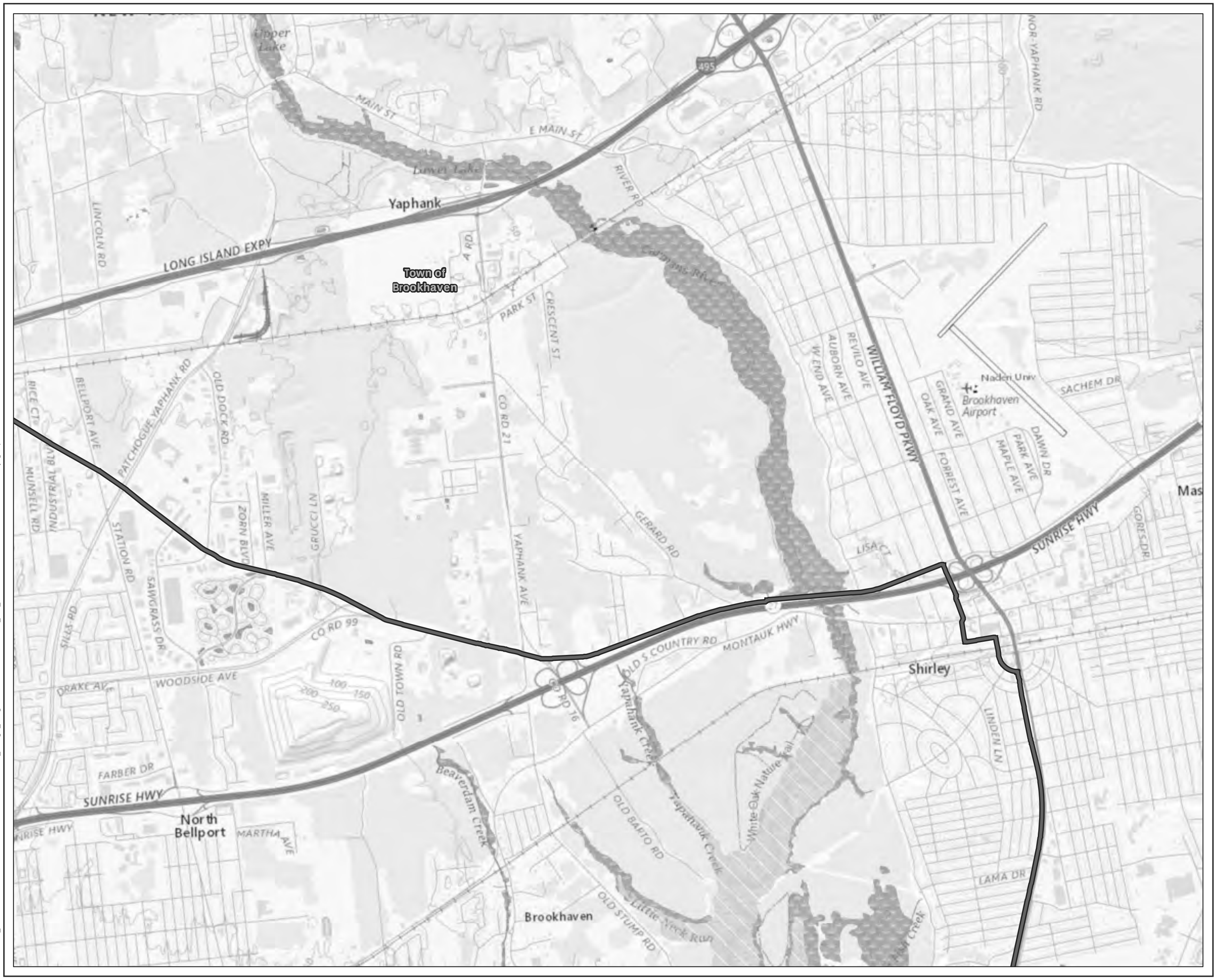


Figure 2a
Wetlands and Waterbodies – NWI
Sheet 2 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
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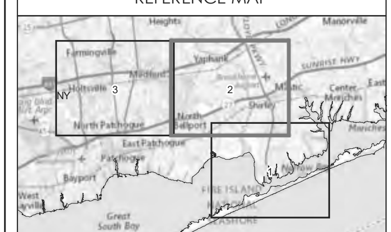
USGS Topo Map

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 0.5 mile
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



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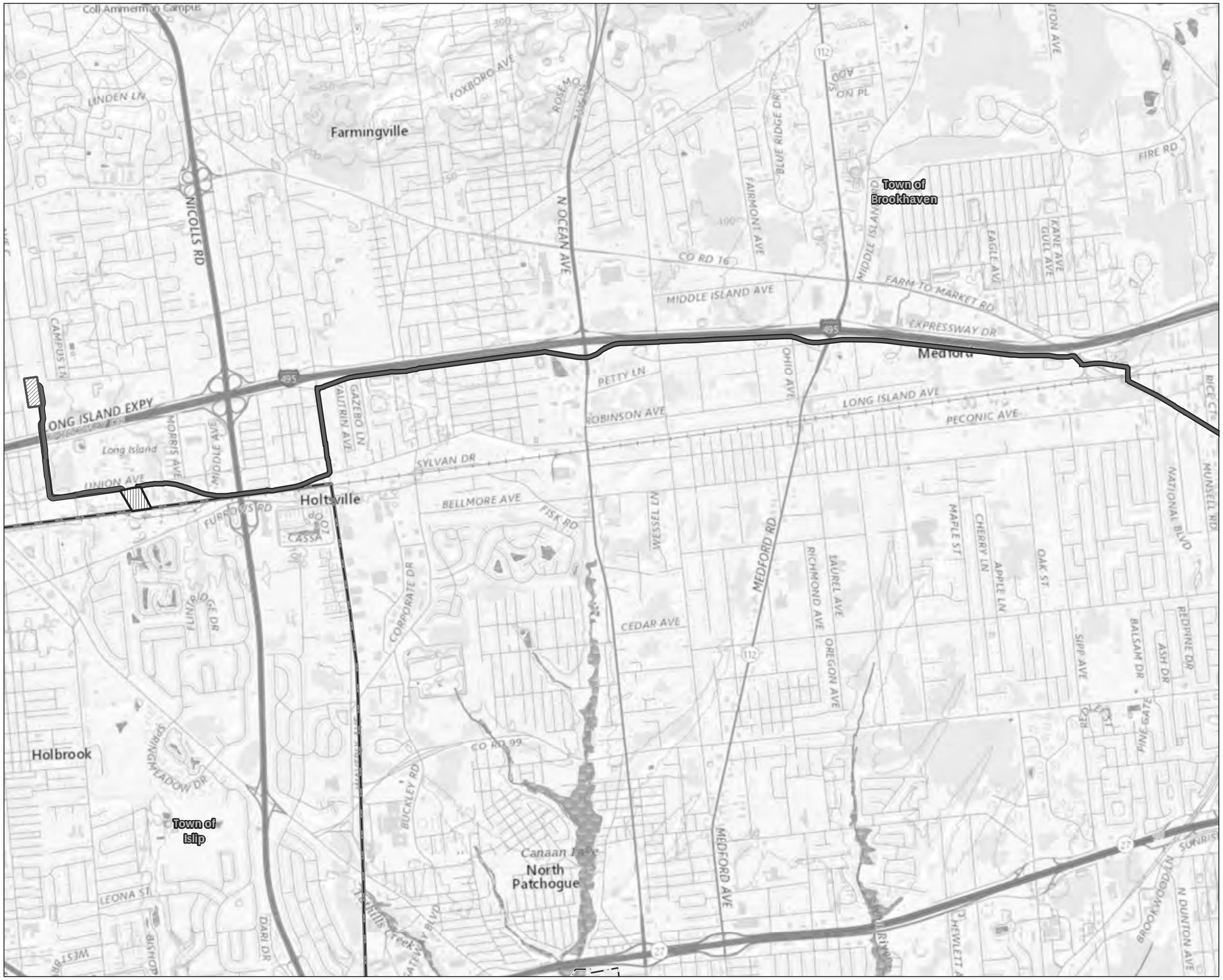

Figure 2a
Wetlands and Waterbodies – NWI
Sheet 3 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
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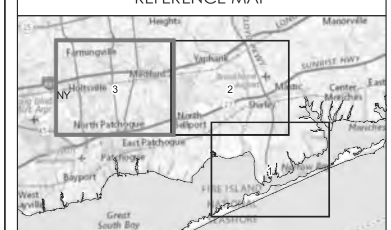
NYS Office of IT Services GPO, NYS Boundaries, 2018
USGS Topo Map

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 0.5 mile
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



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V:\1956\active_Task Owner and other Non-BC1956 Jobs\202811319\03_data\gis_cad\gis\MXDs\ACOE\2028113199_02b_WetlandsDEC.mxd Revised: 2022-07-13 By: gcarpentier

Figure 2b
Wetlands and Waterbodies – NYSDEC
Sheet 1 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
- Onshore Transmission Cable LIE Service Road Route
- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation
- Village Boundary
- Town Boundary
- NYSDEC Wetlands

NYSDEC Tidal Wetlands–NYC and Long Island
- Dredged Spoil
- Formally Connected
- Fresh Marsh
- High Marsh
- Intertidal Marsh
- Littoral Zone
- Coastal Shoals, Bars and Mudflats

Notes
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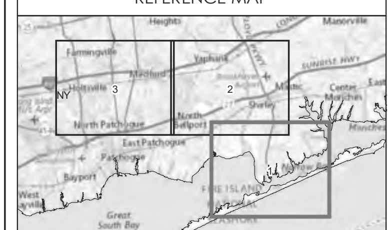
Sources
NYSDEC Wetlands, 2018
NYS Office of IT Services GPO, NYS Boundaries, 2018
USGS Topo Map

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 0.5 mile
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



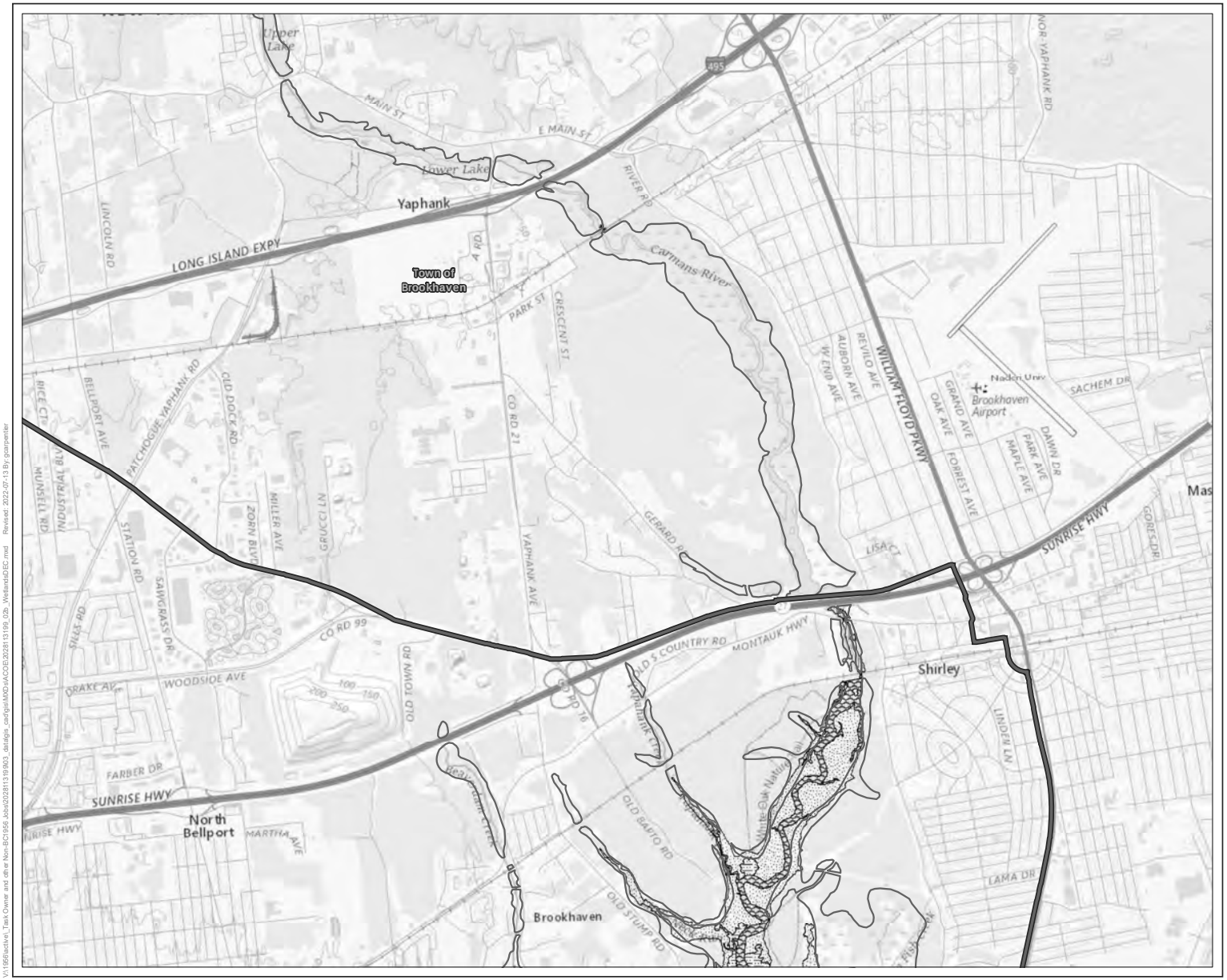


Figure 2b
Wetlands and Waterbodies – NYSDEC
Sheet 2 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
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- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
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- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation
- Village Boundary
- Town Boundary
- NYSDEC Wetlands

NYSDEC Tidal Wetlands–NYC and Long Island
- Dredged Spoil
- Formally Connected
- Fresh Marsh
- High Marsh
- Intertidal Marsh
- Littoral Zone
- Coastal Shoals, Bars and Mudflats

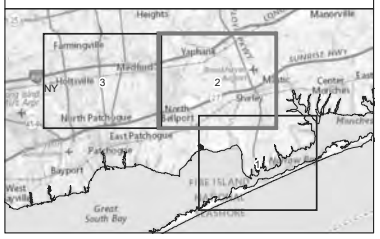
Notes
1. The cable route centerline and trenchless crossing work areas are indicative and subject to final engineering design.
2. No fill will occur in any mapped wetlands.

Sources
NYSDEC Wetlands, 2018
NYS Office of IT Services GPO, NYS Boundaries, 2018
USGS Topo Map

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 0.5 mile
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



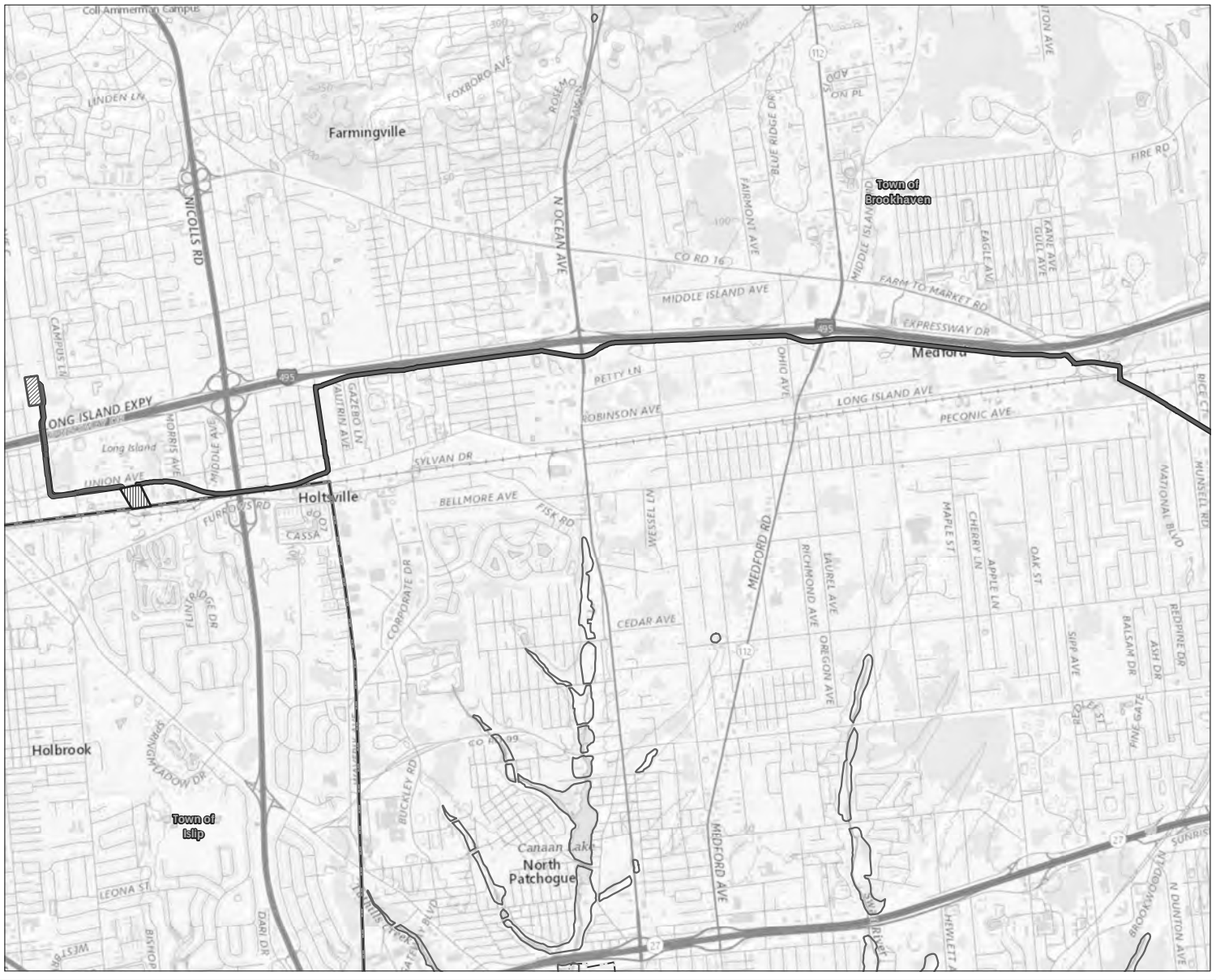


Figure 2b
Wetlands and Waterbodies – NYSDEC
Sheet 3 of 3

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Intracoastal Waterway HDD (ICW HDD)
- Onshore Transmission Cable LIE Service Road Route
- Onshore Interconnection Cable Route
- Union Avenue Site
- Holbrook Substation
- Village Boundary
- Town Boundary
- NYSDEC Wetlands

NYSDEC Tidal Wetlands–NYC and Long Island
- Dredged Spoil
- Formally Connected
- Fresh Marsh
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USGS Topo Map

Date	07/11/2022
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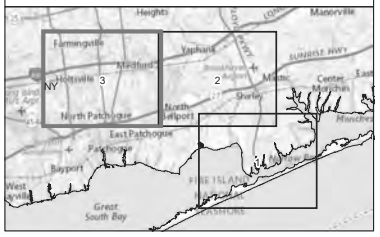
0 0.75 km
N
Scale at 11x17: 1:31,680
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



V:\1858\active_Task Owner and other Non-BOEM\858_Jobs\2028113199\03_data\gis_cad\gis\MXD\ArcGIS\20281131990_02b_WetlandsDEC.mxd Revised: 2022-07-13 By: gcarpenter

Figure 3
Delineated Wetlands
Sheet 1 of 4

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Landfall Work Area
- Pipe Sea Access
- Pipe Stringing Area
- Sunrise Wind New York Cable Corridor
- Mean High Water Line (2.18-feet)
- Delineated Wetland
- NYSDEC Tidal Wetland
- NYSDEC Statewide Seagrass

Notes
1. The cable route centerline and trenchless crossing work areas are indicative and subject to final engineering design.
2. No fill will occur in any mapped wetlands with the exception of Narrow Bay for components of the Temporary Landing Structure.

Sources
Base map: NAIP 2019

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 500 Feet
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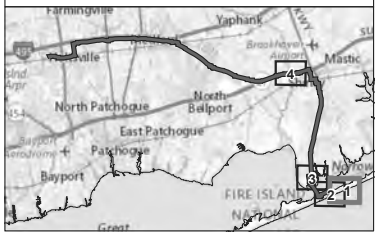
N
Scale at 11x17: 1:6,000
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP



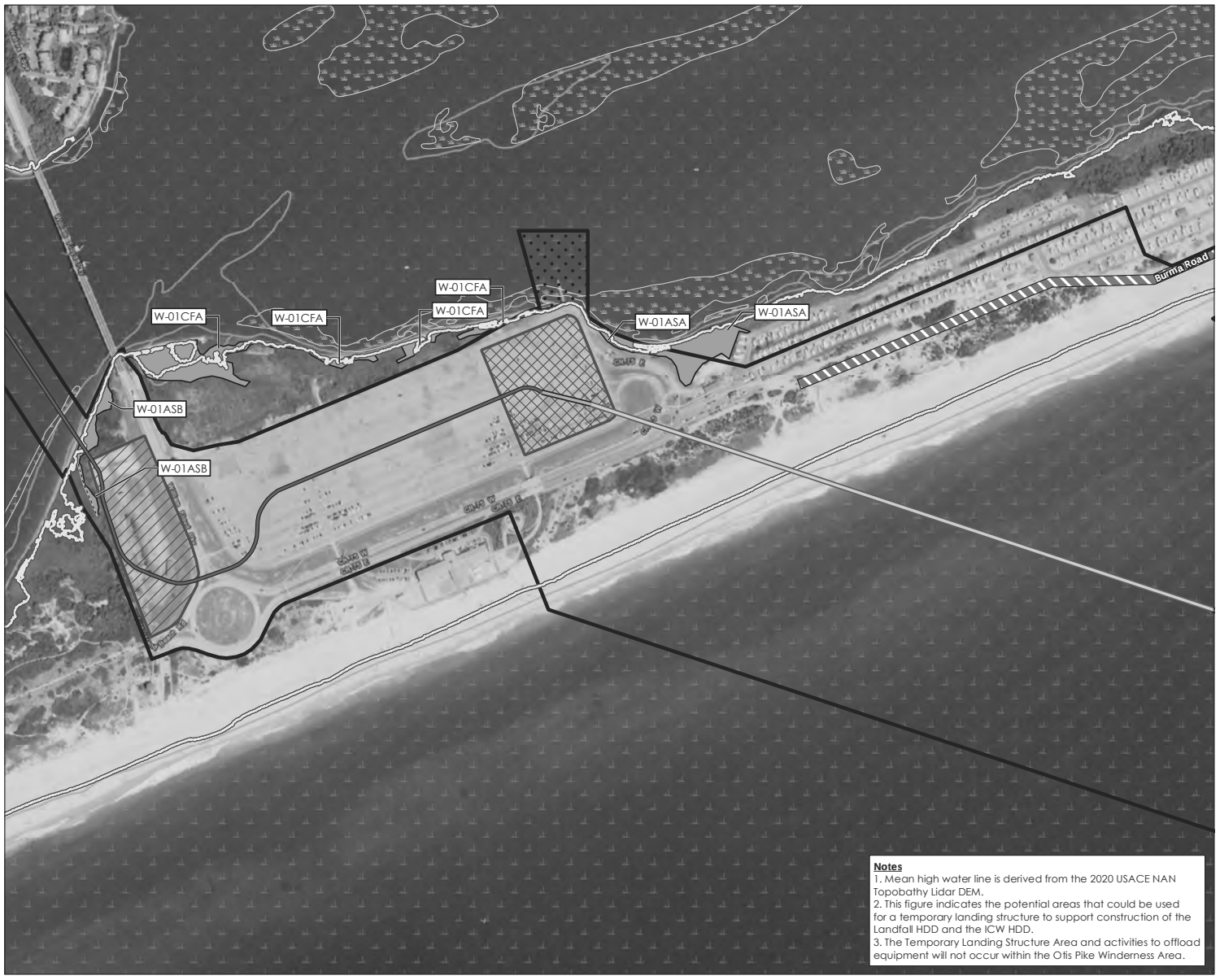


Figure 3
Delineated Wetlands
Sheet 2 of 4

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Sunrise Wind Export Cable (SRWEC–NYS)
- Landfall HDD A
- Onshore Transmission Cable LIE Service Road Route
- Landfall Work Area
- ICW Work Area
- Temporary Landing Structure Area
- Pipe Stringing Area
- Sunrise Wind New York Cable Corridor
- Mean High Water Line (2.18-feet)
- Open Wetland Boundary
- Delineated Wetland
- NYSDEC Tidal Wetland
- NYSDEC Statewide Seagrass

Notes
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Sources
Base map: NAIP 2019

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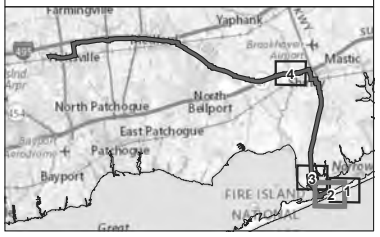

Figure 3
Delineated Wetlands
Sheet 3 of 4

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Onshore Transmission Cable / LIE Service Road Route
- ICW Work Area
- Sunrise Wind New York Cable Corridor
- Mean High Water Line (2.18-feet)
- Open Wetland Boundary
- Delineated Wetland
- NYSDEC Tidal Wetland
- NYSDEC Freshwater Wetland
- NYSDEC Statewide Seagrass

Notes
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Sources
Base map: NAIP 2019

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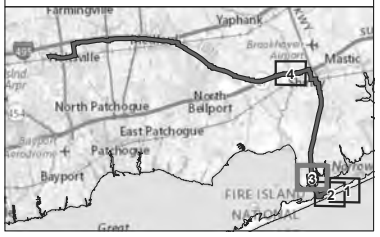

Figure 3
Delineated Wetlands
Sheet 4 of 4

Sunrise Wind | Powered by Ørsted & Eversource

Legend
- Onshore Transmission Cable
- LIE Service Road Route
- Trenchless Crossing Work Area
- Sunrise Wind New York Cable Corridor
- Delineated Stream
- Open Wetland Boundary
- Delineated Waterbody
- Delineated Wetland
- NYSDEC Tidal Wetland
- NYSDEC Freshwater Wetland

Notes
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2. No fill will occur in any mapped wetlands with the exception of Narrow Bay for components of the Temporary Landing Structure .

Sources
Base map: NAIP 2019

Date	07/11/2022
Project Number	2028113199
Prepared By	GC
Reviewed By	SBG

0 500 Feet
0 150 Meters
N
Scale at 11x17: 1:6,000
NAD 1983 2011 UTM Zone 18N

REFERENCE MAP

NEW YORK STATE PUBLIC SERVICE COMMISSION
§401 WATER QUALITY CERTIFICATION

Pursuant to:	Section 401 of the Federal Water Pollution Control Act, 33 USC Section 1341, Article VII of the New York Public Service Law, and 6 NYCRR Section 608.9
Certification Issued to:	Sunrise Wind LLC (Sunrise Wind)

Project Description and Location

Sunrise Wind submitted an application (the Application) to the New York State Public Service Commission (the Commission), in accordance with Article VII of the Public Service Law, for a Certificate of Environmental Compatibility and Public Need (CECPN) to construct, operate, and maintain the portions in New York State, both onshore and offshore, of the Sunrise Wind Project, a 50/50 joint venture between Orsted North America Inc. and Eversource Investment LLC.

In summary, the project will involve: (i) one high-voltage direct current (DC) submarine export cable bundle (320 kilovolt [kV]) up to 5.2 miles (mi) (8.4 kilometers [km]) in length in New York State (NYS) waters and up to 1,054 feet (ft) (321 meters [m]) located onshore (i.e., above the Mean High Water Line [MHWL], as defined by the United States Army Corps of Engineers [USACE] [33 Code Federal Regulations (CFR) 329]) and underground, up to the transition joint bay (TJB) (the SRWEC–NYS); (ii) a DC underground transmission circuit (320 kV) up to 17.5 mi (28.2 km) in length primarily within existing roadway rights-of-way (ROW) and concrete and/or direct buried splice vaults and associated components (the Onshore Transmission Cable); (iii) an onshore converter station that will transform the project's voltage from 320 kV to 138 kV alternating current (AC) (the OnCS–DC); (iv) two AC underground circuits (138 kV) approximately 1.1 mi (1.7 km) in length, which will connect the new OnCS– DC to the existing Holbrook Substation (the Onshore Interconnection Cable); (v) fiber optic cables co-located with both the Onshore Transmission Cable and Onshore Interconnection Cable; (vi) laydown yards; and (vii) the expansion of the Holbrook Substation to accept the Onshore Interconnection Cable (the Holbrook Substation Expansion). The SRWEC–NYS, Onshore Transmission Cable, OnCS–DC, Onshore Interconnection Cable, fiber optic cables, laydown yards, and the Holbrook Substation Expansion shall collectively be referred to herein as the "Project."

The transition of the SRWEC–NYS to the Onshore Transmission Cable will occur where the cables are spliced together at the TJB located at the work area within Smith Point County Park on Fire Island in the Town of Brookhaven (the Landfall Work Area). From the TJB within the Landfall Work Area, the Onshore Transmission Cable will run parallel to Fire Island Beach Road within the paved Smith Point County Park parking lot approximately 2,000 ft (610 m) west, crossing the William Floyd Parkway to a recreational area located to the west of William Floyd Parkway. The Onshore Transmission Cable will then be routed across the intracoastal waterway (ICW) in a northwest direction via an Intracoastal Waterway Horizontal Directional Drill (ICW HDD) approximately 0.5 mi (0.8 km) in length within a corridor width of 260 ft (79 m) to a paved parking lot within the Smith Point Marina along East Concourse Drive. From the ICW work area (the ICW Work Area), the Onshore Transmission Cable will be routed north for approximately 800 ft (0.24 km) before turning east for approximately 550 ft (0.2 km) following East Concourse Drive. The Onshore Transmission Cable will then extend north approximately 3.6 mi (5.8 km) along William Floyd Parkway to the intersection with Surrey Circle. The Onshore Transmission Cable will be routed along Surrey Circle for approximately 0.1 mi (0.2 km) and will continue north along Church Road. The Onshore Transmission Cable will travel west along Mastic Boulevard for

approximately 0.2 mi (0.3 km) to the intersection with Francine Place and then turn north on Francine Place for approximately 0.1 mi (1.6 km) to the intersection with Montauk Highway. The Onshore Transmission Cable will cross Montauk Highway to Revilo Avenue and will continue north along Revilo Avenue for approximately 0.07 mi (0.1 km) to the work area for the Sunrise Highway crossing. The Onshore Transmission Cable will cross Sunrise Highway via trenchless methods to Revilo Avenue, continuing north to the intersection with Victory Avenue and then continue west on Victory Avenue for approximately 2.1 mi (3.4 km) that includes Carman's River HDD to Horseblock Road. The Onshore Transmission Cable will continue northwest along Horseblock Road for approximately 3.2 mi (5.1 km). The Onshore Transmission Cable will turn north and cross the Long Island Rail Road (LIRR) to Long Island Avenue via trenchless methods. The Onshore Transmission Cable will then be routed west along the Long Island Expressway (LIE) South Service Road for approximately 4.1 mi (6.8 km) and continue to Waverly Avenue where it will turn south for approximately 0.4 mi (0.6 km) to Long Island Avenue. The Onshore Transmission Cable will then follow Long Island Avenue west to Union Avenue to the OnCS–DC. The OnCS–DC will support the Project's interconnection to the existing electrical grid by transforming the Project voltage to 138 kV AC. Finally, the Onshore Interconnection Cable from the OnCS–DC will begin at a set of termination structures at the OnCS–DC and will be routed entirely underground along town roads and existing utility-owned or controlled property up to 1.1 mi (1.8 km) in length and connect to the existing Holbrook Substation. An expansion of the Holbrook Substation will be required to accommodate the Project.

Certification

The New York State Public Service Commission hereby certifies pursuant, to Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. Section 1341(a)(1), and Article VII of the New York Public Service Law, that the Project, as conditioned herein, complies with applicable requirements of Sections 301, 302, 303, 306 and 307 of the Federal Water Pollution Control Act, as amended, and applicable New York State water quality standards, limitations, criteria, and other requirements set forth in Parts 608.9(a), and 701 through 704, and 750 of Title 6 of New York Codes, Rules and Regulations (NYCRR), provided that all of the conditions listed herein are met. This Certification is issued based on the record of Case 20-T-0617

Conditions:

1. No in-water work shall commence until all pre-construction conditions relating to such work contained in the CECPN in Case 20-T-0617 have been met to the satisfaction of the New York State Department of Public Service.

2. Construction, operation, maintenance, repair and decommissioning of the Project shall at all times be in conformance with (a) the Application and Joint Proposal in Case 20-T- 0617 (as amended and supplemented), to the degree not superseded by the CECPN; (b) all conditions of approval contained in the CECPN; (c) the approved Environmental Management and Construction Plan(s) (EM&CP); and (d) all conditions incorporated in any order approving the EM&CP or any revisions to the EM&CP required by the CECPN in Case 20-T-0617, to the extent such documents referenced in (c) and (d) above pertain to Sunrise Wind's compliance with the New York State Water Quality Standards necessary and appropriate for issuance of, and compliance with, this Certification.

3. Sunrise Wind shall provide a copy of this Water Quality Certification (Certification) to the U.S. Army Corps of Engineers along with a copy of the Application, the Joint Proposal, CECPN, and the EM&CP so that the U.S. Army Corps of Engineers will have a complete record of the conditions that apply hereto.

4. Sunrise Wind shall provide to all construction contractors performing work on the Project complete copies of this Certification, the Joint Proposal, the CECPN, and the EM&CP.

5. Sunrise Wind shall provide notification to the New York State Department of Public Service, concurrently with U.S. Army Corps of Engineers, if any updates, proposed changes, alterations, or modifications are requested to the §404 Clean Water Act permit or permit application, so that the Department of Public Service will have a complete record of impacts to water resources, including mitigation, that may affect State water quality standards.

6. All drilling fluid additives must be water-based unless otherwise approved by DPS Staff in consultation with NYSDEC. If a polymer-based additive is proposed, it must be included in the EM&CP with the corresponding SDS containing eco-toxicity information and approved NYSDEC Water Treatment Chemical Form. Petroleum-based additives are strictly prohibited. If a polymer-based additive is proposed, Sunrise Wind will propose to use a biodegradable polymer-based additive if a suitable product exists.

7. Water quality standards set forth in 6 NYCRR Parts 701, 702, 703, 704, 750 and sections 301, 302, 303, 306, and 307 of the federal Clean Water Act (see 33 USC §§ 1311, 1312, 1313, 1313a, and 1317) shall not be contravened. Issuance of a Water Quality Certification also implies compliance with standards assuming that conditions placed in the certification are complied with.

    a. Water Quality Standard: None from sewage, industrial waste or other wastes that will cause deposition or impair the waters for their best usages.

8. A pre-activity water quality calibration will be conducted to ensure that TSS may be accurately estimated in real-time during water quality monitoring activities. The pre-activity water quality calibration will be described in detail in the suspended solids and water quality monitoring plan.

9. The following limit must be achieved for TSS at a distance of 1,500 feet down current (based on tide direction) of sediment disturbing activities:

    a. Guidance Value: TSS 100 mg/L above ambient for all offshore construction activities.

    b. If during water quality monitoring, the real-time TSS concentrations established by the calibration curves exceed the TSS limits established in this Certificate, DPS Staff, NYSDEC Staff, and the Aquatic Environmental Monitor shall be immediately notified and work shall be ceased immediately and then restarted at modified levels that will reduce TSS levels and bring them into compliance with Condition 192 (a) (b) in

accordance with iterative changes outlined in Condition 192 (c) (ii) and (iii). Sunrise Wind will continue to iteratively implement operational controls and measure the resulting TSS. Sunrise Wind will notify the Aquatic Monitor throughout the process about any such operational adjustments.

c. During implementation of corrective actions, DPS Staff and NYSDEC may specify additional monitoring until compliance with Water Quality Standards is demonstrated. Samples shall be collected until resumption of routine monitoring is authorized by DPS Staff in consultation with NYSDEC.

i. For purposes of iterative changes to the use of a CFE or hand jetting tools, the following changes may be employed: changing the rate of advancement of the CFE or hand jet tool, modifying or varying hydraulic jetting pressures, and/or implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the installation procedure.

ii. For purposes of iterative changes to the use of a barge mounted excavator, the following changes may be employed: changing the rate of advancement of the excavator, modifying the depth of the excavator bucket in the water column, implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the installation procedure, operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket, and/or to control bucket retrieval rates.

10. Visual observations of turbidity will be identified in the applicable EM&CP caused by underwater cable and HDD exit pit installation/backfill activities, pre-lay grapnel run operations, maintenance, and decommissioning activities must be conducted to ensure compliance with the narrative water quality standard in 6 NYCRR § 703.2: "No increase that will cause a substantial visible contrast to natural conditions."

11. Sunrise Wind shall incorporate within the EM&CP and implement a Suspended Sediment and Water Quality Monitoring Plan pertaining to offshore and onshore activities. Sunrise Wind must submit a Suspended Sediment and Water Quality Monitoring Plan for review and comment by DPS Staff, NYSDEC, and NYSDOS forty- five (45) days prior to the filing of the EM&CP. The Suspended Sediment and Water Quality Monitoring Plan must be prepared in accordance with the "Scope of Study: Suspended Sediment/Water Quality Monitoring" attached as Appendix I of the Joint Proposal.

a. Water quality monitoring shall be conducted within the Project Corridor as described in Appendix B during seabed preparations, jet trenching pre- construction and construction activities, excavation of the HDD exit, pre- lay grapnel run, cable installation, backfill

of the HDD exit, sand wave leveling, and maintenance and decommissioning activities that involve disturbance of sediments (together, "Monitored Construction Activities").

b. Maintenance and decommissioning activities that result in only minor disturbance of sediments, including: (i) anchor sweep; (ii) anchoring; (iii) placement of jack-up barge; (iv) hand jetting; or (vi) other activities as determined by DPS Staff, in consultation with NYSDEC, shall not require water quality monitoring.

12. If any jet trenching technology is used to lay the cable, trials must be conducted within representative sections or areas proximate to the proposed underwater cable route in NYS waters prior to cable installation to ensure compliance with Total Suspended Solids ("TSS") threshold limits as defined in Condition 187 (a). The trial will include approximately 1,000 feet of jet trenching operations within an area to be specified in the Jet Trencher Trial Plan that will be submitted as part of the EM&CP. The following conditions apply to jet trencher trials:

a. Pre-monitoring water quality calibration will be conducted prior to the jet trencher trails and will enable real-time estimation of TSS concentrations during the trials.

b. A combination of acoustic ("ADCP") and calibrated optical backscatter ("OBS") measurements will be used to estimate TSS concentrations on selected transects. TSS and OBS turbidity water samples will be collected one thousand five hundred (1,500) feet up-current (for baseline) and one thousand five hundred (1,500) feet down-current of the jet plow, at three-interval depths (near surface, mid-depth, and near bottom) and analyzed by a NYSDOH Environmental Laboratory Approval Program ("ELAP") certified laboratory. Water quality monitoring requirements during jet trencher trials will be described in detail in the suspended solids and water quality monitoring plan;

c. Sunrise Wind must coordinate with DPS Staff and NYSDEC to share real-time TSS measurement estimates collected during the jet trencher installation trials to evaluate whether the operating conditions result in TSS concentrations that exceed the TSS threshold limit;

d. If the jet trencher trials demonstrate that the operating conditions result in TSS concentrations that exceed the TSS threshold limit established herein, Sunrise Wind notify DPS Staff and NYSDEC and implement feasible modifications to the jet trencher operating conditions to further reduce in-situ sediment re-suspension associated with the jet trencher installation procedure; and

e. Jet trencher operations may proceed after Jet Trencher Trial results are reviewed in real-time and accepted by DPS Staff and NYSDEC. Review of this information by DPS and NYSDEC staffs shall not unreasonably delay the commencement of installation of the underwater cable system. (Certificate Condition 188).

13. The following conditions apply if jet trenching technology is used to install the SRWEC–NYS:

a. Sunrise Wind must operate the jet trencher in accordance with the operating conditions determined through jet trencher trials to maintain the suspension of in-situ sediments within the Total Suspended Solid (TSS) limits;

b. If, during jet trencher installation of the cable, TSS concentrations exceed the TSS limits established in this Certificate, Sunrise Wind shall follow the process established in Conditions 188 and 189 (c).

c. For purposes of iterative changes to the use of the jet trencher, the following changes may be employed: changing the rate of advancement of the jet trencher, modifying or varying hydraulic jetting pressures, and/or implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the jet trencher installation procedure.

14. The following conditions shall be applied to minimize sediment released into the water column during the Landfall HDD conduit installation:

a. The environmental monitor shall inspect all installation equipment to be utilized at the offshore terminus point of the Landfall HDD prior to use and shall perform periodic inspections of all such equipment no less than once per week when in use.

b. Sunrise Wind shall:

i. only use equipment in good operating condition;

ii. only use equipment fit for purpose;

iii. operate the equipment to satisfy TSS guidance value described in Condition 187;

iv. not use a dragline for excavation;

v. demonstrate to the environmental monitor that the equipment operator has sufficient control over the bucket operation so that the sediment re- suspension from bucket contact with the bottom and bucket over-filling is minimized;

vi. utilize bucket excavation unless bucket excavation would endanger the HDD borehole, in which case Sunrise Wind may use airlift, controlled flow excavation, and/or suction dredging methodologies to install the HDD conduit and the SRWEC-NYS cable; and

vii. during excavation and backfill of at the offshore HDD exit pit, provide to DPS Staff, NYSDEC, NYSDOS weekly progress reports that demonstrate compliance with Certificate requirements and such other information as determined necessary based on consultation with DPS Staff, NYSDEC, and NYSDOS.

c. Sunrise Wind may install permanent concrete mattresses or rock bags for protection of

the conduit and/or cable within the offshore HDD exit, provided that Sunrise Wind shall cover such protection measures with at least three feet of material excavated from the HDD exit or similar material from upland sources and ensure that there is no discernible depression consistent with Condition 196 (d). Additional details regarding such cable protection measures shall be provided in the EM&CP. Prior to filing the EM&CP, Sunrise Wind shall consult with DPS Staff, NYSDEC, and NYSDOS regarding cable protection measures.

d. No later than three months following the Commercial Operation Date, exclusive of the construction windows described herein, Sunrise Wind shall determine whether there is a discernible depression at the offshore HDD exits. If there is a discernable depression, Sunrise Wind will timely backfill the HDD exits unless, in consultation with DPS Staff and DEC, it is determined backfill is not necessary.

15. The offshore conduit end of the SRWEC–NYS may be exposed or buried by means of hydraulic or mechanical dredging. Material needed for cover of the Landfall HDD conduit end will be placed adjacent to the Landfall HDD conduit location for later use as cover material. Material placement will be done to minimize the footprint of the reverse backfill material and Sunrise Wind will minimize the sediment removed from the offshore HDD exit to the maximum extent practicable. If material to be dredged is contaminated, prior to dredging, Sunrise Wind shall identify the final dredged material disposal location, including a letter from the permitted disposal facility verifying that they will accept the material.

a. All contaminated material shall be handled in accordance with details provided in the EM&CP and below:

i. only use equipment in good operating condition;

ii. not use deck barges, unless modified to allow no barge overflow and as approved by the Environmental Monitor and DPS Staff in consultation with NYSDEC;

iii. use barges or scows of solid hull construction or which are sealed;

iv. use a closed (i.e., sealed) environmental (e.g., clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws and seals or flaps positioned at locations of vent openings to minimize sediment suspension;

v. ensure that seals or flaps designed or installed at the jaws and locations of vent openings tightly cover these openings while the bucket is lifted through the water column and into the barge;

vi. equip the closed environmental (e.g., clamshell) bucket with sensors to ensure complete closure of the bucket before lifting through the water;

vii. operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket;

viii. control bucket retrieval rates to minimize turbidity;

ix. lower the bucket to the level of the barge gunwales prior to release of the load and place the excavated material deliberately and in a controlled manner;

x. suspend operations until any necessary repairs or replacements are made when a significant loss of water and visible sediments from the bucket is observed;

xi. avoid washing the gunwales of the scow except to the extent necessary to ensure the safety of workers;

xii. not overflow the barge;

xiii. Sunrise Wind shall allow a minimum twenty-four (24) hours of settlement prior to decanting barges. Decanting of barges may not commence until approved by DPS Staff, in consultation with NYSDEC; and

xiv. operate the equipment so as to minimize sediment transport.

16. Relevant Species Related Work Restrictions

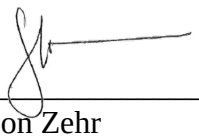
a. Atlantic Sturgeon. No in-water seabed disturbing work, including jet trenching trials, but not including installation and decommissioning or operation of the Equipment (as defined in Conditions 75 [d] and 81), shall occur between May 1 to June 30 and September 1 to November 30 in any year to avoid the risk for incidental take of Atlantic Sturgeon, except that Sunrise Wind may be permitted to perform the following, limited seabed disturbing work activities diver clearance and maintenance in HDD exit to locate and prepare HDD conduit end using a crane-deployed, diver-operated jetting tool; cable pull through HDD conduit; and backfill of the HDD exit with sediment or appropriate secondary protection between May 1 through May 15 and November 1 through November 30. In addition, between November 1 and November 30, Sunrise Wind shall be authorized to position and anchor vessels and place the jack-up barge or similar supporting vessel to be used in connection with HDD Drilling Operations, however, the in-water punch out will not occur prior to November 30. If backfill of the HDD exit or remedial burial/secondary cable protection installation and defect remedy occurs during the restricted window (May 1 to June 30 or September 1 to November 30, Sunrise Wind shall develop an Atlantic Sturgeon Monitoring and Impact Minimization Plan. Such Atlantic Sturgeon Monitoring and Impact Minimization Plan must meet the substantive requirements of 6 NYCRR Part 182, and shall be included as part of the EM&CP. If applicable, Sunrise Wind shall provide the Atlantic Sturgeon Monitoring and Impact Minimization Plan to NYSDEC 45 days prior to filing of the EM&CP for NYSDEC's review and comment.

b. Winter Flounder: Aside from the activities outlined herein, no in-water seabed disturbing activities shall occur in the ICW between December 15 and May 31 ("Winter Flounder restricted window") in any year. This time of year, restriction will not prevent Sunrise Wind from installing or decommissioning temporary, in-water equipment or structures in the ICW (the Equipment, *see also* Certificate Condition 81) to facilitate the

construction of the Project within the Winter Flounder restricted window in any year during construction of the Project. If installation or decommissioning of the Equipment occurs during the Winter Flounder restricted window, Sunrise Wind shall develop a Winter Flounder Monitoring and Minimization Plan in consultation with NYSDEC. Sunrise Wind shall provide the Winter Flounder Monitoring and Minimization Plan to NYSDEC 45 days prior to filing of the EM&CP for NYSDEC's review and comment. If, in consultation with NYSDEC, it is determined that the Equipment will result in the wake of Winter Flounder, then Sunrise Wind shall implement a Winter Flounder Net Conservation Benefit Plan (NCBP) that meets the requirements of 6 NYCRR Part 182. The Winter Flounder NCBP, if necessary, shall be submitted to NYSDEC for review and acceptance prior to filing with the Secretary and commencement of construction in the relevant area.

17. Exclusive of the portion of the cable installed via HDD, Sunrise Wind shall install the SRWEC–NYS a minimum of six feet (measured from top of cable) below the seabed (Target Burial Depth). Should the Target Burial Depth not be achieved during the initial pass of the cable installation tool that is best suited to achieve Target Burial Depth, Sunrise Wind shall perform up to two additional passes with the installation tool, or other burial tool that complies with the requirements of the Certificate, unless (a) additional passes risk causing damage to the SRWEC–NYS or the installation tool; or (b) due to geologic obstructions, additional passes would not increase the burial depth or risk causing cable exposure (Actual Burial Depth). Sunrise Wind shall use best efforts to micro-route the cable within the cable corridor to achieve Target Burial Depth during installation. If boulders are not identified during pre-construction surveys, and therefore micro-routing the cable is impracticable, Sunrise Wind shall, if required to increase the likelihood of achieving Target Burial Depth, relocate any encountered boulders within 50 feet of the planned centerline of the cable. Where Sunrise Wind has relocated a boulder one meter or more in diameter a distance of two meters or more from the location where it was initially encountered, Sunrise Wind shall provide electronic notice to mariners, recreational fishermen, and NYSDEC-Licensed Fishermen in accordance with Appendix J. The SRWEC–NYS shall be maintained in accordance with the Cable Monitoring and Management Plan included in the approved EM&CP.

Certified By:



Jason Zehr
Chief, Environmental Certification and Compliance
Office of Energy System Planning and Performance
New York State Department of Public Service
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Attachment: Appendix A: WQC Conditions Citations and Rationales

The conditions included in this certification are necessary to ensure that the project will meet applicable New York State water quality requirements. In accordance with 40 CFR §121.7, the applicable water quality requirements and explanations for each condition, wherever included in this Section 401 Water Quality Certification (WQC), are provided in the table below. Where used in the table, PSL refers to New York State Public Service Law and 6 NYCRR refers to Title 6 of the Codes, Rules and Regulations of the State of New York.

Condition No.	Condition Text	Water Quality Requirements	Rationale
1	No in-water work shall commence until the necessary Conditions relating to such work contained in the Article VII Certificate and any Order in Case 20-T-0617 have been met to the satisfaction of the Department of Public Service.	New York State Public Service Law Article VII Siting of Major Transmission Facilities; 6 NYCRR 608.9 Discharges Prohibited without certification; 6 NYCRR 701: Classification of surface waters and identification of best usages; 6 NYCRR 703.2: Water quality standards for turbidity, toxic materials, and 10 other deleterious substances	The condition is necessary to ensure that installation of roads and other infrastructure across waterbodies does not result in the constriction or blockage of flow that may negatively affect State water quality standards. This will ensure the best usages for waterbodies are maintained, and that waters remain suitable for fish, shellfish, and wildlife survival.

2	Construction, operation, and maintenance of the Project shall at all times be in conformance with (a) the Article VII Application and Joint Proposal in Case 20-T-0617, to the degree not superseded by the Article VII Certificate, (b) the Environmental Management and Construction Plan ("EM&CP"), (c) all conditions incorporated into any order approving the EM&CP or any revisions to the EM&CP required by the Article VII Certificate, (d) all conditions of approval contained in this Certification, and (e) New York State Water Quality Standards necessary and appropriate for issuance of, and compliance with, this Certification.	New York State Public Service Law Article VII Siting of Major Transmission Facilities; 6 NYCRR 608.9 Discharges Prohibited without certification; 6 NYCRR 701: Classification of surface waters and identification of best usages; 6 NYCRR 703.2: Water quality standards for turbidity, toxic materials, and 10 other deleterious substances	This condition is necessary to identify what discharges are authorized by the certification. This condition is further necessary: to ensure that the permittee undertakes whatever additional measures are necessary, and not otherwise specified in the conditions of this permit, to prevent the contravention of water quality standards during the installation, operations and maintenance of the project; to ensure that the project does not violate water quality standards related to turbidity; to ensure that the discharge does not adversely impact water quality during sensitive fish spawning or other significant aquatic periods that may contravene water quality standards or impair the waters best usages for fish propagation, or fish and other aquatic resources survival; to ensure that erosion and stream bank scouring are minimized during project construction and that potential for contravention of water quality standards is minimized; to ensure that upland erosion is minimized and contained during project construction, preventing contravention of the water quality standards; to ensure that the operation of construction equipment does not result in long-term or permanent alteration of waters, creating a discharge beyond the scope of the authorized discharge; to ensure that there no unauthorized materials discharged, and that those authorized materials do not contain any other materials that are toxic to aquatic life and, thereby, contravene water quality standards; to ensure that the operation of heavy equipment does not result in long-term or permanent alteration of waters, creating a discharge beyond the scope of the authorized discharge; to ensure that equipment used will not contribute to a contravention of water quality standards; to ensure that dewatering discharges from the work area do not result in erosion, fish kills, and

			contravention of the water quality standards; to separate the work area from other waters around the site, preventing a contravention of the water quality standards; to ensure that the flow of water is maintained during construction, to sustain downstream aquatic life and maintain the waters' best usages for fish and other aquatic resources survival; to ensure that when a diversion channel is used to separate flowing water from the work area, erosion from scouring is minimized and contravention of water quality standards is prevented; to ensure that erosion from stockpiled materials is minimized and contained during project construction, preventing contravention of the water quality standards; to ensure that upland erosion is minimized after construction is completed, preventing a contravention of the water quality standards.
3	Sunrise Wind shall provide a copy of this Certification to the U.S. Army Corps of Engineers, along with a copy of the Article VII Application, Joint Proposal, Article VII Certificate, the EM&CP, and any order(s) approving the EM&CP in Case 20-T-0617 and any approved petitions to amend or future amendments, so that the U.S. Army Corps of Engineers will have a complete record of the conditions that apply to this Project.	New York State Public Service Law Article VII Siting of Major Transmission Facilities; 40 CFR § 121.11 Incorporation of certification conditions into the license or permit; 6 NYCRR 608.9 Discharges Prohibited without certification	The condition is necessary to ensure that all work being performed is authorized by the certification. The conditon is necessary to ensure compliance with all State and Federal law and regulations during the construction and operation of facilities that prevent negative affects to state water quality standards.
4	Sunrise Wind shall provide to all construction contractors performing work on the Project complete copies of this Certification, the Article VII Application, the Joint Proposal, the Article VII Certificate, the EM&CP, and any order(s) approving the EM&CP.	New York State Public Service Law Article VII Siting of Major Transmission Facilities; 6 NYCRR 608.9 Discharges Prohibited without certification	This condition is necessary to ensure the work performed is in compliance with the certification for the reasons outlined above in Condition No. 2.

5	Sunrise Wind shall provide notification to the New York State Department of Public Service, concurrently with U.S. Army Corps of Engineers, if any updates, proposed changes, alterations, or modifications are requested to the §404 Clean Water Act permit or permit application, so that the Department of Public Service will have a complete record of impacts to water resources, including mitigation, that may affect State water quality standards.	New York State Public Service Law Article VII Siting of Major Transmission Facilities; 6 NYCRR 608.9 Discharges Prohibited without certification	The condition is necessary to ensure the appropriate coordination between State and Federal agencies occurs to determine compliance with all State and Federal laws and regulations related to water quality requirements, and the validity of the 401 WQC when any proposed project changes or modifications are requested.
6	All drilling fluid additives must be water-based unless otherwise approved by DPS Staff in consultation with NYSDEC. If a polymer-based additive is proposed, it must be included in the EM&CP with the corresponding SDS containing eco-toxicity information and approved NYSDEC Water Treatment Chemical Form. Petroleum-based additives are strictly prohibited. If a polymer-based additive is proposed,Sunrise Wind will propose to use a biodegradable polymer-based additive if a suitable product exists.	6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that the permittee undertakes whatever additional measures are necessary, and not otherwise specified in the conditions of this permit, to prevent the contravention of water quality standards, that best usages are maintained, and waters remain suitable for fish, shellfish, and wildlife survival.
7	Water quality standards set forth in 6 NYCRR Parts 701, 702, 703, 704, 750 and sections 301, 302, 303, 306, and 307 of the federal Clean Water Act (see 33 USC §§ 1311, 1312, 1313, 1313a, and 1317) shall not be contravened. Issuance of a Water Quality Certification also implies compliance with standards assuming that conditions placed in the certification are complied with.	6 NYCRR Parts 701, 702, 703, 704, 750 and sections 301, 302, 303, 306, and 307 of the federal Clean Water Act (see 33 USC §§ 1311, 1312, 1313, 1313a, and 1317).	This condition is necessary to ensure that the permittee undertakes whatever additional measures are necessary, and not otherwise specified in the conditions of this permit, to prevent the contravention of water quality standards, that best usages are maintained, and waters remain suitable for fish, shellfish, and wildlife survival.
8	A pre-activity water quality calibration will be conducted to ensure that TSS may be accurately estimated in real-time during water quality monitoring activities. The pre- activity water quality calibration will be described in detail in the suspended solids and water quality monitoring plan.	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

9	The following limit must be achieved for TSS at a distance of 1,500 feet down current (based on tide direction) of sediment disturbing activities: a. Guidance Value: TSS 100 mg/L above ambient for all offshore construction activities. b. If during water quality monitoring, the real-time TSS concentrations established by the calibration curve exceed the TSS limits established in this Certificate, DPS Staff, NYSDEC Staff, and the Aquatic Environmental Monitor shall be immediately notified and work shall be ceased immediately and then restarted at modified levels that will reduce TSS levels and bring them into compliance with Condition 192 (a) (b) in accordance with iterative changes outlined in Condition 192 (c) (ii) and (iii). Sunrise Wind will continue to iteratively implement operational controls and measure the resulting TSS. Sunrise Wind will notify the Aquatic Monitor throughout the process about any such operational adjustments. c. During implementation of corrective actions, DPS Staff and NYSDEC may specify additional monitoring until compliance with Water Quality Standards is demonstrated. Samples shall be collected until resumption of routine monitoring is authorized by DPS Staff in consultation with NYSDEC. i. For purposes of iterative changes to the use of a CFE or hand jetting tools, the following changes may be employed: changing the rate of advancement of the CFE or hand jet tool, modifying or varying hydraulic jetting pressures, and/or implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the installation procedure. ii. For purposes of iterative changes to the use of a barge mounted excavator, the following changes may be employed: changing the rate of advancement of the	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

	excavator, modifying the depth of the excavator bucket in the water column, implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the installation procedure, operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket, and/or to control bucket retrieval rates.		
10	Visual observations of turbidity will be identified in the applicable EM&CP caused by underwater cable and HDD exit pit installation/backfill activities, pre-lay grapnel run operations, maintenance, and decommissioning activities must be conducted to ensure compliance with the narrative water quality standard in 6 NYCRR § 703.2: "No increase that will cause a substantial visible contrast to natural conditions."	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

11	Sunrise Wind shall incorporate within the EM&CP and implement a Suspended Sediment and Water Quality Monitoring Plan pertaining to offshore and onshore activities.Sunrise Wind must submit a Suspended Sediment and Water Quality Monitoring Plan for review and comment by DPS Staff, NYSDEC, and NYSDOS forty- five (45) days prior to the filing of the EM&CP. The Suspended Sediment and Water Quality Monitoring Plan must be prepared in accordance with the "Scope of Study: Suspended Sediment/Water Quality Monitoring" attached as Appendix I of the Joint Proposal. a. Water quality monitoring shall be conducted within the Project Corridor as described in Appendix B during seabed preparations, jet trenching pre- construction and construction activities, excavation of the HDD exit, pre- lay grapnel run, cable installation, backfill of the HDD exit, sand wave leveling, and maintenance and decommissioning activities that involve disturbance of sediments (together, "Monitored Construction Activities"). b. Maintenance and decommissioning activities that result in only minor disturbance of sediments, including: (i) anchor sweep; (ii) anchoring; (iii) placement of jack-up barge; (iv) hand jetting; or (vi) other activities as determined by DPS Staff, in consultation with NYSDEC, shall not require water quality monitoring.	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

12	If any jet trenching technology is used to lay the cable, trials must be conducted within representative sections or areas proximate to the proposed underwater cable route in NYS waters prior to cable installation to ensure compliance with Total Suspended Solids ("TSS") threshold limits as defined in Condition 187 (a). The trial will include approximately 1,000 feet of jet trenching operations within an area to be specified in the Jet Trencher Trial Plan that will be submitted as part of the EM&CP. The following conditions apply to jet trencher trials: a. Pre-monitoring water quality calibration will be conducted prior to the jet trencher trails and will enable real-time estimation of TSS concentrations during the trials. b. A combination of acoustic ("ADCP") and calibrated optical backscatter ("OBS") measurements will be used to estimate TSS concentrations on selected transects. TSS and OBS turbidity water samples will be collected one thousand five hundred (1,500) feet up-current (for baseline) and one thousand five hundred (1,500) feet down-current of the jet plow, at three-interval depths (near surface, mid-depth, and near bottom) and analyzed by a NYSDOH Environmental Laboratory Approval Program ("ELAP") certified laboratory. Water quality monitoring requirements during jet trencher trials will be described in detail in the suspended solids and water quality monitoring plan; c. Sunrise Wind must coordinate with DPS Staff and NYSDEC to share real-time TSS measurement estimates collected during the jet trencher installation trials to evaluate whether the operating conditions result in TSS concentrations that exceed the TSS threshold limit; d. If the jet trencher trials demonstrate that the operating conditions result in TSS concentrations that exceed the TSS threshold limit established herein, Sunrise Wind notify DPS Staff and NYSDEC and implement feasible modifications to the jet trencher operating conditions to further reduce in-situ sediment re-suspension associated with the jet	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

	trencher installation procedure; and e. Jet trencher operations may proceed after Jet Trencher Trial results are reviewed in real-time and accepted by DPS Staff and NYSDEC. Review of this information by DPS and NYSDEC staffs shall not unreasonably delay the commencement of installation of the underwater cable system.		
13	The following conditions apply if jet trenching technology is used to install the SRWEC– NYS: a. Sunrise Wind must operate the jet trencher in accordance with the operating conditions determined through jet trencher trials to maintain the suspension of in-situ sediments within the Total Suspended Solid (TSS) limits; b. If, during jet trencher installation of the cable, TSS concentrations exceed the TSS limits established in this Certificate, Sunrise Wind shall follow the process established in Conditions 188 and 189 (c). c. For purposes of iterative changes to the use of the jet trencher, the following changes may be employed: changing	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

	the rate of advancement of the jet trencher, modifying or varying hydraulic jetting pressures, and/or implementing other reasonable operational controls that may reduce suspension of in-situ sediments in a manner that would not materially delay the progress of work to complete the jet trencher installation procedure.		

14	The following conditions shall be applied to minimize sediment released into the water column during the Landfall HDD conduit installation: a. The environmental monitor shall inspect all installation equipment to be utilized at the offshore terminus point of the Landfall HDD prior to use and shall perform periodic inspections of all such equipment no less than once per week when in use. b. Sunrise Wind shall: i. only use equipment in good operating condition; ii. only use equipment fit for purpose; iii. operate the equipment to satisfy TSS guidance value described in Condition 187; iv. not use a dragline for excavation; v. demonstrate to the environmental monitor that the equipment operator has sufficient control over the bucket operation so that the sediment re- suspension from bucket contact with the bottom and bucket over-filling is minimized; vi. utilize bucket excavation unless bucket excavation would endanger the HDD borehole, in which case Sunrise Wind may use airlift, controlled flow excavation, and/or suction dredging methodologies to install the HDD conduit and the SRWEC-NYS cable; and vii. during excavation and backfill of at the offshore HDD exit pit, provide to DPS Staff, NYSDEC, NYSDOS weekly progress reports that demonstrate compliance with Certificate requirements and such other information as determined necessary based on consultation with DPS Staff, NYSDEC, and NYSDOS. c. Sunrise Wind may install permanent concrete mattresses or rock bags for protection of the conduit and/or cable within the offshore HDD exit, provided that Sunrise Wind shall cover such protection measures with at least three feet of material excavated from the HDD exit or similar material from upland sources and ensure that there is no discernible depression consistent with Condition 196(d).	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

	Additional details regarding such cable protection measures shall be provided in the EM&CP. Prior to filing the EM&CP, Sunrise Wind shall consult with DPS Staff, NYSDEC, and NYSDOS regarding cable protection measures. d. No later than three months following the Commercial Operation Date, exclusive of the construction windows described herein, Sunrise Wind shall determine whether there is a discernible depression at the offshore HDD exits. If there is a discernable depression, Sunrise Wind will timely backfill the HDD exits unless, in consultation with DPS Staff and DEC, it is determined backfill is not necessary.		

15	The offshore conduit end of the SRWEC–NYS may be exposed or buried by means of hydraulic or mechanical dredging. Material needed for cover of the Landfall HDD conduit end will be placed adjacent to the Landfall HDD conduit location for later use as cover material. Material placement will be done to minimize the footprint of the reverse backfill material and Sunrise Wind will minimize the sediment removed from the offshore HDD exit to the maximum extent practicable. If material to be dredged is contaminated, prior to dredging, Sunrise Wind shall identify the final dredged material disposal location, including a letter from the permitted disposal facility verifying that they will accept the material. a. All contaminated material shall be handled in accordance with details provided in the EM&CP and below: i. only use equipment in good operating condition; ii. not use deck barges, unless modified to allow no barge overflow and as approved by the Environmental Monitor and DPS Staff in consultation with NYSDEC; iii. use barges or scows of solid hull construction or which are sealed; iv. use a closed (i.e., sealed) environmental (e.g., clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws and seals or flaps positioned at locations of vent openings to minimize sediment suspension; v. ensure that seals or flaps designed or installed at the jaws and locations of vent openings tightly cover these openings while the bucket is lifted through the water column and into the barge; vi. equip the closed environmental (e.g., clamshell) bucket with sensors to ensure complete closure of the bucket before lifting through the water; vii. operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket; viii. control bucket retrieval rates to minimize turbidity; ix. lower the bucket to the level of the barge gunwales prior to release of the load and place the excavated material deliberately and in a controlled manner;	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to turbidity, suspended solids, toxic substances, color, and other deleterious substances.	This condition is necessary to ensure that no more than minimal adverse environmental impacts related to changes to flow or to increased turbidity result from these activities, and to ensure waters remain suitable for fish, shellfish, and wildlife survival.

	x. suspend operations until any necessary repairs or replacements are made when a significant loss of water and visible sediments from the bucket is observed; xi. avoid washing the gunwales of the scow except to the extent necessary to ensure the safety of workers; xii. not overflow the barge; xiii. Sunrise Wind shall allow a minimum twenty-four (24) hours of settlement prior to decanting barges. Decanting of barges may not commence until approved by DPS Staff, in consultation with NYSDEC; and xiv. operate the equipment so as to minimize sediment transport.		

16	Relevant Species Related Work Restrictions a. Atlantic Sturgeon. No in-water seabed disturbing work, including jet trenching trials, but not including installation and decommissioning or operation of the Equipment (as defined in Conditions 75 [d] and 81), shall occur between May 1 to June 30 and September 1 to November 30 in any year to avoid the risk for incidental take of Atlantic Sturgeon, except that Sunrise Wind may be permitted to perform the following, limited seabed disturbing work activities diver clearance and maintenance in HDD exit to locate and prepare HDD conduit end using a crane-deployed, diver-operated jetting tool; cable pull through HDD conduit; and backfill of the HDD exit with sediment or appropriate secondary protection between May 1 through May 15 and November 1 through November 30. In addition, between November 1 and November 30, Sunrise Wind shall be authorized to position and anchor vessels and place the jack-up barge or similar supporting vessel to be used in connection with HDD Drilling Operations, however, the in-water punch out will not occur prior to November 30. If backfill of the HDD exit or remedial burial/secondary cable protection installation and defect remedy occurs during the restricted window (May 1 to June 30 or September 1 to November 30, Sunrise Wind shall develop an Atlantic Sturgeon Monitoring and Impact Minimization Plan. Such Atlantic Sturgeon Monitoring and Impact Minimization Plan must meet the substantive requirements of 6 NYCRR Part 182, and shall be included as part of the EM&CP. If applicable, Sunrise Wind shall provide the Atlantic Sturgeon Monitoring and Impact Minimization Plan to NYSDEC 45 days prior to filing of the EM&CP for NYSDEC's review and comment. b. Winter Flounder: Aside from the activities outlined herein, no in-water seabed disturbing activities shall occur in the ICW between December 15 and May 31 ("Winter Flounder restricted window") in any year. This time of year restriction will not prevent Sunrise Wind from installing or decommissioning temporary, in-water equipment or	6 NYCRR 703.2 Narrative water quality standards for turbidity, flow, suspended solids, and other deleterious substances; 6 NYCRR 701 Classification of surface waters and identification of best usages. Other regulatory requirements: 6 NYCRR 182, Regulations prohibiting the take of state-listed endangered or threatened species and Environmental Conservation Law Article 11-0535, Endangered and Threatened Species and Species of Special Concern.	This condition is necessary to ensure that turbidity conditions in the vicinity of these populations are addressed prior to construction, and during operations, so that the discharge does not contravene State water quality standards, that best usages are maintained, and waters remain suitable for aquatic life. This condition is necessary to ensure that any authorized activities do not "take" any aquatic or aquatic-dependent State listed endangered or threatened species or its habitat.

	structures in the ICW (the Equipment, see also Certificate Condition 81) to facilitate the construction of the Project within the Winter Flounder restricted window in any year during construction of the Project. If installation or decommissioning of the Equipment occurs during the Winter Flounder restricted window, Sunrise Wind shall develop a Winter Flounder Monitoring and Minimization Plan in consultation with NYSDEC. Sunrise Wind shall provide the Winter Flounder Monitoring and Minimization Plan to NYSDEC 45 days prior to filing of the EM&CP for NYSDEC's review and comment. If, in consultation with NYSDEC, it is determined that the Equipment will result in the take of Winter Flounder, then Sunrise Wind shall implement a Winter Flounder Net Conservation Benefit Plan (NCBP) that meets the requirements of 6 NYCRR Part 182. The Winter Flounder NCBP, if necessary, shall be submitted to NYSDEC for review and acceptance prior to filing with the Secretary and commencement of construction in the relevant area.		

17	Exclusive of the portion of the cable installed via HDD, Sunrise Wind shall install the SRWEC–NYS a minimum of six feet (measured from top of cable) below the seabed (Target Burial Depth). Should the Target Burial Depth not be achieved during the initial pass of the cable installation tool that is best suited to achieve Target Burial Depth, Sunrise Wind shall perform up to two additional passes with the installation tool, or other burial tool that complies with the requirements of the Certificate, unless (a) additional passes risk causing damage to the SRWEC–NYS or the installation tool; or (b) due to geologic obstructions, additional passes would not increase the burial depth or risk causing cable exposure (Actual Burial Depth). Sunrise Wind shall use best efforts to micro-route the cable within the cable corridor to achieve Target Burial Depth during installation. If boulders are not identified during pre-construction surveys, and therefore micro-routing the cable is impracticable, Sunrise Wind shall, if required to increase the likelihood of achieving Target Burial Depth, relocate any encountered boulders within 50 feet of the planned centerline of the cable. Where Sunrise Wind has relocated a boulder one meter or more in diameter a distance of two meters or more from the location where it was initially encountered, Sunrise Wind shall provide electronic notice to mariners, recreational fishermen, and NYSDEC-Licensed Fishermen in accordance with Appendix J. The SRWEC–NYS shall be maintained in accordance with the Cable Monitoring and Management Plan included in the approved EM&CP	6 NCYRR 701: Classification of surface waters and identification of best usages. 6 NYCRR 703.2. Narrative water quality standards related to thermal discharges. 6 NYCRR 704.1 Water quality standards for thermal discharges.	Subsea cables encounter electrical resistance and produce heat when transmitting a current. Heat is a pollutant that may be injurious to plant or animal life. A burial depth of six feet is recommended for heat dissipation from HVDC cables. This condition is necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water.