Addendum to the Environmental Impact Assessment Report

NISA
North Irish Sea Array

Volume 9 - Offshore Appendices

Appendix A10.1
Marine Processes Review of Project Options

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NORTH IRISH SEA ARRAY (NISA) OFFSHORE WIND FARM. APPENDIX A10.1: MARINE PROCESSES REVIEW OF PROJECT OPTIONS

MetOceanWorks, GoBe

June 2026

NORTH IRISH SEA ARRAY (NISA) OFFSHORE WIND FARM. APPENDIX A10.1: MARINE PROCESSES REVIEW OF PROJECT OPTIONS

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Abbreviations

CFD	Computational Fluid Dynamics
COWRIE	Collaborative Offshore Wind Research Into the Environment
DCCAE	Department of Communications, Climate Action & Environment
ECC	Export Cable Corridor
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
HDD	Horizontal Directional Drilling
LAT	Lowest Astronomical Tide
LWM	Low Water Mark
MFE	Mass Flow Excavator
MW	Megawatt
NISA	North Irish Sea Array
ODP	Offshore Design Parameters
OSP	Offshore Substation Platform
PSA	Particle Size Analysis
RFI	Request for Further Information
SBJ	Suction Bucket Jacket
UTM	Universal Transverse Mercator
WTG	Wind Turbine Generator

1. Introduction

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as 'the Developer') has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála's behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI. Amendments are therefore required to Appendix 10.1 Marine Processes Review of Project Options of the 2024 Environmental Impact Assessment Report (EIAR). Full details of consultation undertaken can be found in Appendix A1.2 Consultation Report.

The RFI Response Document identifies where topics relevant to Marine Geology, Oceanography and Physical Processes are responded to. In summary:

- **Topics 7 (g), (h), and (i) (part) are addressed in the amendment to Chapter 10: Marine Geology, Oceanography and Physical Processes.**
- **Topic 1 (b), 7 (f) and (q) (part) are addressed in Appendix A10.1: Marine Processes Review of Project Options (this document).**
- **Topics 7 (a), (b), (c), (d), (i) (part), (l) and (p) are addressed in Appendix A10.2: Marine Physical Processes Numerical Modelling.**
- **As dredging is no longer proposed, topics 7 (m), (n) and (o) no longer apply and Appendix 10.3: Assessment of Spoil Mounds of the 2024 EIAR is removed.**
- **Topics 7 (e), (j), (k) and (q) (part) are addressed in Appendix A10.3: Supporting Assessment Sensitivity Studies providing details of sensitivity tests to justify the present modelling approach.**

For the purposes of clarity, this document shall be read in conjunction with the Appendix 10.1 submitted as part of the 2024 EIAR.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

Text in bold is only used throughout this document to indicate where changes are required, and what is subsequently driving them. Text in italics is text from a section of the 2024 EIAR which is deleted, or quotations from other documents (as explicitly stated). Replacement text is in normal font.

Tables which have been updated from the 2024 EIAR, or entirely new tables, have been included in the Addendum to the EIAR. These can be identified by the "A" prefix in the caption. Any changes within an updated table, in comparison to tables within the 2024 EIAR, are indicated by grey shading in the relevant cell, column or row, as necessary.

The sections relevant to Appendix A10.1 in the RFI are included below.

RFI Section	RFI	Relevance to Chapter
1 (b)	The scientific information provided as part of the planning application documentation should be based on up-to-date survey reports and data. Accordingly, the applicant is requested to confirm/provide justification/verification that the information submitted in support of the planning application remains relevant and appropriate at the point of submitting further information or to update same as required.	In response to RFI 1 (b), more recent site information has been gathered. This information is listed in Section 1.2 and discussed in Section 4.2.
7 (f)	In Appendix 10.2, Marine Processes Review of Project Options, the applicant has selected a plume height release of 3 m above seabed in the trenching simulation. The applicant is requested to justify the release height of 3 m based on the dredging technique/equipment proposed.	In response to RFI 7 (f), justification of 3 m plume height has been provided with a comparable investigation of sediment plumes and consideration of conservative measurements for the development of far-field sediment plumes. See Section 4.2.6 b.
7 (q)	The longer term morphodynamic impact of the development including cable armouring, scour protections and wind turbine foundations is not assessed. This requires coupled wind, wave, hydrodynamic, and sediment transport modelling. The applicant is requested to submit modelling of the morphodynamic response of the coastline to the proposed development. Morphodynamic Modelling should be extended over a series of longer time horizons, operational plus decommissioning, ie 40+ years, and compared	In part response to RFI 7 (q), the matter of morphodynamic response of the seabed to cable armouring is discussed in Section 4.3.1 and 4.3.2.

	with the non-developed scenario for the same time period.	

1.1. Document structure

Section 1.1 has been updated to include the addition of Section 5 which provides a summary of modelling scenarios to assess potential effects on marine processes across the far-field. This summary identifies the basis of any changes to the modelling scenarios previously undertaken to support the 2024 EIAR. Therefore, the following point has been added to Section 1.1:

Section 5 summaries the modelling scenarios required to assess potential effects on marine processes across the far-field.

There are no other changes to this section. Refer to Section 1.1 in Appendix 10.1 of the 2024 EIAR.

1.2. Supporting documents

Section 1.2 is updated to recognise additional documents being incorporated into the assessment of design options likely to develop the greatest effects on marine processes. Therefore, the following documents are added to Section 1.2 of Appendix 10.1 of the 2024 EIAR:

- Aquafact (2025). NISA, Benthic Ecology Survey Report 2025. Ref: P18906
- Fugro (2024). The North Irish Sea Array Project – Interim Surveys. Investigation Results. Geotechnical Site Investigation. Irish Sea. F186480/01 | 05 | 01 March 2024. Final
- GDG (2024). NISA Geotechnical Interpretative Report. 23151-REP-000-01
- N-Sea (2024). North Irish Sea Array Windfarm Ltd. Geotechnical Site Investigation Survey. Factual Geotechnical Report. Doc No: PJ00326-NSEA-SUR-FR-22501
- SEP Hydrographic (2023). North Irish Sea Array (NISA). Nearshore and Intertidal Geophysical Survey. Operations & Results Report. Ref; 2023-031
- Venterra (2025). NISA Export Cable Corridor - Integrated Ground Model and Geotechnical Interpretative Report. 24203-REP-001-01

There are no other changes to this section. Refer to Section 1.2 in Appendix 10.1 of the 2024 EIAR.

1.3. Geodetic parameters

The change in this section is the clarification of depth measurements. Therefore, the following shall be added to Section 1.3 of Appendix 10.1 of the 2024 EIAR:

All depths refer to metres below lowest astronomical tide (LAT), unless otherwise stated.

There are no other changes to this section. Refer to Section 1.3 in Appendix 10.1 of the 2024 EIAR.

1.4. Sediment classification

Section 1.4 has been updated to provide additional clarification on the sediment classification used in the assessment, therefore, Section 1.4 in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following text:

Folk-7 is used as the sediment classification scheme for the presentation and interpretation of surficial sediments (Figure A1 Folk-7 (based on Kaskela, et al., 2019)Figure A1), being the common derivative between various datasets. This classification adopts seven sediment classes (including rock / hard ground) and is based on the relative contribution of Mud (M), Sand (S) and Gravel (G). This classification scheme is a reduced version of Folk (1954) which uses 15 sediment classes.

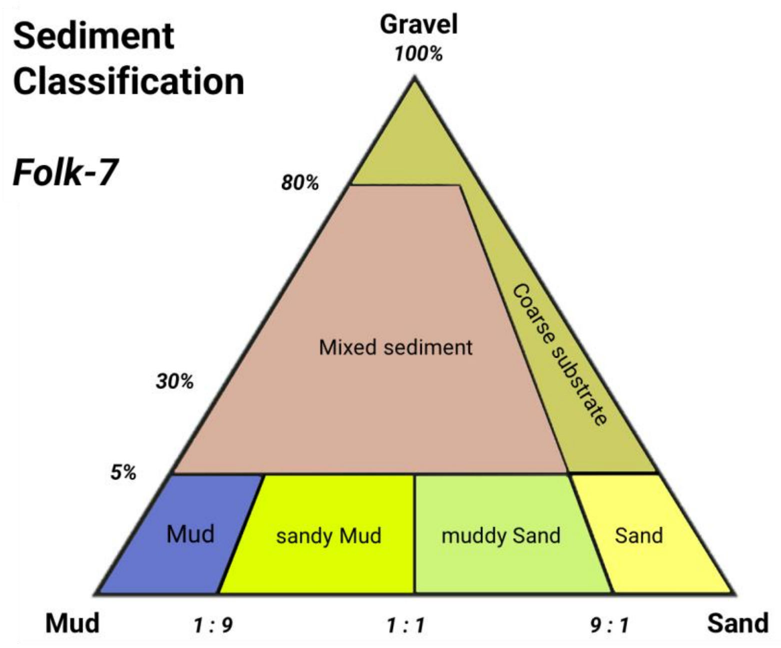

Figure A1 Folk-7 (based on Kaskela, et al., 2019)

In addition, the Wentworth scale is also used to distinguish sediment type between very fine, fine, medium, coarse, and very coarse sizes (Wentworth, 1922).

For example, a sediment classified as Sand (according to Folk) can be further described by the contributing sediment sizes such as very fine Sand and fine Sand (according to Wentworth). This level of description is important when establishing the sediments contributing to the formation of a sediment plume.

There are no other changes to this section. Refer to Section 1.4 in Appendix 10.1 of the 2024 EIAR.

2. Design Options

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations. Section 2 in Appendix 10.1 of the 2024 EIAR is deleted and replaced with the following text:

A review of the present installation methods, design options, and decommissioning plans for Project Option 1 and Project Option 2 is provided to establish potential effects on marine and coastal processes. These effects are initially conceptualised at their points of origin (i.e., source) based on presently available design information.

In cases where multiple design options remain under consideration then the option which is likely to develop the greatest effect on marine processes is highlighted.

Where effects may spread further afield, the review establishes relevant source terms for application in far-field modelling tools (Appendix A10.2) to more fully describe the spread of effects (impact pathways) across the marine environment. The option with the greatest effect on marine processes is modelled; therefore, the outcomes from other options are considered to lead to a lesser effect and are not modelled. Where these impact pathways encounter a sensitive environmental receptor then the scale of the potential impact is assessed in the relevant chapter associated with that receptor.

The potential impacts on marine and coastal processes receptors are assessed in Chapter 10 Marine Geology, Oceanography and Physical Processes.

Table A1 provides a high-level comparison between Project Option 1 and Project Option 2.

Table A1. High-level comparison between Project Options

Parameter	Project Option 1	Project Option 2
Number of foundations - WTG	49	35
Foundation type – WTG	3 or 4 -legged Suction Bucket Jacket (SBJ)	3 or 4 -legged SBJ
Number of foundations – OSP	1	1
Foundation type – OSP	4 legged Jacket (pin-piled or SBJ)	4 legged Jacket (pin-piled or SBJ)
Provision for drilling of piles	OSP pin-pile option only	OSP pin-pile option only
Length of inter-array cables (km)	111	91
Length of export cables (km)	36 (two export cables each 18 km long)	36 (two export cables each 18 km long)

There are no other changes to this section. Refer to Section 2 in Appendix 10.1 of the 2024 EIAR.

3. Marine physical processes interactions

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations. Seabed levelling by dredging and disposal of spoil is no longer a project option and text associated to this activity has been removed. Therefore, Section 3 of Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The anticipated interactions between marine and coastal processes and an offshore wind farm development can be grouped into two main types of effects:

a. **Seabed disturbance** - seabed response to short-term mechanical activities, anticipated mainly during construction and decommissioning periods, but also occasionally during the operational period during maintenance activities (e.g., remedial cable works). These responses may include:
   - A localised modification of the seabed profile;
   - development of sediment plumes that temporarily and locally increase turbidity (elevated levels of suspended sediment) in the water column, and;
   - in cases involving high volumes of sediment disturbance, the subsequent deposition of material may also lead to smothering of seabed receptors.

   Examples of activities which may lead to seabed disturbance include, drill arisings, cable trenching, excavation of exit pits and punch-out of Horizontal Directional Drilling (HDD), etc., as applicable.

b. **Blockage** – the interaction of installed structures across the offshore array area, and, where present, along the cable routes, with waves and flows over the duration of the operational period (the longest period in the development cycle) may result in:
   - Local modifications to wave energy transmission towards the coast; and
   - development of local flow wakes which may increase turbulence and mixing and lead to local scour.

   Examples of installed structures which may lead to blockage include foundation structures for wind turbine generators (WTG) and offshore sub-station platforms (OSP), scour protection and rock berms with a vertical profile protruding above the seabed.

There are no other changes to this section. Refer to Section 3 in Appendix 10.1 of the 2024 EIAR.

4. Project development cycle

4.1. Overview

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations Therefore, Section 4.1 of the 2024 EIAR shall be deleted and replaced with the following:

A consideration of offshore activities and installations which are planned during each phase of the proposed development cycle provides the basis to identify the type, magnitude, location, and duration of effects on marine and coastal processes.

Some activities and installations can be considered minor due to their short-term, small-scale or localised effects which do not present any significant risks to environmental receptors. These activities are considered conceptually.

For activities and installations that are longer-lasting, larger-scale or more widespread and have the potential to spread away from their source over a wider area, then the review of Project Options establishes relevant source terms for application in modelling tools (Appendix A10.2) to more fully describe the spread of effects (impact pathways) across the marine environment. For clarity, the identified sources of impact pathways are assigned a unique reference which is formed of a prefix to identify the phase of activity (i.e., C = Construction, O = Operation, M = Maintenance, D = Decommissioning), along with a unique number for each source within a phase.

There are no other changes to this section. Refer to Section 4.1 in Appendix 10.1 of the 2024 EIAR.

4.2. Construction Phase

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations Additional changes are due to the more recent site information gathered in response to (RFI 1(b)) where An Bord Pleanála requested the scientific information provided as part of the planning application documentation should be based on

up-to-date survey reports and data, which is identified in Section 1.2. Therefore, Section 4.2 of the 2024 EIAR shall be deleted and replaced with the following:

During the construction phase, the main effects on marine and coastal process are expected to be related to various sediment disturbance events, including drilling pin-piles at a single OSP, inter-array and export cable trenching, and HDD activities in the nearshore. These activities will each develop different rates and volumes of sediment disturbance into the water column based on the construction methods employed, as well as potentially disturbing different sediment types related to geographically different source locations. The subsequent fate of disturbed sediment depends on several factors, notably:

- Vertical position in the water column of the disturbed sediment and local water depths.
- Settling velocity of the disturbed sediment, which determines the time spent in the water column and is a function of particle size and particle density.
- The local hydrodynamic currents which can act on the particles during settling and advect the sediments further afield.

The coarse fraction (i.e., very fine gravel to medium sand) will have the fastest settling velocities, falling rapidly back to the seabed and with limited opportunity to advect away. This fraction will therefore remain relatively close to the source of disturbance (or discharge). The fine sediment fraction (i.e., very fine sand, fine sand, silts and muds) will have the slowest settling velocities which means these sediment particles will take longer to settle back to the seabed. During the longer settling period, this fraction is susceptible to advection and dispersion by hydrodynamic currents, transporting material away from the source of disturbance (or discharge) in the form of sediment plumes, with the disturbed material eventually settling elsewhere. particle density is taken from N-Sea (2024).

Table A2 provides indicative settling velocities (based on Soulsby, 1997) for representative sediment sizes present across the development area. The classification of sediment grade corresponds to the Wentworth scale (Wentworth, 1922), and particle density is taken from N-Sea (2024).

Table A2.Theoretical settling velocities for representative sediment types (replaces Table 2 in Appendix 10.1 of the 2024 EIAR)

Sediment type		Size range (mm)	Representative size (mm)	Settling velocity (m/s)
Coarse fraction	Gravel	> 2.000	3.000	0.219
	Very coarse sand	1.000 to 2.000	1.500	0.149
	Coarse sand	0.500 to 1.000	0.750	0.095
	Medium sand	0.250 to 0.500	0.375	0.050
Fine fraction	Fine sand	0.125 to 0.250	0.188	0.019
	Very fine sand	0.063 to 0.125	0.094	0.0052

Sediment type	Size range (mm)	Representative size (mm)	Settling velocity (m/s)
Coarse silt*	0.031 to 0.063	0.047	0.0013
Medium silt / muds*	< 0.031	0.023	0.0003

*Coarse silt and medium silt / muds collectively represent the mud fraction referred to in the Folk classification.

Key datasets which establish the characteristics of the sediments involved in the construction activities include:

- Particle size distributions from surficial grab samples: Aquafact (2005) and Natural Power (2022, 2023)
- Particle size distributions and particle density from near-surface vibrocores and boreholes (N-Sea, 2024)
- Ground models of array area and ECC (GDG (2024) and Venterra (2025))

Where the combination of different data sources identifies slightly different sediment properties for an area of interest, a conservative approach is taken in favour of the larger proportion of fine sediment, or a lower particle density.

There are no other changes to this section. Refer to Section 4.2 in Appendix 10.1 of the 2024 EIAR.

4.2.1. Construction programme

This is a new section, added to explain the scheduling of activities within the construction programme.

Figure A2 provides an indicative construction programme which is the same for both Project Option 1 and Project Option 2.

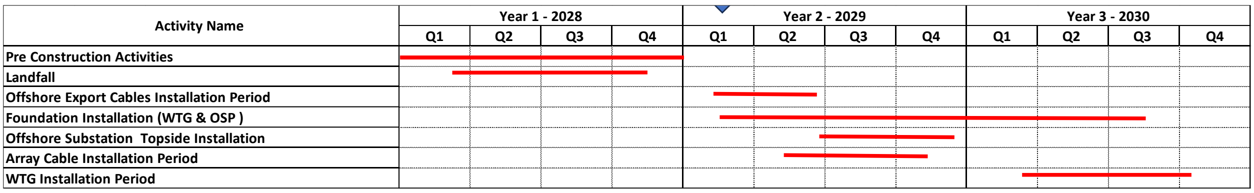

Figure A2. Indicative construction programme

All offshore activities remain weather sensitive meaning construction will be limited to calmer conditions (i.e., subject to normal tidal conditions without strong winds or high wave activity).

Landfall works will proceed ahead of cable laying along the ECC meaning any sediment plumes developed from excavation of HDD exit pits and bentonite occur at a separate time to sediment plumes from cable laying.

Foundation installation will commence ahead of array cable installation, with the OSP likely to be installed early in the process. Any sediment plume from the OSP installation (i.e., due to drilling for pin-piles) are expected to be fully dispersed prior to any sediment plumes from cable laying in the array arear or from the seaward end of the ECC.

On the basis of the indicative construction programme, each activity which may lead to the development of a sediment plume is judged to be temporally and spatially separate, meaning that any plume which occurs will fully disperse prior to any subsequent plume occurring, and will also occur from a separate location.

4.2.2. Seabed clearance

There are no changes to this section of the 2024 EIAR. Refer to Section 4.2.1 of Appendix 10.1.

4.2.3. Seabed levelling

Seabed levelling at WTG and OSP locations is no longer required. Accordingly, impact scenario C-01 within Section 4.2.1.1 of Appendix 10.1 of the 2024 EIAR and Appendix 10.3 Assessment of Spoil Mounds of the 2024 EIAR are removed.

4.2.4. Installation of suction buckets

This is a new section included to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations.

When jacket foundations are lowered onto the seabed the suction bucket caissons and are expected to initially sink a few metres into the top layer of sediment under their own weight. Once this is achieved, seawater is pumped out to create a suction which pulls the caisson into the seabed to the desired depth (Figure A3).

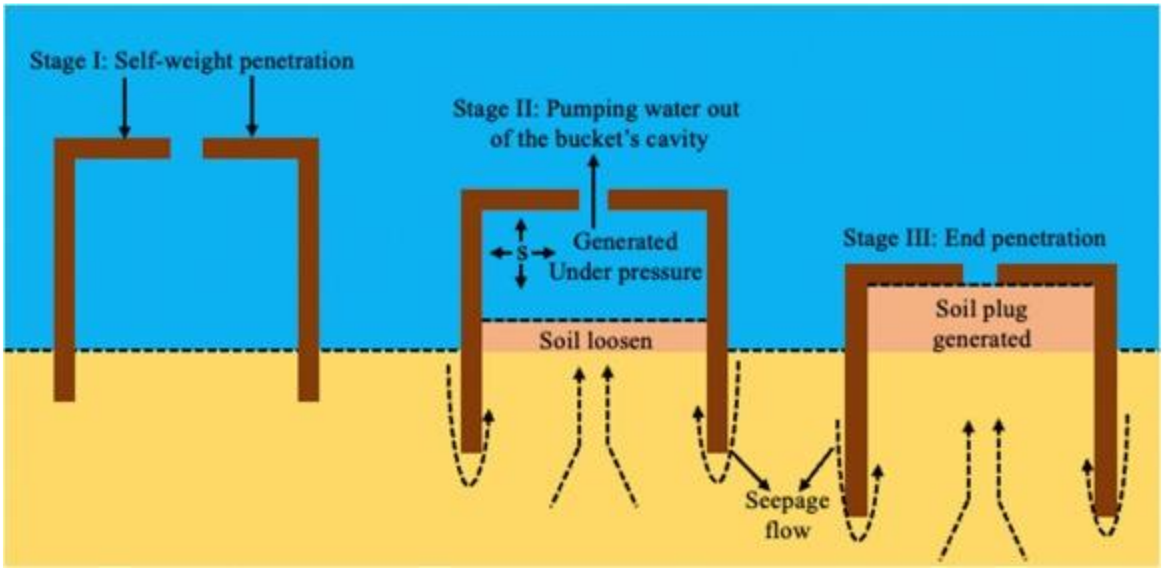

Figure A3. Installation of a suction bucket caisson (Yang, Bao, Pang, & Wang, 2023)

The water which is being pumped out is expected to retain the ambient turbidity levels of local seawater along with some seepage flow which has the potential to draw out fine sediments from the seabed, although this effect is generally most pronounced in highly permeable coarser-grained deposits. In the case of low permeability finer-grained sediments, (which are evident in the shallow soil layers that underlie the proposed development site), the consequence of seepage flow is anticipated to be minimal. Accordingly, the installation of SBJ across the offshore array area is not expected to lead to any locally elevated levels of turbidity.

The process of pumping out water is also expected to draw sediment up into the caisson to create a soil plug. Once the caisson is installed there may be some settlement and consolidation of the soil plug. At the end of the operational period when the SBJ foundation is decommissioned and removed, there is expected to be some remaining evidence of low-profile soil plugs. Over the long-term, the seabed profile is likely to return to baseline conditions due to periods of winnowing (especially at times of stronger near-bed flows) as well as further settlement and consolidation.

4.2.5. Drilling for OSP foundation installation

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations. Additional changes are due to the more recent site information gathered in response to (RFI 1(b)) where An Bord Pleanála requested the scientific information provided as part of the planning application documentation should be based on

up-to-date survey reports and data, which is identified in Section 1.2. Therefore, Section 4.2.5 of Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The installation of the OSP foundation for both Project Option1 and Project Option 2 includes the same option of drilling for pin piles for a 4-legged jacket structure, with a corresponding number of pin piles, the same as the design in the 2024 EIAR. However, to ensure conservatism in the modelling and subsequent assessment, a 6-legged jacket has been assumed for the sediment dispersal assessment. This also ensures that there is redundancy in the assessment to cater for any repeat drilling events, for example due to equipment failure or operational constraints due to inclement weather. As such, it can be assumed that the 6-legged pin pile option develops a greater volume of drill arisings over a longer period so is considered to lead to a comparatively greater effect. This scenario is thereby considered representative but suitably precautionary.

The locations of the OSP foundation for both Project Option 1 and Project Option 2 are only 0.29 km apart, on the western margin of the array area and bordering the seaward limit of the ECC. Both sites have similar water depths (around 41 m below LAT) and ground conditions.

The ground model for the proposed development (GDG, 2024) interprets the available geophysical and geotechnical data with the depth to bedrock at the OSP locations at around 23 m below seabed (Figure A4). Above the bedrock are various layers of glacial till overlain by Holocene sediments which are predominantly formed of fine particles.

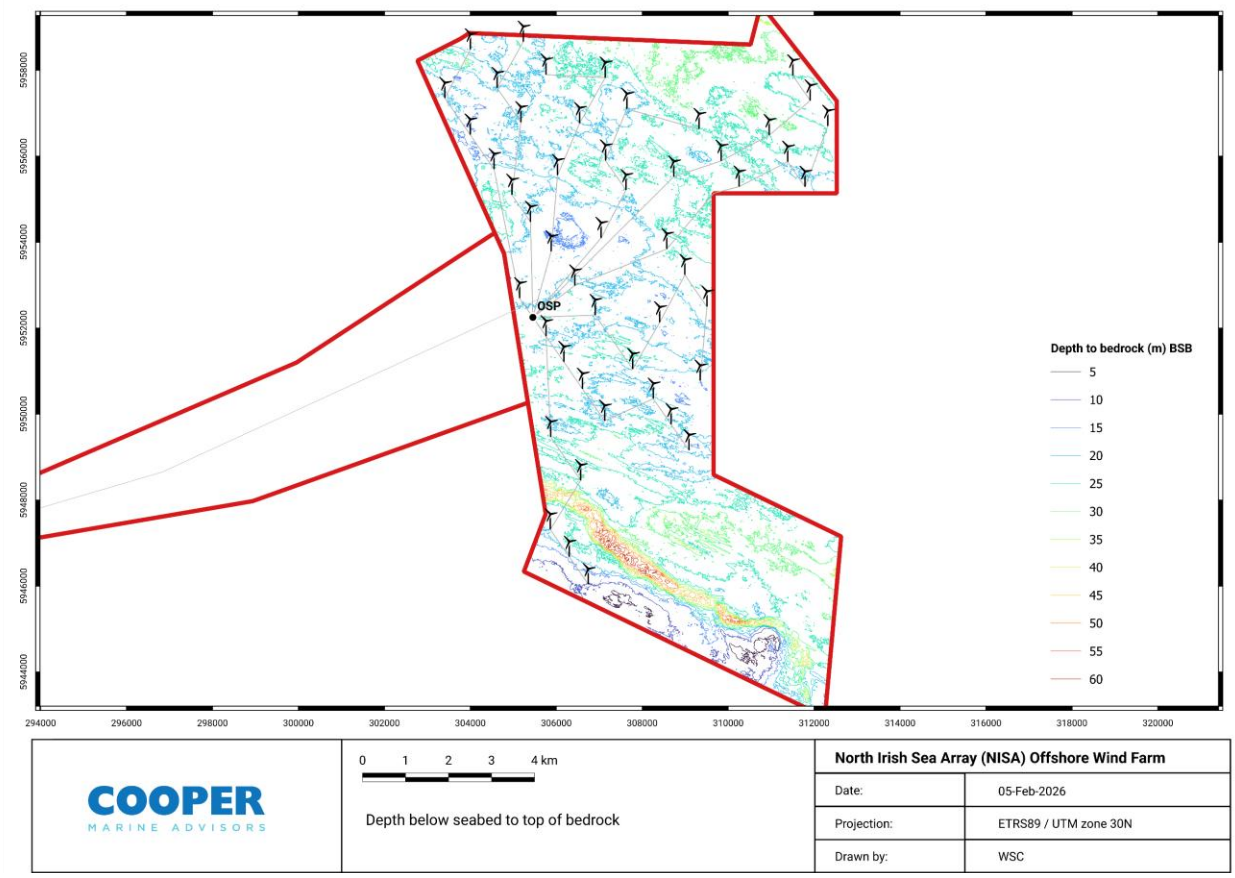

Figure A4. Isochore contours to top of bedrock across the array area (Project Option 1) (replaces Figure 3 in Appendix 10.1 of the 2024 EIAR)

Drilling is planned to a depth of 60 m below seabed to secure the pin piles into the sub-surface layer of bedrock. Details of the underlying seismic stratigraphic (geological) units over this depth are taken from the proposed development’s Ground Model (GDG, 2024). Unit 1 to Unit 6 represent the upper soil layers to around 23 m below seabed and comprise of Holocene sediments over glacial till. Unit 7 is not present at the location of the OSP. From 23 to 60 m below seabed, Unit 8 represents a more resistant bedrock layer.

The drilling process will create drill arisings with all material taken back to the pile installation vessel to be disposed of at sea from a fall pipe stationed up to 100 m away. The sediment discharge of drill arisings is therefore from the sea surface with fine particles which will disperse away as a sediment plume.

The quantification of release rates for drill arisings is based on drilling out the entire pile embedment depth. The upper soil layers (Unit 1 to Unit 6) are expected to be drilled out relatively quickly (estimated rate of 10 m/hr) followed by drilling out of more resistant bedrock (Unit 8) from 23 to 60 m below seabed at rate of around 0.75 m/hr.

Drilling will commence for a single pin pile with each subsequent pile commencing two hours later, up to a maximum of four piles being drilled out together.

- The first pin pile is estimated to take around 51 hours to complete (T+0 to T+51).
- The second pin pile will commence around two hours later (T+2 to T+53).
- The third pin pile will commence around four hours later (T+4 to T+55).
- The fourth pin pile will commence around six hours later (T+6 to T+57).
- The fifth pin pile will commence two hours after the first pin pile is completed (T+53 to T+104).
- The sixth pin pile will commence two hours after the second pin pile is completed (T+55 to T+T+106).

On this basis, the total time to complete the foundation drilling is estimated to be 106 hours, equivalent to around 4.5 days.

Along with the drilling rate, the dry density and volumes of soil and bedrock establish the discharge properties of the drill arisings. Values of dry density for each seismic unit over the depth of drilling are referenced from the closest borehole data (NISA-2022-06-BH) from the geotechnical site investigation (Fugro, 2024).

Table A3 provides a summary of release rates for drill arisings for a single pin pile. These rates are repeated for all six piles with the phasing previously described.

Table A3. Release rates of fine sediments from drilling out pin piles at the OSP foundation (replaces Table 6 in Appendix 10.1 of the 2024 EIAR)

Seabed layer	Time to complete (s)	Fine sand (tonnes/s)	Very fine sand (tonnes/s)	Coarse silt (tonnes/s)	Medium silt (tonnes/s)
Unit 1	1,177	0.0076	0.0203	0.0589	0.0320
Unit 2	2,120	0.0221	0.0221	0.0503	0.0184
Unit 4	684	0.0000	0.0118	0.0826	0.0531
Unit 5a	212	0.0016	0.0032	0.0691	0.0835
Unit 5b - 6	4,165	0.0111	0.0089	0.1286	0.0643
Unit 8 (bedrock)	176,544	0.0087	0.0043	0.0022	0.0022

The consequence of sediment plumes developed from drilling for pin piles at the OSP location has been assessed with suitable modelling tools as impact pathway C-02 and is discussed in Appendix A10.2.

No drilling is required at any WTG location.

There are no other changes to this section. Refer to Section 4.2.2 in Appendix 10.1 of the 2024 EIAR.

4.2.6. Cable installation

Changes to this section (previously Section 4.2.3 in the 2024 EIAR) include a response to RFI 7(f), more recent site information identified in Section 1.2, and a modified array layout. Trenching methods and dimensions remain the same as the 2024 EIAR. (RFI 1(b)) which is identified in Section 1.2.

a. Trench dimension

There are no other changes to this section. Refer to Section 4.2.3 a. in Appendix 10.1 of the 2024 EIAR.

b. Trenching method

The change in this section is due to further explanation provided in response to RFI Section 7 (f) where An Bord Pleanála requested the Developer justify the release height of 3 m above seabed in the trenching simulation. Therefore, Section 4.2.3.b in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The trenching option which is likely to develop the greatest level of seabed disturbance and formation of sediment plumes is considered to be the fluidisation of seabed sediments by a jetting tool.

Fine sediments have the longest period of settlement and during this period have the potential to be advected and dispersed furthest away from the trench by hydrodynamic currents in the form of a sediment plume. In contrast, coarse grained sediments will settle quickly back into the trench without being advected further away.

For the jetting option, the finer sediments have the potential to be raised into suspension above the seabed. For the purpose of modelling sediment plumes, the release height of sediment is conservatively taken to be equal to the depth of excavation, i.e. 3 m above the seabed, with settlement occurring thereafter.

For reference, a comparable investigation of sediment plumes related to cable trenching, undertaken for Empire Offshore Wind (Deltares, 2022), applied source terms for far-field sediment plume modelling with a release of fine sediments 1 m above seabed for a 2.44 m trench depth produced by a *CAPJET* jetting tool (cable installation system developed by Nexans) operation, and 2 m above seabed for a MFE operation. These heights above seabed were determined by near-field CFD modelling. For the proposed development, a 3 m height above seabed for a 3 m trench excavated with MFE is entirely consistent with this previous work. In all cases, these heights above seabed are considered conservative for the development of far-field sediment plumes, noting a release height closer to the seabed reduces the settlement period and limits the potential for wider advection.

There are no other changes to this section. Refer to Section 4.2.3.b in Appendix 10.1 of the 2024 EIAR.

c. Trenching rate

There are no other changes to this section. Refer to Section 4.2.3 c. in Appendix 10.1 of the 2024 EIAR.

d. Trenching scenarios

There are no other changes to this section. Refer to Section 4.2.3 d. in Appendix 10.1 of the 2024 EIAR.

e. Array area scenario

This section has been updated to incorporate the latest particle size analysis information from a benthic ecology survey undertaken in 2025 (Aquafact, 2025) as well as vibrocore data from a geotechnical survey in 2024 (N-Sea, 2024), in addition to a modified indicative array layout. Therefore, Section 4.2.3.e in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

Based on the indicative WTG layouts, and available sediment information from the geophysical and geotechnical surveys (Fugro, 2022 and N-Sea, 2024) and benthic surveys (Natural Power, 2022 and Aquafact, 2025), trenching in the north-eastern part of the array area is likely to encounter the highest proportion of fine sediments with the potential to form the largest sediment plume. This has been established based on the particle size analysis from grab samples #8 and #AR-8 (Natural Power, 2023 and Aquafact, 2025) and vibro-core sample 47_VC (N-Sea. 2024).

Accordingly, the array area cable trenching scenario applies a 1.5 km section of inter-array cables for this area, running between WTG-T47 to WTG-T-44, Project Option 1 (Figure A5).

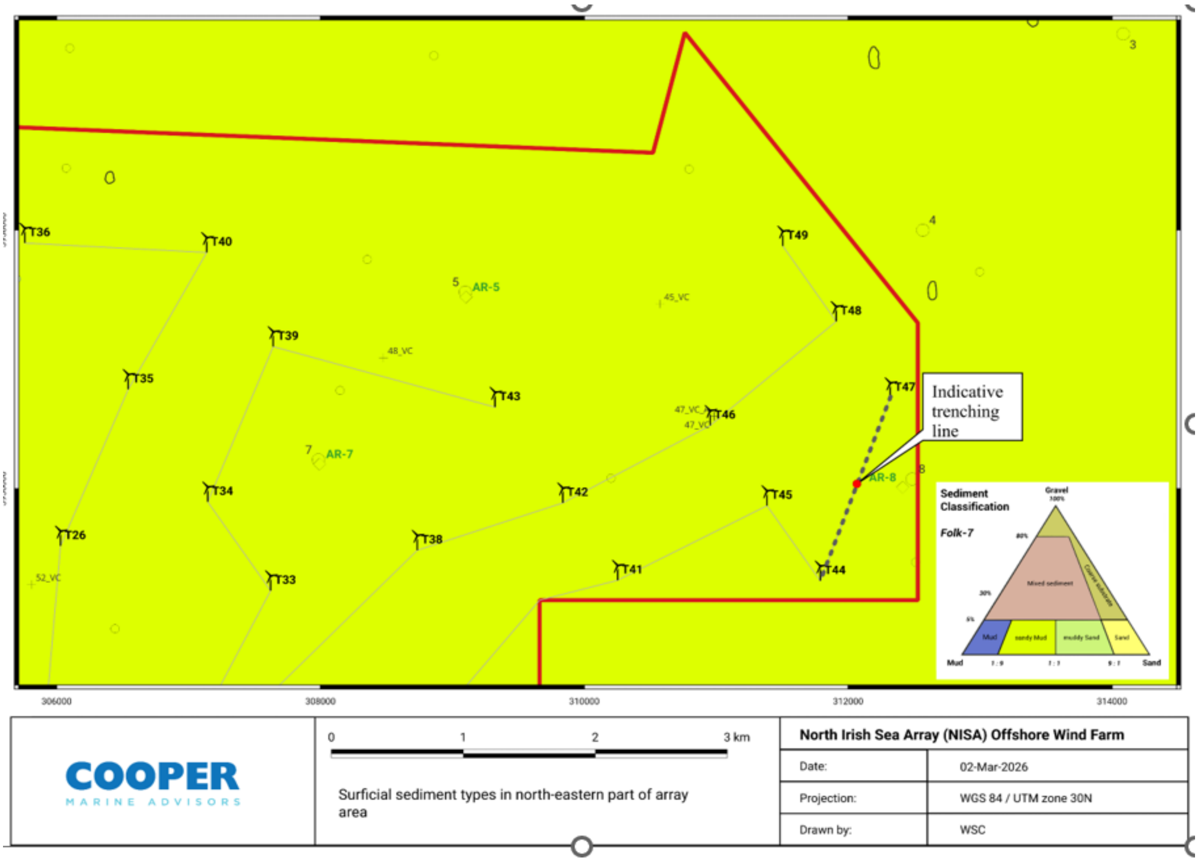

Figure A5. Surficial sediment types in northern part of array area

This length of inter-array trenching is expected to take around 5 hours to complete based on a trenching rate of 300m/hr over a distance of around 1.5 km.

The particle size analysis (PSA) of grab sample #8 establishes local surficial sediment as very poorly sorted "sandy Mud" with 100% of material considered to be fine sediments (fine sand, very fine sand, coarse silts and medium silts). This sediment classification is also consistent with the interpretation from the geophysical survey (Fugro, 2022) which maps "sandy Mud" across the majority of the array area. The dry density for sediments at this location is determined to be up to 1.33 Mg/m^3 from vibrocore measurements (NISA_2023_47_VC) obtained from geotechnical site investigations (N-Sea, 2024).

Table A4 provides a breakdown of the mass input for the various categories of fine sediment based on the worst-case trenching option. These quantities are applied to the far-field modelling of sediment plumes for this location. The estimated time for different particle sizes to fall out of suspension from a height of 3 m above the seabed (the assumed height of sediment disturbance, Section 4.2.6.2) is also provided, indicating that the smallest particles (medium silt and smaller) may take over two hours to fully settle out (in still water conditions).

Table A4. Mass input of fine sediments from inter-array trenching between WTG-T47 to T44 (replaces Table 7 in Appendix 10.1 of the 2024 EIAR)

Sediment type	Size range (mm)	Time to fall out of suspension (s)	% Contribution in Sample	Mass input (tonnes/s)
Fine sand	0.125 to 0.250	129	2.2	0.007
Very fine sand	0.063 to 0.125	517	12.3	0.041
coarse silt	0.031 to 0.063	2,068	39.8	0.132
medium silt / muds	< 0.031	8,635	45.6	0.152

The consequence of sediment plumes developed from cable installation in the array area has been assessed with suitable modelling tools as impact pathway C-03 and discussed in Appendix A10.2.

There are no other changes to this section. Refer to Section 4.2.3.e in Appendix 10.1 of the 2024 EIAR.

f. ECC scenario

This section has been updated to incorporate the latest particle size analysis information from a benthic ecology survey undertaken in 2025 (Aquafact, 2025) as well as vibrocore data from a geotechnical survey in 2024 (N-Sea, 2024). The indicative ECC cable route remains unchanged. Therefore, Section 4.2.3.f in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The ECC options are the same for both Project Option 1 and Project Option 2.

Along the ECC there will be two export cables laid in parallel with trenches of separation distance of between 50 and 200 m. Each export cable is 18 km in length and is expected to be laid in sequence by a single cable laying vessel.

The area considered to have the highest content of fine sediments along the ECC is where the geophysical survey (N-Sea, 2023) interprets a region of muddy Sand (clayey Sand) immediately seaward of the shallow sand ridge emanating to the north-west of Rockabill (Figure A6). This location is also to the north of the Rockabill Special Protection Area (SPA) and Rockabill to Dalkey Island Special Area of Conservation (SAC). Therefore, sediment plumes dispersing from trenching in this area would present the worst-case to these designated areas.

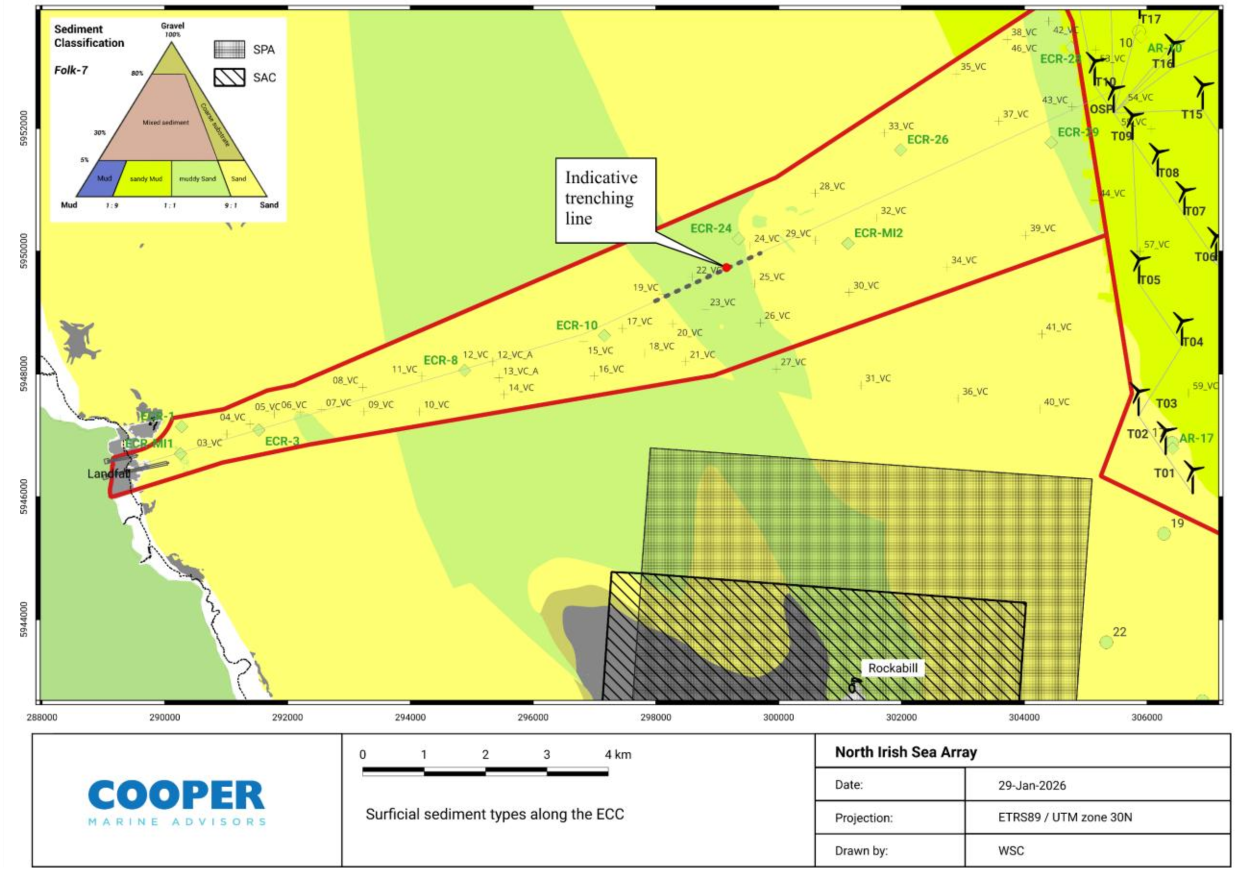

Figure A6. Surficial sediment types along the ECC (replaces Figure 4 in Appendix 10.1 of the 2024 EIAR)

The distance for the indicative export cable alignment to cross the area of 'muddy Sand' is estimated to be at least 1.47 km. To note, the broader-scale interpretation of seabed sediments provided by INFOMAR suggests the area of muddy Sand could be much wider and also extend further to the west.

A combination of the most recent grab samples (Aquafact, 2025) and vibrocore data (N-Sea, 2024), in the vicinity of the indicative trenching line, has been considered to help characterise the top layer of sediment involved in trenching.

The dry density for sediments at this location is determined to be up to 1.62 Mg/m^3 based on vibrocore measurements (NISA_2023_47_VC) obtained from geotechnical site investigations (N-Sea, 2024).

Given the potential uncertainty in the width of the 'muddy Sand', a length of 1.9 km has been conservatively selected with a trenching rate of up to 300 m/hr. This distance is expected to be completed within a period of around six hours with a continuous release of fine sediments.

Table A5 provides details of the mass input for the various categories of fine sediment for the ECC trenching scenario. The estimated time for different particle sizes to fall out of suspension from a height of 3 m above the seabed is also provided indicating that the smallest particles (medium silt and smaller) may take over two hours to fully settle out.

Table A5. Mass input of fine sediments from ECC trenching across 'muddy Sand' (replaces Table 8 of Appendix 10.1 of the 2024 EIAR)

Sediment type	Size range (mm)	Time to fall out of suspension (s)	% Contribution	Mass input (tonnes/s)
Fine sand	0.125 to 0.250	129	33.6	0.136
Very fine sand	0.063 to 0.125	517	36.0	0.146
coarse silt	0.031 to 0.063	2,068	13.2	0.054
medium silt / muds	< 0.0031	8,635	11.7	0.047

Given that there are two export cables to be laid in parallel, then trenching for the second cable is expected to replicate the same effects as laying the first cable although for a subsequent temporal period. Therefore, for fine sediments there will be separate phases of sediment plumes in the short-term from each period of cable trenching, but a combined effect for sediment deposition in the long-term.

The consequence of sediment plumes developed from cable installation along the ECC has been assessed with suitable modelling tools as impact pathway C-04 and discussed in Appendix A10.2.

There are no other changes to this section. Refer to Section 4.2.3.f in Appendix 10.1 of the 2024 EIAR.

4.2.7. Horizontal direction drilling

The change to this section is the numbering; Section 4.2.4 Horizontal direction drilling in Appendix 10.1 of the 2024 EAIR has been renumbered as 4.2.7 Horizontal direction drilling.

There are no other changes to this section. Refer to Section 4.2.4 in Appendix 10.1 of the 2024 EIAR.

a. Exit pits

Changes to this section are a result of further nearshore geophysical surveys of the ECC undertaken by SEP Hydrographic in 2024 and the latest particle size analysis information from a benthic ecology survey undertaken in 2025 (Aquafact, 2025). This includes Figure 5 in Appendix 10.1 of the 2024 EIAR which shall be deleted and replaced with Figure A7, mapping the surficial sediment types toward the landfall area and Table 9 in Appendix 10.1 of the 2024 EIAR which shall be deleted and replaced with Table A5 presenting a breakdown of fine sediments from the excavation of exit pits by MFE. Therefore, Section 4.2.4 a. in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The HDD exit pit option which is likely to encounter the largest quantity of fine sediment is considered to be the central location which is also furthest offshore. In contrast, the northern location is slightly closer to shore and in shallower water, a site which is likely to be under a greater influence of wave-driven currents leading to a comparatively coarser sediment composition.

Geophysical surveys of the nearshore area of the ECC (N-Sea, 2023 and SEP Hydrographic, 2024) interpret surficial sediments in this area as mainly ‘Sand’, along with patches of ‘muddy Sand’ (Figure A7).

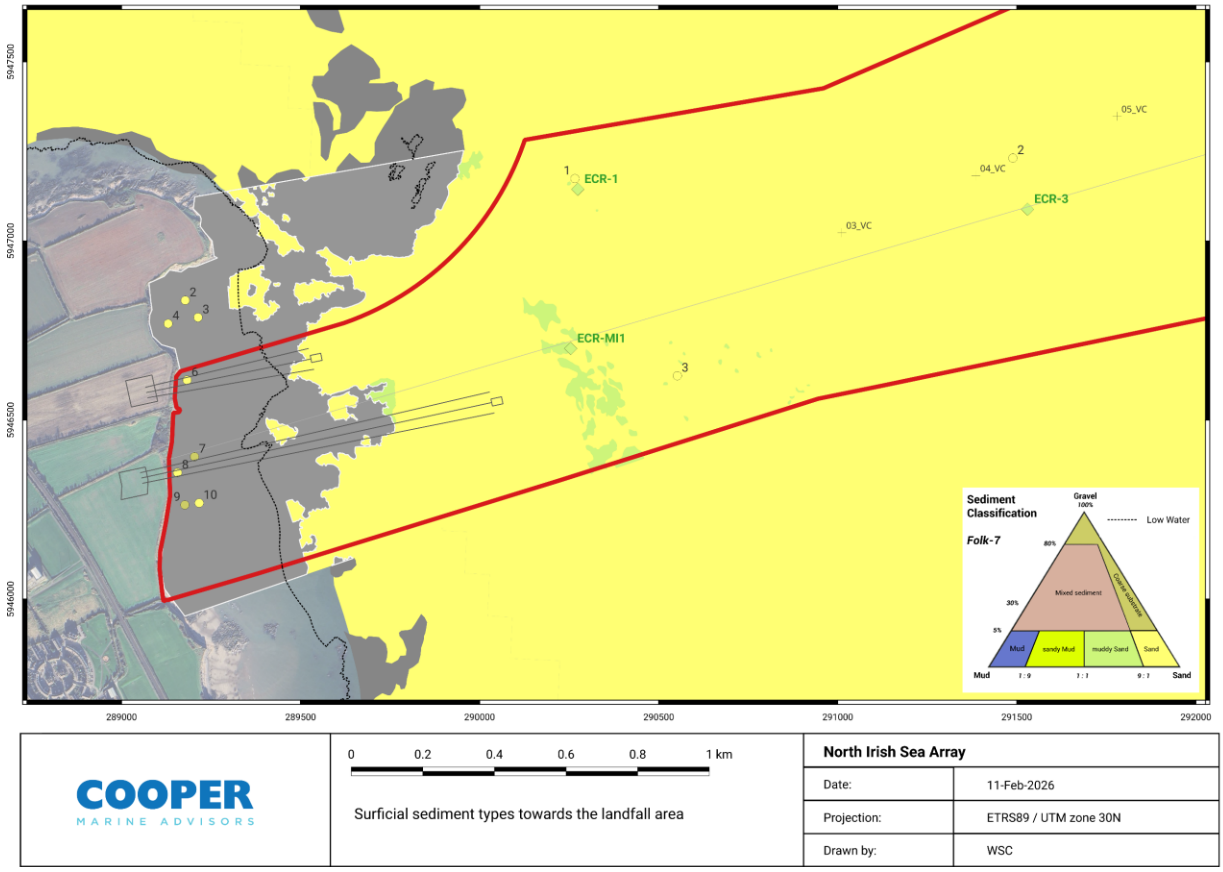

Figure A7. Surficial sediment types towards the landfall area (replaces Figure 5 in Appendix 10.1 of the 2024 EIAR)

The content of fine sediments is assessed with reference to surficial sediments from grab sample ECR-MI1 (Aquafact, 2025)) and near-surface sediments and sediment density from vibrocore 03_VC (N-Sea, 2024), in particular. These sites are considered to remain within the same geological unit, interpreted as GU1 (GDG, 2024).

Table A6. Mass input of fine sediments from excavation of exit pits by MFE (replaces Table 9 in Appendix 10.1 of the 2024 EIAR)

Sediment type	Size range (mm)	Time to fall out of suspension (s)	% Contribution	Mass input (tonnes/s)
Fine sand	0.125 to 0.250	108	18.7	0.0148
Very fine sand	0.063 to 0.125	431	60.0	0.0476
coarse silt	0.031 to 0.063	1,723	9.2	0.0073
medium silt / muds	< 0.031	7,196	10.6	0.0084

There are no other changes in this section. Refer to Section 4.2.4a in Appendix 10.1 of the 2024 EIAR.

4.2.7.1. Bentonite release

This Section in Appendix 10.1 of the 2024 EIAR has been renumbered; Section 4.2.4.b Bentonite release in the Appendix 10.1 of the 2024 EIAR has been replaced with Section 4.2.7.1 Bentonite release. There are no other changes in this section. Refer to Section 4.2.4.b in Appendix 10.1 of the 2024 EIAR.

4.3. Operation and Maintenance

4.3.1. Cable crossings

Changes in this section provide a response to RFI Section 7 (q) where An Bord Pleanála requested the Developer to assess the long term morphodynamic impact of cable armouring (other matters requested under Section 7 (q) are addressed in Appendix A10.3). In addition, the Developer notes that there was an administrative error in the crossing areas provided. Therefore, Section 4.3.1 in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

Although there are presently no pipelines and cables overlapping the proposed development area, a contingency for up to five cable crossings is included to provide flexibility in the design of the inter-array cable layout. The specific locations of each cable crossing are not yet known and are subject to further design considerations. No cable crossings are planned along the ECC.

Cable crossings will be formed of rock berms or mattressing placed on top of buried cables. For each crossing, a pre-lay rock berm will initially be laid along the first cable which has a dimension of 15 m length, 5 m, width and a height of 0.5 m. The second cable will be installed at around 90° to the pre-lay berm and will be protected by a post-lay berm covering a length of 100 m, width of 3 m, and a height of 2 m. Based on these details, each crossing will cover a seabed area of up to 550 m^2, with all five crossings covering up to 2,750 m^2 within the array area.

Cable crossings will be installed during cable installation with their potential effects on the seabed lasting over the operational phase. Each cable crossing has the potential to modify near-bed conditions through increased seabed friction on passing flows (relative to ambient conditions) and the vertical profile of the structure causing flow acceleration around the obstacle. In the case these near-bed flows exceed thresholds for erosion then local scour can occur the periphery of the obstacle. If conditions allow local scour to occur, then this is expected to develop relatively quickly to an equilibrium condition which would be expected to remain stable over the long term, assuming that environmental conditions also remained consistent.

An example of the local seabed response to an obstacle of a comparable scale to planned cable crossings is evidenced by the apparent wreck of SS Downshire which has been located in the southern part of the offshore array area since 1915 (Chapter 18 Offshore Archaeology). From present survey data (Fugro, 2022), the wreck is observed as a debris field covering an area around 94 m (north-south) and 24 m (east–west). These observations show that the height of obstacles associated with the wreck are a little over 1 m above seabed levels. Figure A8 shows 0.5 m isobaths on an exaggerated seabed profile (x 12) surrounding the wreck to help demonstrate the local seabed response.

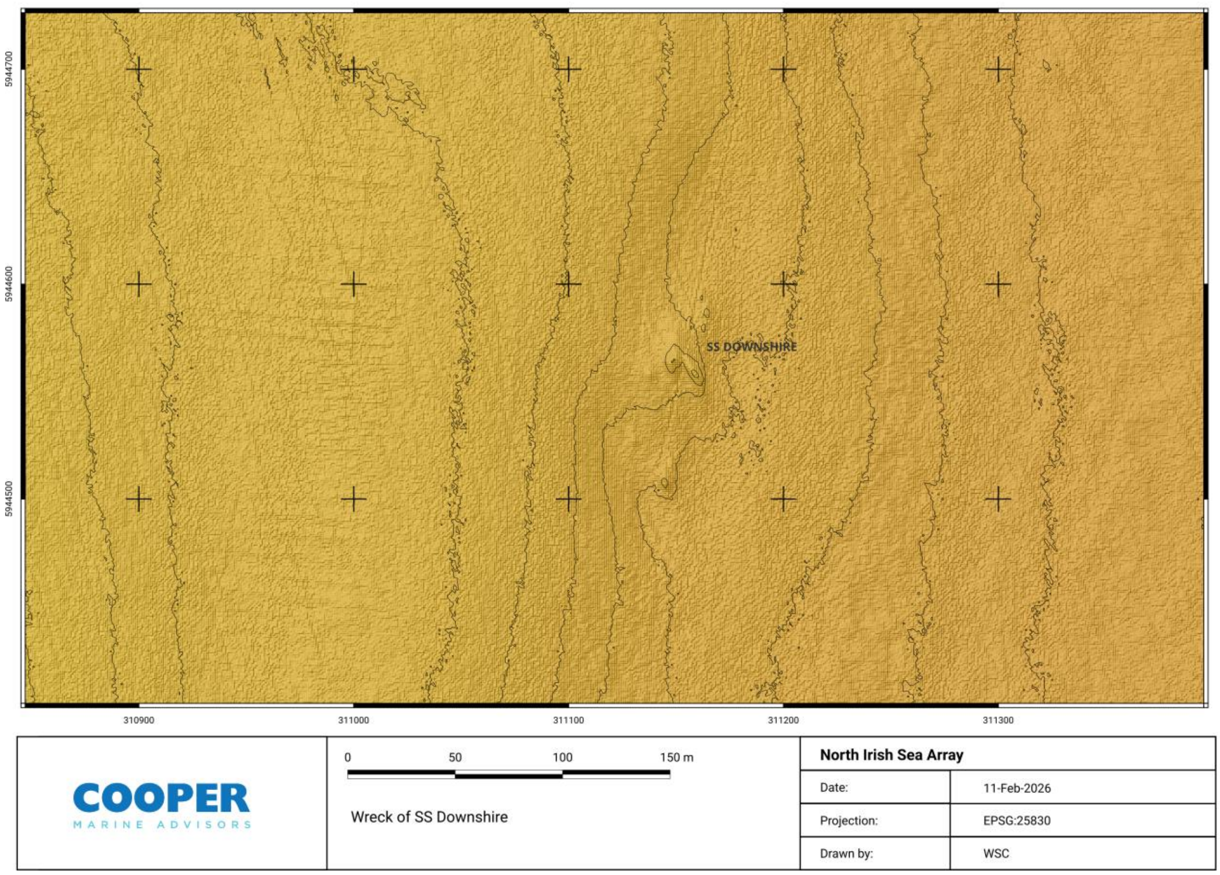

Figure A8. Wreck of SS Downshire

There is no evidence of any pronounced local scour around this wreck, which has been in place for more than 100 years, however, there is some evidence of very shallow flow-aligned seabed lowering (< 0.5 m) extending north and south of the wreck (< 100 m).

According to this evidence, a similar seabed response is anticipated at the location of each cable crossing of comparable scale.

There are no other changes in this section. Refer to Section 4.3.1 in Appendix 10.1 of the 2024 EIAR.

4.3.2. Cable repairs

There are no changes to this section. Refer to Section 4.3.2 in Appendix 10.1 of the 2024 EIAR.

4.3.3. Cable protection

The change in this section provides a response to RFI Section 7 (q) where An Bord Pleanála requested the Developer to assess the long term morphodynamic impact of cable armouring, amongst other issues. The change in this section is the provision of further information relating to the likely seabed response to cable protection placed along the ECC. Therefore, the last sentence of Section 4.3.3 in Appendix 10.1 of the 2024 EIAR shall be deleted;

"*This effect is more likely towards shallower sites than deeper sites. A suitable analogy for the scale of such scour is evidenced from the geophysical surveys (Fugro, 2022 and N-Sea, 2023) where local depressions are observed around larger seabed contacts*."

And replaced with:

For sections of cable protection placed in the array area, the seabed response is likely to be comparable to that observed around the SS Downshire (Section 4.3.1).

For sections of cable protection placed along the ECC, the seabed conditions are shallower and with a higher content of sandy sediment. Figure A9 shows 0.5 m isobaths on an exaggerated seabed profile (x 12) surrounding an unchartered feature along the ECC (N-Sea, 2023) to help demonstrate the likely seabed response.

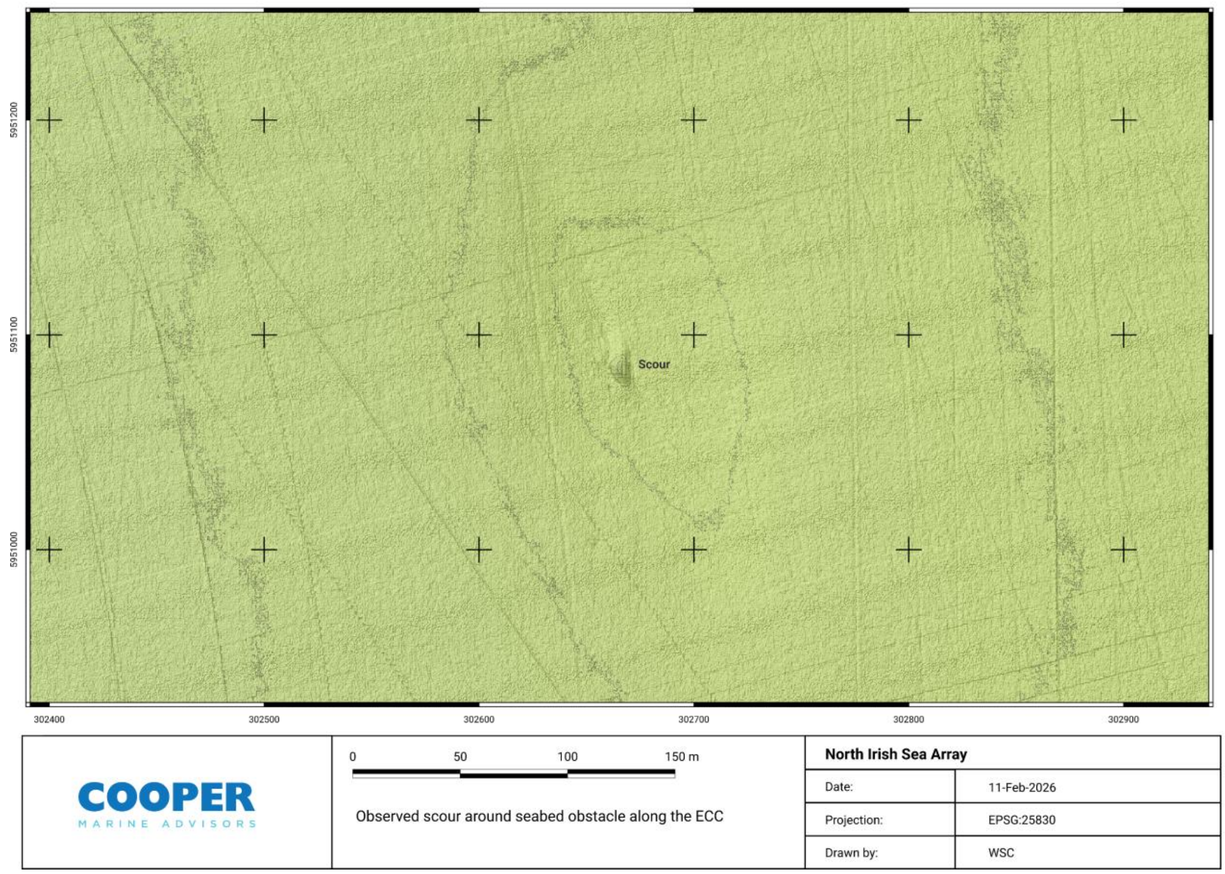

Figure A9. Observed scour along ECC

The obstacle protrudes around 1.4 m from a local depression which appears to be a scour hole with a depth of around 0.75 m below ambient seabed levels. The observed scour depression extends up to 150 m in a flow-aligned direction.

There are no other changes to this section. Refer to Section 4.3.3 in Appendix 10.1 of the 2024 EIAR.

4.3.4. Array-scale blockage

There are no changes to this part of Section 4.3.4. Refer to Section 4.3.2 in Appendix 10.1 of the 2024 EIAR.

a. Foundation types

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations. Therefore, Section 4.3.4 a. in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

Both Project Option 1 and Project Option 2 are considering the use of 3- or 4-legged jacket foundations for WTGs, secured to the seabed with an equivalent number of suction bucket caissons. The single OSP, will use a 4-legged jacket foundation secured to the seabed with an equivalent number of suction bucket caissons or drilled pin piles.

Similar to the assumptions made for the construction phase assessment of the drilling of the pin piles, the OSP blockage assessment allows for a 6-legged jacket foundation with an equivalent number of suction bucket caissons or drilled pin piles. As this will represent a greater effect to the level of blockage, compared to the 4-legged scenario, it is considered suitably precautionary and conservative.

The base width of the jacket structure is 40 m with 6 m diameter support legs. In addition, the jacket will utilise a number of cross-braces. For the purposes of blockage modelling, the base width of the jacket has been assumed to be 50 m which provides additional conservatism. However, based on clarity offered by recent design work which has provided reliable foundation sizing, the Project is committed to retaining the same base width of 40 m that was presented and assessed in the 2024 EIAR.

An individual suction base caisson will have a diameter up to 15 m and a height above seabed of 5 m. In addition, 2 m of ballast be placed on top of the caisson.

Based on available details, the following effective areas of each foundation option are deduced for a representative water depth of 45 m (Table A7). For 4-legged structures, the effective area is deduced for face-on to incident conditions as well as for corner-on.

Table A7. Effective area for foundation options

Foundation type	Cross-section (m^2)	Effective area (m^2)	Blockage ratio
WTG 3-legged SBJ	2,304	1,388	0.60
WTG, OSP 4-legged SBJ, face-on	2,304	1,055	0.46
WTG OSP 4-legged SBJ, corner-on	3,258	1,652	0.50
OSP 4-legged, pin piles, face-on	2,189	994	0.45
OSP 4-legged, pin piles, corner-on	3,096	1,542	0.50
OSP 6-legged, pin piles	2,189	1,534	0.70
OSP 6-legged SBJ	2,304	1,721	0.75

For the purposes of blockage modelling the 4-legged SBJ WTG foundation option presented corner-on to incident conditions has the largest effective area and represents a conservative assumption. The OSP with the largest effective area is the 6-legged SBJ, and this has been modelled as a further level of conservative assessment although the Project has committed to only utilising 4-legged jacket structures.

b. Project Options

The change required in this section is due to the refinement of the installation method of the foundations for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. In the 2024 EIAR, array-scale issues were determined based on WTG monopile foundations and OSP monopile and jacket foundations with pin piles. WTGs are now proposed with suction bucket foundations, and OSPs with jacket foundations installed with either pin piles or suction bucket foundations Array-scale changes are therefore based on these latest refinements. Therefore, Section 4.3.4 b. in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

A group of foundation structures has the potential to develop an array-scale blockage effect.

Project Option 1 and Project Option 2 have different array layouts for 49 and 35 WTG, respectively, with each layout including a single OSP. Each layout occupies the same development area with a slightly larger spacing of foundations with Project Option 2.

Adopting the foundation options with the largest effective areas provides array-scale totals of 81,369 m^2 for Project Option 1 and 58,612 m^2 for Project Option 2. Accordingly, the array layout for Project Option 1 is represented in blockage modelling with the assumption that the lower effective area for Project Option 2 will result in a proportionally lesser effect on waves and flows.

An additional consideration for array-scale blockage effects is the direction of approaching waves relative to the alignment of WTG across the array. The annual wave rose within the array area provides a basis for considering relevant wave directions (Figure A10).

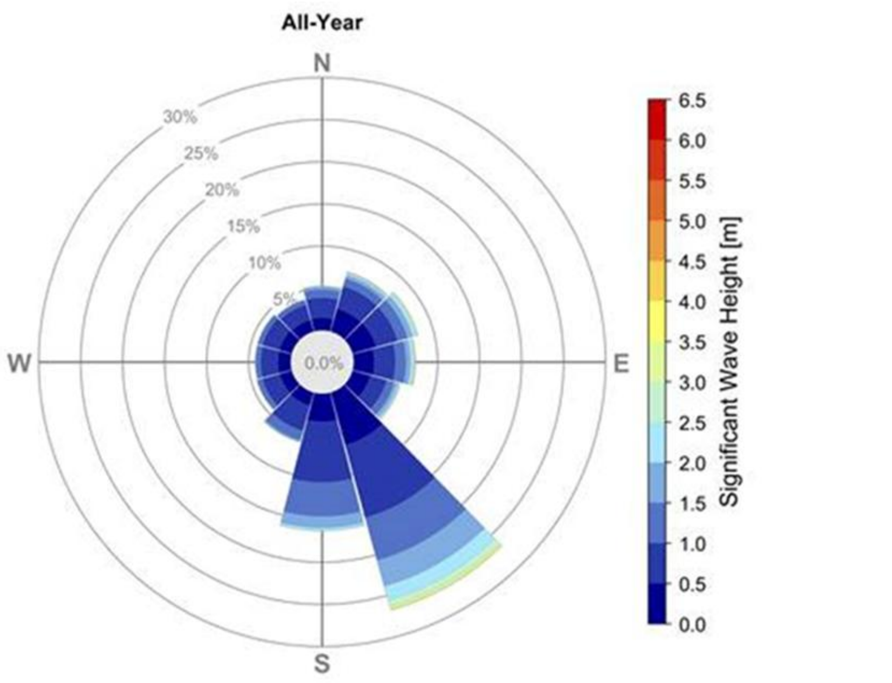

Figure A10. Annual wave rose within array area (MetOceanWorks, 2020) (replaces Figure 6 in Appendix 10.1 of the 2024 EIAR)

The prevailing wave direction of 150° N (± 15°) appears to be aligned with the long axis of WTG across the array area. Notably, the prevailing wave direction is also associated with the direction of largest waves (i.e., storm conditions). Waves from this direction are also responsible for developing the adjacent drift-aligned coastline.

Waves from 060°N (± 15°) appear to be aligned with the short axis, where this is evident. Waves approaching from this direction have the shortest distance to reach the adjacent coastline.

These two wave directions are considered most relevant to determining associated impacts on the adjacent coastline and are the focus of the wave blockage modelling assessment.

The consequence of array-scale blockage effects on waves has been assessed with suitable modelling tools as impact pathway O-01, with the consequence of blockage on flows investigated as impact pathway O-02. The modelling of this impact pathway is discussed in Appendix A10.2.

There are no other changes to this section. Refer to Section 4.3.4 in Appendix 10.1 of the 2024 EIAR.

4.3.5. Scour protection

The change required in this section is due to the refinement of the installation method of the foundations for Project Option 1 and Project Option 2. Therefore, Section 4.3.5 in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

A foundation placed on a mobile seabed is susceptible to local scour with a scale related to the size and shape of the obstacle, the magnitude of accelerated flows passing around the obstacle, and the erodibility of the local seabed to the accelerated flows. Scour protection mitigates the risk of local scour.

Rock, concrete mattresses, or sand and gravel bags will be placed around the perimeter of each foundation (WTG and OSP) to protect structures from the potential of local scouring. Scour protection will have a base diameter of 98 m for all foundations and a height of 1 m. The edge of the scour protection will have a 1 in 3 side slope producing an inner diameter of 92 m. These arrangements are the same for both Project Option 1 and Project 2.

Foundation blockage is the dominant influence on passing waves and currents with scour protection used to mitigate the effect of locally accelerated currents from scouring the local seabed. Scour protection is expected to have a secondary influence (relative to foundation structures) on waves and currents and is represented in the modelling for completeness.

There are no other changes to this section. Refer to Section 4.3.5 in Appendix 10.1 of the 2024 EIAR.

4.4. Decommissioning

Changes are required to this section to reflect the revision of the foundation types for Project Option 1 and Project Option 2. Further information on the design refinements made in response to the RFI, third-party submissions and the continued public and stakeholder consultation is found within Appendix A5.1 Design Refinements. Therefore, Section 4.4 in Appendix 10.1 of the 2024 EIAR shall be deleted and replaced with the following:

The general assumption is that any sediment disturbance effects on the seabed during the decommissioning phase will be comparable in type, but no greater in magnitude and extent, than those which are identified to occur during the construction phase. On this basis, there is no additional modelling of sediment plumes to assess the decommissioning phase and results from the construction phase are considered instead as a suitable indicator for a potential impact pathway.

If all subsea cables are removed, then there is anticipated to be a short period of sediment disturbance of comparable scale to the original cable trenching activity.

Suction bucket foundations will be removed by cutting to 1 m below seabed levels. The sediment plug developed within the caisson at the time of installation will likely remain as a locally raised seabed level.

In the case of the OSP jacket structure being installed with pin piles, only the topside and foundation sub-structure will be removed; then pin piles will be cut 1 m below the seabed and remain *in situ*. The long-term risk remains for the remaining section of pin piles to be exposed at some period in the future if areas were subject to high rates of seabed mobility which lowered level of the seabed, however, the likelihood of any exposure would be minimised if scour protection remains in place.

5. Summary of modelling scenarios

The addition of this section is due to the modelling requirements in accordance to An Bord Pleanála's RFI Section 7.

Table A8 provides a summary of modelling scenarios to assess changes in marine and coastal processes (impact pathways) across the far-field which are further described in Appendix A10.2 with an interpretation of results provided in Chapter 10.

Table A8. Summary of modelling scenarios

Scenario	Phase	Activity	Comment
C-01	Construction	Seabed profiling around 50% of foundations (dredging and sea disposal)	**No longer required**
C-02	Construction	Drilling for OSP pin piles	Updated to align with latest proposed development details and geotechnical interpretation
C-03	Construction	Cable installation - Array Area	Updated to align with latest proposed development details and sediment information
C-04	Construction	Cable installation - ECC	Updated to align with latest proposed development details and sediment information
C-05	Construction	Excavation of HDD Exit Pits	Updated to align with latest proposed development details and sediment information
C-06	Construction	Bentonite release at punch-out	No change
O-01	Operation	Array blockage on waves	Updated to align with latest proposed development details
O-02	Operation	Array blockage on flows	Updated to align with latest proposed development details

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