Morecambe Offshore Windfarm: Generation Assets

Examination Documents

Volume 9

Outline Construction Method Statement

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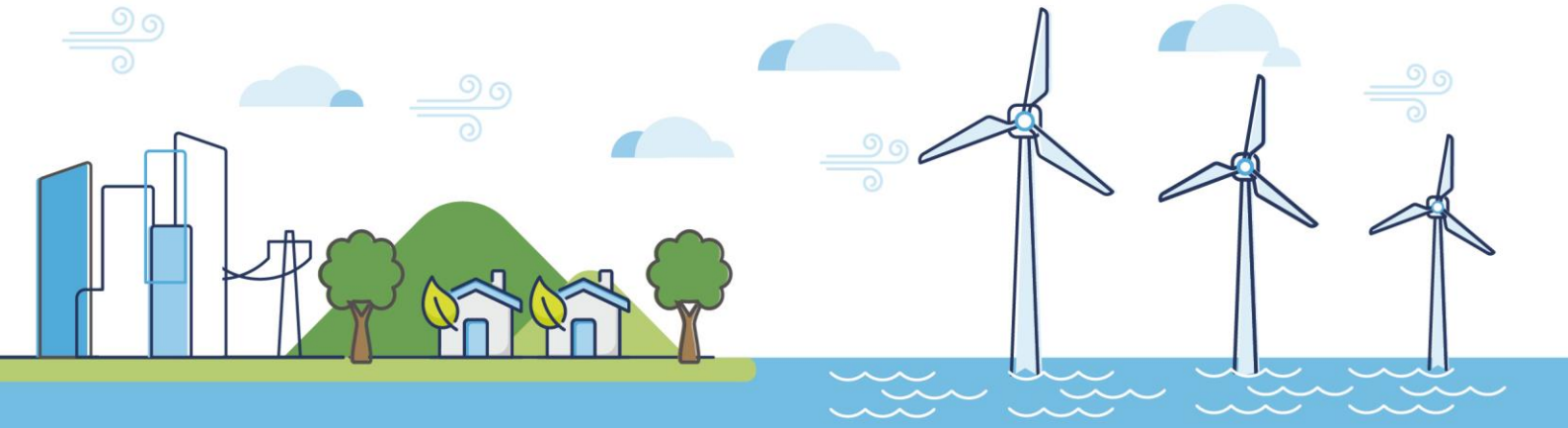
Rev 04



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Glossary of Acronyms

AEZ	Archaeological Exclusion Zone
CAA	Civil Aviation Authority
CBRA	Cable Burial Risk Assessment
CDM	Construction, Design and Management
CMS	Construction Method Statement
CSIP	Cable Specification and Installation Plan
DCO	Development Consent Order
dML	Deemed Marine Licence
EMF	Electromagnetic Fields
ES	Environmental Statement
FLO	Fisheries Liaison Officer
GHG	Greenhouse Gas
GIS	Geographical Information System
HAT	Highest Astronomical Tide
HSE	Health, Safety and Environment
IEC	International Electrotechnical Commission
INNS	Invasive Non-Native Species
IPMP	In Principle Monitoring Plan
JNCC	Joint Nature Conservation Committee
MBES	Multibeam Echosounder
MCA	Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MGN	Marine Guidance Notice
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
OREIs	Offshore Renewable Energy Installations
OSP	Offshore Substation Platform
PAD	Protocol for Archaeological Discoveries
PAS	Publicly Available Specification
PDE	Project Design Envelope
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Management Plan
SAR	Search and Rescue
SSS	Side Scan Sonar

TEZ	Temporary (Archaeological) Exclusion Zones
TH	Trinity House
UK	United Kingdom
UKHO	United Kingdom Hydrographic Office
UWSMS	Underwater Sound Management Strategy
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator

Glossary of Unit Terms

km	kilometre
km²	square kilometre
nm	nautical mile

Glossary of Terminology

Applicant	Morecambe Offshore Windfarm Ltd
Generation Assets (the Project)	Generation assets associated with the Morecambe Offshore Windfarm. This is infrastructure in connection with electricity production, namely the fixed foundation wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s).
Inter-array cables	Cables which link the WTGs to each other and the OSP(s).
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The transmission assets for the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm. This includes the OSP(s)[1], interconnector cables, Morgan offshore booster station, offshore export cables, landfall site, onshore export cables, onshore substations, 400kV cables and associated grid connection infrastructure such as circuit breaker infrastructure. Also referred to in this chapter as the Transmission Assets, for ease of reading.
Offshore substation platform(s)	A fixed structure located within the windfarm site, containing electrical equipment to aggregate the power from the WTGs and convert it into a more suitable form for export to shore.
Platform link cable	An electrical cable which links one or more OSP(s).
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations due to the flow of water.

[1] At the time of writing the Environmental Statement (ES), a decision had been taken that the offshore substation platforms (OSP(s)) would remain solely within the Generation Assets application and would not be included within the Development Consent Order (DCO) application for the Transmission Assets. This decision post-dated the Preliminary Environmental Information Report (PEIR) that was prepared for the Transmission Assets. The OSPs are still included in the description of the Transmission Assets for the purposes of this document as the Cumulative Effects Assessment (CEA) carried out in respect of the Generation/Transmission Assets is based on the information available from the Transmission Assets PEIR.

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1 Introduction

1.1 Purpose

1. This Outline Construction Method Statement (CMS) has been prepared by Morecambe Offshore Windfarm Ltd (the Applicant) for the construction phase of the Morecambe Offshore Windfarm: Generation Assets (the 'Project') (**Figure 1.1**). It has been prepared in order to set out the proposed structure and overview of content of the CMS to be submitted and agreed post-consent. The fully detailed CMS prepared post-consent will present the final design of the Project, selected from the Project Design Envelope (PDE) parameters presented in Chapter 5 Project Description (Document Reference 5.1.5).

2. As set out in Schedule 6, Part 2, Condition 9(1)(d) of the deemed Marine Licence (dML) within the draft Development Consent Order (DCO) (Document Reference 3.1), the CMS must be prepared in accordance with the construction methods assessed in the Environmental Statement (ES) and will include details of:

   - cable specification, installation and monitoring, to include:
     - the technical specification of the inter-array cables and platform link cables
     - a detailed Cable Specification and Installation Plan (CSIP) for the authorised scheme, incorporating a cable burial risk assessment. The detailed cable specification and installation plan will identify the risk of needing any cable protection that would exceed 5% of navigable depth referenced to Chart Datum. In the event that any area of cable protection exceeding 5 percent of navigable depth is identified, the cable specification and installation plan will set out details of any steps (to be determined following consultation with the Maritime and Coastguard Agency (MCA) and Trinity House) to be taken to ensure existing and future safe navigation is not compromised
     - details of cable monitoring including details of cable protection until the authorised scheme is decommissioned which includes a risk based approach to the management of unburied or shallow buried cables.
   - scour protection management and cable protection management (which accords with the outline scour protection and cable protection plan) including details of the need, type, sources, quantity and installation methods for scour protection and cable protection, with details updated and resubmitted for approval if changes to it are proposed following cable laying operations
   - foundation installation methodology, including drilling methods and disposal of drill arisings and material extracted during seabed preparation for foundation and cable installation works

- Wind Turbine Generator (WTG) installation methodology
- Offshore Substation Platform (OSP) topsides installation methodology
- contractors
- associated ancillary works
- guard vessels to be employed.

3. The purpose of the CMS is to set out the construction procedures and good working practices for the installation of the Project infrastructure. The CMS will demonstrate that the construction procedures to be employed align with those set out with the Project ES and that construction related mitigation measures detailed within the ES and captured within the Schedule of Mitigation (Document Reference 5.5), Outline Project Environmental Management Plan (PEMP) (Document Reference 6.2) and Commitments Register (Document Reference 9.31) will be applied during installation. The CMS also incorporates the Outline CSIP (**Annex A**).

4. All contractors (including their subcontractors) involved in the Project will provide input to, and be required to comply with, the final approved CMS through conditions of contract.

Figure 1.1 Morecambe Offshore Windfarm location

1.2 Scope

5. The remit of the CMS is for the Project construction phase. The CMS is applicable to all Morecambe Offshore Windfarm Ltd personnel and contractors carrying out construction activities on behalf of the Project.

1.3 Linkages with other consents management plans

6. This document should be read alongside the following related consents management plans, which will be fully complied with during the construction of the Project:

- Design plan (required under Schedule 6, Part 2, Condition 9(1)(a) of the dML within the draft DCO (Document Reference 3.1))
- Construction Programme (required under Schedule 6, Part 2, Condition 9(1)(b) of the dML within the draft DCO (Document Reference 3.1))
- Outline PEMP (required under Schedule 6, Part 2, Condition 9(1)(e) of the dML within the draft DCO (Document Reference 3.1)) and associated Annexes, including:
  - Annex A: Marine Pollution Contingency Plan
  - Annex B: Chemical Risk Assessment
  - Annex C: Waste management and disposal arrangements
  - Annex D: Contact details and responsibilities of a Fisheries Liaison Officer (FLO)
  - Annex E: Measures to minimise disturbance to marine mammals and rafting birds from vessels
  - Annex F: Measures to minimise the potential spread of Invasive Non-Native Species (INNS)
- Offshore Archaeological Written Scheme of Investigation (WSI) for archaeology (Document Reference 6.10) (required under Schedule 6, Part 2, Condition 9(1)(f) of the dML within the draft DCO (Document Reference 3.1))
- Aids to Navigation Management Plan (required under Schedule 6, Part 2, Condition 9(1)(h) of the dML within the draft DCO (Document Reference 3.1))
- Draft Marine Mammal Mitigation Protocol (required under Schedule 6, Part 2, Condition 9(1)(i) of the dML within the draft DCO (Document Reference 3.1))
- Outline Vessel Traffic Management Plan (required under Schedule 6, Part 2, Condition 9(1)(j) of the dML within the draft DCO (Document Reference 3.1))
- Outline Fisheries Liaison and Co-Existence Plan (required under Schedule 6, Part 2, Condition 9(1)(k) of the dML within the draft DCO (Document Reference 3.1))

- In Principle Monitoring Plan (required under Schedule 6, Part 2, Condition 9(1)(c) of the dML within the draft DCO (Document Reference 3.1))
- Outline Scour Protection and Cable Protection Management Plan (required under Schedule 6, Part 2, Condition 9(1)(d)(ii) of the dML within the draft DCO (Document Reference 3.1))
- Outline Underwater Sound Management Strategy (required under Schedule 6, Part 2, Condition 20) of the dML within the draft DCO (Document Reference 3.1))

1.4 Document structure

7. The CMS is structured as follows (noting that, in practice, the CMS would likely be divided up into separate packages e.g. WTGs, foundations and inter array cables and OSPs):

- **Section 2:** Provides an overview of the Project.
- **Section 3**: Outlines the relevant roles and contact details of the personnel involved in the construction of the Project the responsibilities of each role and the chain of command throughout the construction phase.
- **Section 4**: Sets out the construction management framework for the Project with reference to industry guidance, including in relation to health and safety and environmental management, and provides information on Morecambe Offshore Windfarm Ltd expectations for training and experience for those involved in the construction of the Project.
- **Section 5**: Provides the construction procedures for each component of the Project including key parameters and methodologies and highlights relevant mitigation commitments and good working practices.
- **Section 6**: Sets out the content of the construction close out report.
- **Appendices**: includes Appendices which form part of the CMS, including:
  - Appendix A: Cable specification and installation plan
  - Appendix B: Compliance with the Environmental Statement
  - Appendix C: Pro-forma and contact details for key personnel, contractors and subcontractors
  - Appendix D: Pro-forma for notification to Marine Management Organisation (MMO) of vessels.

2 Project Background

2.1 Project overview

8. The Project windfarm site is 87km^2 in area and is located approximately 30km from the northwest coast of England. The Project is located wholly within English offshore waters (beyond 12nm from the English coast) (**Figure 1.1**). Key components of the offshore infrastructure will comprise of up to 35 WTGs, up to two Offshore Substation Platforms (OSPs), up to 70km of inter-array cables and up to 10km of platform link cables.

9. Offshore construction is planned to be undertaken over a 2.5 year period, with the Project expected to be fully operational by 2030.

10. The construction activities associated with the Project are authorised as part of the Draft DCO (Schedule 1, Part 1 Authorised Development (Document Reference 3.1)).

11. This section will cross refer to the Design Plan required under Schedule 6, Part 2, Condition 9(1)(a) of the dML within the draft DCO (Document Reference 3.1)).

2.2 Construction programme

12. This section will detail the Construction Programme, required under Schedule 6, Part 2, Condition 9(1)(b) of the dML within the draft DCO (Document Reference 3.1)). It will present the following:

- Key milestone dates for the commencement of the works, the main construction activities and the commissioning of the Project
- Timings for the mobilisation of plant and delivery of materials
- Timing and sequencing of construction and installation works for all elements of the windfarm infrastructure
- Contingency planning for poor weather or other unforeseen delays
- Scheduled date for final completion and commissioning of the windfarm

2.3 Windfarm layout

2.3.1 Layout

13. This section will detail the number of WTGs and OSPs to be installed in the windfarm site. The layout of the windfarm site will be detailed, as well as the distance between WTGs. This is secured in the Design Plan under Schedule 6, Part 2, Condition 9(1)(a) of the dML (Document Reference 3.1).

14. The proposed layout of all WTGs and OSP(s) (which shall provide for two lines of orientation and otherwise be in accordance with the recommendations for

layout contained in Marine Guidance Notice (MGN) 654 and its annexes), including grid coordinates of the centre point of the proposed location for each WTG and OSP(s), will be submitted to the MMO in consultation with the relevant statutory nature conservation body, Trinity House and the MCA, as appropriate. This is required under Schedule 6, Part 2, Condition 9(1)(a)(ii).

2.3.2 Specifications

15. As required under Schedule 6, Part 2, Condition 9(1)(a)(i) and 9(1)(a)(iii) of the dML (Document Reference 3.1), the specification of Project infrastructure will be detailed in the relevant sections of **Section 5** to demonstrate that the dimensions of the Project infrastructure are within the consented envelope.

3 Roles and Responsibilities

3.1 Overview

16. This section of the CMS will set out the roles and responsibilities and chain of command of all relevant project personnel in relation to the CMS. Roles and responsibilities will be defined in the CMS prepared post-consent, following the appointment of the relevant contractors. Example roles include the following:

- Client
- Project Manager
- Design Champion
- Quality Manager
- Health, Safety and Environment (HSE) Manager
- Incident Manager
- Environmental Manager
- Marine Coordinator
- Consent Manager
- Package Managers
- Principal Contractor
- Contractors
- Principal Designer
- Company FLO
- Retained Archaeologist.

17. All Morecambe Offshore Windfarm Ltd personnel and contractors will have a responsibility to comply with the requirements of the CMS. The key roles identified above will be further described in the sections below, with contact details provided in **Section 3.3**.

18. A figure will be provided in the CMS prepared post-consent, illustrating the key roles and chain of command.

3.2 Key roles in relation to the implementation of the CMS

3.2.1 Client

19. To include the role and key responsibilities of the Client.

3.2.2 Project Manager

20. To include the role and key responsibilities of the Project Manager.

3.2.3 Design Champion

21. To include the role and key responsibilities of the Design Champion.

3.2.4 Quality Manager

22. To include the role and key responsibilities of the Quality Manager.

3.2.5 HSE Manager

23. To include the role and key responsibilities of the HSE Manager.

3.2.6 Incident Manager

24. To include the role and key responsibilities of the Incident Manager.

3.2.7 Environmental Manager

25. To include the role and key responsibilities of the Environmental Manager.

3.2.8 Marine Coordinator

26. To include the role and key responsibilities of the Marine Coordinator.

3.2.9 Consent Manager

27. To include the role and key responsibilities of the Consent Manager.

3.2.10 Package Managers

28. To include the role and key responsibilities of the Package Managers.

3.2.11 Principal Contractor

29. To include the role and key responsibilities of the Principal Contractor.

3.2.12 Contractor

30. To include the role and key responsibilities of contractors.

3.2.13 Principal Designer

31. To include the role and key responsibilities of the Principal Designer.

3.2.14 Company FLO

32. To include the role and key responsibilities of the FLO. This section will also provide cross reference to the roles and responsibilities set out within the Outline Fisheries Liaison and Co-Existence Plan (Document Reference 6.3).

3.2.15 Retained Archaeologist

33. To include the role and key responsibilities of the Retained Archaeologist.

3.3 Key contact details

34. This section of the CMS will provide a table of contact details for the key roles above.

35. The Applicant will provide the name, address and function of any agent, contractor or subcontractor that will carry out any of the licensed activities on behalf of the Applicant to the MMO in writing no less than 24 hours before that agent, contractor or subcontractor carries out any such licenced activities, , as required by Schedule 6, Part 2, Condition 13 of the dML within the draft DCO (Document Reference 3.1). This will be delivered through the submission of the proforma included in **Appendix D**.

4 Morecambe Offshore Windfarm Ltd Construction Management Framework

4.1 Overview

36. This section of the CMS will provide an overview of the overarching construction management framework within which the Project will be delivered. It will detail the prevailing industry guidance available to inform the Project construction management framework, highlight wider obligations under the Construction (Design and Management) Regulations 2015 (CDM regulations) and the Project PEMP, and provide details of training and competence requirements, before summarising contractor and subcontractor obligations.

37. The Project construction management framework will ensure the safe, compliant installation of the Project components, as described in the CMS.

4.2 Industry guidance

38. This section will include the latest industry guidance documents that have been produced to guide good working practices in relation to construction management for offshore windfarms. This section will be completed post-consent with the latest guidance available to inform the construction phase. Examples include:

- MGN 654 Offshore Renewable Energy Installations (OREIs) – Guidance on United Kingdom (UK) Navigational Practice, Safety and Emergency Response Issues
- MGN 675 (M+F): The Merchant Shipping (Control and Management of Ships' Ballast Water and Sediments) Regulations 2022.
- Publicly Available Specification (PAS) 2080: Carbon Management in Buildings and Infrastructure (2023) (see **Section 5.4**)
- Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Joint Nature Conservation Committee (JNCC) (2010)
- UK Government (2025). Policy paper - Reducing marine noise. Published 21 January 2025.

4.3 Regulatory requirements

39. The Project will be a notifiable project for the purposes of the Construction (Design and Management) Regulations 2015 (CDM regulations). The aim of the CDM regulations is to improve health and safety for all personnel and roles in the construction sector.

40. The Applicant will require compliance with the CDM regulations in the design and construction of the Project and will require that all personnel involved in the

construction process follow the company HSE standards and risk management procedures.

4.4 Training and competence

41. This section will include reference to adequate relevant training and experience, competence and certification.

42. The Applicant will require that all personnel engaged in the construction of the Project have adequate relevant experience and training, in order to safely perform the duties that are required of them within their remit. The Applicant will require that all employed personnel are adequately supported at all levels.

43. Where training or certification is required to perform duties under a role, the Applicant will require that relevant certification and training records are made available for inspection where necessary.

44. Contractors will provide appropriate training and certification of training and will require that subcontractors adhere to the Applicant's requirements in regard to training and competence through conditions of contract.

45. The Applicant's personnel, contractors and subcontractors will undergo site inductions prior to commencing work on site and attend regular toolbox talks as appropriate.

46. The Applicant will also hold periodic incident response exercises, including spill response exercises, to ensure all relevant personnel, contractors and subcontractors have experience with implementing emergency/spill response procedures, in order to build competence.

4.5 Contractor and subcontractor obligations

47. The Applicant will require contractors and subcontractors, in undertaking the construction of the Project, to comply with all relevant environmental and maritime legislation and that all necessary licences and permissions are obtained by the contractors and their subcontractors, through conditions of contract. The Applicant will require that all commitments, as set out in the Schedule of Mitigation (Document Reference 5.5), Outline PEMP (Document Reference 6.2) and Commitments Register (Document Reference 9.31) and good working practices (see **Section 5**) are applied throughout the construction phase.

48. In accordance with CDM regulations, a Principal Contractor will be clearly defined for the works, or discrete package of works. They have the duty to plan, manage and monitor the construction phase of a project involving more than one contractor. A single Principal Contractor is unlikely to be assigned for the full project rather, they may vary between packages of work.

5 Construction Procedures, Commitments and Good Working Practices

5.1 Overview

49. This section will form the 'core' of the CMS, setting out the final design of the Project and the final construction methods and procedures to be followed, selected from the PDE presented in Chapter 5 Project Description (Document Reference 5.1.5), including key equipment. This section will include the relevant commitments as set out in the Commitments Register (Document Reference 9.31), Outline PEMP (Document Reference 6.2) and Schedule of Mitigation (Document Reference 5.5) as relevant to each component, methodology and/or procedure, and good working practices.

50. This section will be set out in accordance with key construction milestones, currently anticipated to be as follows:

- Stage 1: Seabed preparation
- Stage 2: Foundation (and scour protection) installation
- Stage 3: OSP topside installation
- Stage 4: Inter-array and platform link cable (and cable protection) installation
- Stage 5: WTG installation
- Stage 6: Commissioning

51. This section will cross-refer to the Construction Programme required to be submitted under Schedule 6, Part 2, Condition 9(1)(b) of the dML within the draft DCO (Document Reference 3.1)).

5.2 Commitments and good working practices

52. The overarching commitments and good working practices, as committed to in the Project ES, and which will be applied to all stages of the Project installation, are set out in the Commitments Register (Document Reference 9.31), Outline PEMP (Document Reference 6.2) and Schedule of Mitigation (Document Reference 5.5). Commitments relevant to each stage of the construction process will be included in the relevant sections of the final CMS.

5.3 Construction ports and marine coordination centre

53. This section will present the proposed arrangements for the construction port and Marine Coordination Centre (MCC) which will support the Project construction phase activities.

5.4 Opportunities for reductions in construction phase emissions

54. The Applicant will consider opportunities for reductions in construction phase emissions of the Project, which can be captured through the implementation of

a standard carbon management process. The 'PAS 2080: Carbon Management in Buildings and Infrastructure' (2023) published by the British Standards Institution' provides guidance to demonstrate leadership and establish effective governance mechanisms for reducing whole life carbon in built environment projects. The following management measures are considered best practice for further consideration as the Project develops but are not required as additional mitigation:

- Optimise the efficiency of construction activities to reduce fuel and material consumption and promote resource efficiency, e.g., inclusion of delivery and transport coordination requirements in Vessel Management Plans (an Outline Vessel Traffic Management Plan is provided with the DCO Application; Document Reference 6.9), adoption of waste hierarchy in construction management plans.
- Explore opportunities to reduce embodied carbon and other construction emissions by developing carbon-focused procurement criteria and incentive mechanisms for material suppliers and project partners, such as low carbon and recycled materials, circular construction methods and performance benchmarking.
- Review and include key principles of PAS 2080 with respect to carbon management in the relevant project documents or a project-specific Carbon Management Plan, such as:
    - Establish and communicate carbon management goals, roles and responsibilities, requirements and procedures to parties involved in the delivery of the Project.
    - Practise the greenhouse gas (GHG) mitigation hierarchy over the Project's lifetime (see Chapter 21 Climate Change: Section 21.3.3.1 (APP-058)).
    - Promote collaboration and information sharing across the Project's value chain to encourage whole life carbon reductions and continual improvement.
    - Provide training and raise awareness among the Project team and partners on key carbon emission sources and low carbon solutions

5.5 Stage 1: Seabed preparation

55. This section will set out the following in relation to seabed preparation activities:

- Description of activity
- Key equipment and methodology, to include details of material extracted during seabed preparation (in line with Schedule 6, Part 2, Condition 9(1)(d)(iii) of the dML within the draft DCO (Document Reference 3.1)) and to include a list of vessels (see also **Appendix D**)

- Commitments and good working practices, particularly with reference to those set out in **Table 5.1**.

56. The final methodology for seabed preparation will be selected from the design envelope presented in Chapter 5 Project Description (Document Reference 5.1.5) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the ES in **Appendix B**.

Table 5.1 Commitments made in relation to seabed preparation (from Document Reference 9.31).

Reference number	Topic(s)	Description of mitigation measure
C006	Physical processes, benthic ecology, fish and shellfish ecology	Excavated sediments would be disposed within the order limits so there is no net loss of material from the physical processes system.
C057	Physical processes, benthic ecology	Boulder clearance would take place within the 25m disturbance corridor and their relocation would be randomised to avoid creating any artificial linear seabed features.
C053	Benthic ecology	Micro-siting would be undertaken around benthic habitats of conservation, ecological or economic importance constituting reef habitats of principal importance as listed under Section 41 of the Natural Environmental and Rural Communities Act 2006.
C019	Physical processes, benthic ecology, sediment and water quality, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	Micro-siting (for foundations and cable installation) would be used where possible to minimise the requirements for seabed preparation prior to foundation and cable installation.
C049		Preparation of Construction Method Statement (CMS), post-consent and pre-construction, setting out detailed Wind Turbine Generator (WTG)/Offshore Substation Platform (OSP) foundation and cable installation methods and techniques (based on final Project design).
C015	Marine archaeology and cultural heritage	AEZs would be employed around known archaeological significant anomalies and Temporary Exclusion Zones (TEZs) would be employed around areas where an anomaly is not visible in the survey data, but it is likely to exist.
C016		In order to account for unexpected discoveries of archaeological material during construction, operation and decommissioning, a Protocol for Archaeological Discoveries (PAD) would be used. This would be produced in line with the relevant principles laid out in the Written Scheme of Investigation (WSI).

5.6 Stage 2: Foundation installation

57. This section will set out the following in relation to foundation installation:

- Final specification for all WTG and OSP foundations
- Specification for any scour protection (with full details set out in the Outline Scour Protection and Cable Protection Management Plan (REP1-056)), including details of the source of the rock materials to be used (if rock berm is chosen as the scour protection method)
- Key equipment and construction methodology, to include details of drilling methods and disposal of drill arisings where applicable (in line with Schedule 6, Part 2, Condition 9(d)(iii) of the dML within the draft DCO (Document Reference 3.1)) and piling methodology, if applicable and to include list of vessels (see also **Appendix D**)

58. Commitments and good working practices, particularly with reference to those set out in **Table 5.2**.

59. The final design for the foundations and the final methodology for foundation assembly and installation will be selected from the design envelope presented in Chapter 5 Project Description (Document Reference 5.1.5)) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the ES in **Appendix C**.

Table 5.2 Commitments made in relation to foundation installation (from Document Reference 9.31).

Reference number	Topic(s)	Description of mitigation measure
C053	Benthic ecology	Micro-siting would be undertaken around benthic habitats of conservation, ecological or economic importance constituting reef habitats of principal importance as listed under Section 41 of the Natural Environmental and Rural Communities Act 2006.
C049	Physical processes, benthic ecology, sediment and water quality, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	Preparation of Construction Method Statements (CMS), post-consent and pre-construction, setting out detailed Wind Turbine Generator (WTG)/Offshore Substation Platform (OSP) foundation and cable installation methods and techniques (based on final Project design).
C050		Application of foundation installation techniques using methods and equipment most suitable for seabed conditions and where possible to minimise sediment suspension.
C054		Consideration will be given to scour and cable protection that would be more readily removable at the time of decommissioning.
C018		Scour protection is built into the design for each foundation type in consideration and where

Reference number	Topic(s)	Description of mitigation measure
		installed after the foundation, it would be installed as early as practicable (typically within the same season after the foundation installation).
C052		The selection of scour protection methods, where required, will be evaluated and further considered post-consent in the Offshore Construction Method Statement, focusing on both engineering and suitability and environmental recoverability. Non-plastic alternatives, if available at the time, will be considered once the requirements are better understood.
C006	Physical processes, benthic ecology, fish and shellfish ecology	Excavated sediments would be disposed within the order limits so there is no net loss of material from the physical processes system.
C007	Fish and shellfish ecology, marine mammals	The Marine Mammal Mitigation Protocol (MMMP), produced in accordance with the content of the Outline MMMP (APP-149), will be developed in the pre-construction period and based upon best available information, methodologies, industry best practice, latest scientific understanding. The MMMP will detail how the Applicant would reduce the risk of underwater noise from piling from causing auditory injury to the marine mammals that could be present in and around the Project.
C023		A soft start and ramp up protocol for pile driving (if piled foundations are selected) would also allow mobile species to move away from the area before the maximum hammer energy with the greatest noise impact area is reached.
C024		No Project concurrent piling is to be undertaken (for foundations requiring piling (monopiles or jackets with pin-piles)).
C008		In the event that driven or part-driven pile foundations are proposed, monitoring must include measurements of underwater sound generated by the installation of the first four piled foundations of each piled foundation type to be installed unless the Marine Management Organisation (MMO) otherwise agrees in writing.
C009		Development of, and adherence to, an Underwater Sound Management Strategy (UWSMS) (developed from the Outline Document Reference 9.32). The UWSMS will detail how the Applicant would reduce the risk of underwater noise from piling from causing auditory injury and disturbance to marine mammals and fish that could be present in and around the Project.

Reference number	Topic(s)	Description of mitigation measure
C055		Management of underwater noise would include the limiting of piling on the same day as Project high order clearance of unexploded ordnance (UXO) without mitigation (if required).
C015	Marine archaeology and cultural heritage	Archaeological Exclusion Zones (AEZs) would be employed around known archaeological significant anomalies and Temporary Exclusion Zones (TEZs) would be employed around areas where an anomaly is not visible in the survey data, but it is likely to exist.
C016		In order to account for unexpected discoveries of archaeological material during construction, operation and decommissioning, a Protocol for Archaeological Discoveries (PAD) would be used. This would be produced in line with the relevant principles laid out in the Written Scheme of Investigation (WSI).
C017	Physical processes, benthic ecology, sediment and water quality, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	For piled foundation types, such as monopiles and jackets with pin piles, pile-driving would be used in preference to drilling, where it is practicable to do so (i.e. where ground conditions allow).

5.7 Stage 3: OSP topside installation

60. This section will set out the following in relation to OSP topside installation:

- Final specification for all OSPs
- Key equipment and construction methodology, including list of vessels (see also **Appendix D**)
- Commitments and good working practices.

61. The final design for OSP(s) and the final methodology for OSP installation will be selected from the PDE presented in Chapter 5 Project Description (Document Reference 5.1.5) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the ES in **Annex C**.

5.8 Stage 4: Inter-array and platform link cable installation

62. This section will set out the following in relation to inter-array and platform link cable installation (with full details set out in **Annex A: Cable specification and installation plan**):

- Final technical specification for all inter-array and platform link cables
- Specification for any cable protection and cable/pipeline crossings (with full details set out in the Outline Scour Protection and Cable Protection Management Plan (REP1-056)), including details of the source of the rock materials to be used (where this is the chosen cable protection method)
- Key equipment and construction methodology, including list of vessels (see also **Appendix D**)
- Details of cable monitoring which includes a risk-based approach to the management of unburied or shallow buried cables (in line with Schedule 6, Part 2, Condition 9(1)(d)(i)(cc) of the dML within the draft DCO (Document Reference 3.1))

63. Commitments and good working practices, particularly with reference to those set out in **Table 5.3**.

64. The final design for the inter-array and platform link cables and the final methodology for inter-array and platform link cable installation will be selected from the design envelope presented in Chapter 5 Project Description (Document Reference 5.1.5) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the ES in **Appendix B**.

Table 5.3 Commitments made in relation to cable installation (from Document Reference 9.31).

Reference number	Topic(s)	Description of mitigation or monitoring measure
C002	Physical processes, benthic ecology, sediment and water quality, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	The cable burial range would be between 0.5m and 3.0m below the seabed (with a target depth of 1.5m where ground conditions allow recognised industry good practice which would reduce effects of electromagnetic fields (EMF))). Seabed disturbance would be minimised as far as possible, i.e. cables would not be buried to unnecessary excess depths. A Cable Burial Risk Assessment (CBRA) would also be required to confirm the extent to which cable burial can be achieved. Where it is not reasonably practicable to achieve cable burial, additional cable protection would be required. No more than 5% reduction in water depth (referenced to Chart Datum) would occur at any point on the cable route without prior written approval from the Licensing Authority.
C003		Cables would be specified to reduce EMF and thermal emissions as per industry standards and best practice, such as the relevant International Electrotechnical Commission (IEC) specifications.
C004		To minimise the extent of any unnecessary habitat disturbance, material displaced as a result of cable burial activities would be back-filled, where practicable, in order to promote recovery.
C051		Selection of cable installation methods and equipment most suitable for seabed conditions and where possible to minimise sediment suspension.
C053	Benthic ecology	Micro-siting would be undertaken around benthic habitats of conservation, ecological or economic importance constituting reef habitats of principal importance as listed under Section 41 of the Natural Environmental and Rural Communities Act 2006.
C019	Physical processes, benthic ecology, sediment and water quality, fish and shellfish ecology, commercial fisheries, marine archaeology	Micro-siting (for foundations and cable installation) would be used where possible to minimise the requirements for seabed preparation prior to foundation and cable installation.

Reference number	Topic(s)	Description of mitigation or monitoring measure
C022	and cultural heritage	Following industry best-practice the Applicant would seek to minimise the use of cable protection.
C054		Consideration will be given to scour and cable protection that would be more readily removable at the time of decommissioning.
C056	Commercial fisheries, shipping and navigation, other sea users	A Cable Specification, Installation and Monitoring Plan would be prepared. This would include the technical specification of offshore electrical circuits, and a desk-based assessment of attenuation of electro-magnetic field strengths, shielding and cable burial depth in accordance with industry good practice
C036	Commercial fisheries, shipping and navigation, other sea users	The Applicant would also ensure the Project is adequately marked on nautical charts.
C015	Marine archaeology and cultural heritage	AEZs would be employed around known archaeological significant anomalies and TEZs would be employed around areas where an anomaly is not visible in the survey data, but it is likely to exist.
C016		In order to account for unexpected discoveries of archaeological material during construction, operation and decommissioning, a Protocol for Archaeological Design (PAD) would be used. This would be produced in line with the relevant principles laid out in the Written Scheme of Investigation (WSI).

5.9 Stage 5: WTG installation

65. This section will set out the following in relation to WTG installation:

- Final specification for all WTG
- Key equipment and construction methodology, including list of vessels (see also **Appendix D**)

66. Commitments and good working practices, particularly with reference to those set out in **Table 5.4**.

67. The final design for WTGs and the final methodology for WTG installation will be selected from the PDE presented in Chapter 5 Project Description (Document Reference 5.1.5) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated

comparison of the final design with the project design envelope set out in the ES in **Appendix B**.

Table 5.4 Commitments made in relation to WTG installation (from Document Reference 9.31).

Reference number	Topic(s)	Description of mitigation or monitoring measure
C010	Offshore ornithology, shipping and other sea users	The Project design has an air gap (minimum rotor clearance above sea level) of 25m above Highest Astronomical Tide (HAT).
C036	Marine archaeology and cultural heritage, seascape, landscape and visual resources	Lighting the Project in accordance with relevant industry guidance and as advised by relevant stakeholders, including the Maritime and Coastguard Agency (MCA), Civil Aviation Authority (CAA) and Trinity House (TH). The Applicant would also ensure the Project is adequately marked on nautical charts.
C037		Except as otherwise required by TH, the undertaker must paint all structures forming part of the authorised project yellow (colour code RAL 1023) from at least HAT to a height as directed by TH. Unless the Marine Management Organisation (MMO) otherwise directs, the undertaker must paint the remainder of the structures grey (colour code RAL 7035).
C038	Commercial fisheries, shipping and navigation, other sea users, seascape, landscape and visual resources, aviation and radar	Alignment of Wind Turbine Generators (WTGs) as required under Marine Guidance Notice (MGN) 654 (MCA, 2021) to provide obstruction free Search and Rescue (SAR) access, including two lines of orientation unless otherwise agreed.

5.10 Stage 6: Commissioning

68. This section will set out the final testing and certification stage of the construction of the Project before the project becomes fully operational.

5.11 Associated ancillary works

69. This section will set out the ancillary works associated with the Project. As set out in Schedule 1, Part 2, Ancillary Works (1) of the draft DCO (Document Reference 3.1), this includes works within the order limits which fall within the scope of the work assessed in the ES comprising:

- moorings or other means of accommodating vessels in the construction and/or maintenance of the authorised project; and
- marking buoys, beacons, fenders and other navigational warning or ship impact protection works. Guard vessels

70. This section will set out the use of guard vessels, where required.

6 Construction Close Out Report

71. In line with Schedule 6, Part 2, Condition 18 of the dML within the draft DCO (Document Reference 3.1), Morecambe Offshore Windfarm Ltd will submit a close out report to the MMO, MCA, Trinity House, the United Kingdom Hydrographic Office (UKHO) and the relevant statutory nature conservation body within four months of the date of completion of construction. The close out report will confirm the date of completion of construction and must include the following details:

- The final number of installed WTGs
- The installed WTG parameters relevant for ornithological collision risk modelling
- As built plans
- Latitude and longitude coordinates of the centre point of the location for each WTG and OSP provided as Geographical Information System (GIS) data referenced to WGS84 datum
- Latitude and longitude coordinates of the inter-array and platform link cables provided as GIS data referenced to WGS84 datum.

7 References

British Standards Institution (2023). PAS 2080: 2023 Carbon management in buildings and infrastructure.

JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. August 2010.

The Carbon Trust (2015) Cable Burial Risk Assessment Methodology, Guidance for the Preparation of Cable Burial Depth of Lowering Specification.

UK Government (2025). Policy paper - Reducing marine noise. Published 21 January 2025. Available at: https://www.gov.uk/government/publications/reducing-marine-noise/reducing-marine-noise. Accessed 3rd February 2025.

8 Appendix A: Outline Cable Specification and Installation Plan, Including Cable Burial Risk Assessment

8.1 Introduction

8.1.1 Purpose

72. This Outline Cable Specification and Installation Plan (CSIP) has been prepared by Morecambe Offshore Windfarm Ltd (the Applicant) for the construction phase of the Morecambe Offshore Windfarm Project: Generation Assets (hereafter referred to as the Project). The CSIP, including a Cable Burial Risk Assessment (CBRA), will be set out in detail post-consent, following the completion of the final design of the Project. This Outline CSIP sets out the proposed structure and overview of content of the CSIP.

73. As set out in Schedule 6, Part 2, Condition 9(1)(d) of the deemed Marine Licence (dML) within the draft DCO (Document Reference 3.1), the CMS must include a detailed CSIP, incorporating a cable burial risk assessment. The detailed CSIP will identify the risk of needing any cable protection that would exceed 5 percent of navigable depth referenced to Chart Datum (CD). In the event that any area of cable protection exceeding 5 percent of navigable depth is identified, the CSIP will set out details of any steps to be taken to ensure existing and future safe navigation is not compromised.

74. The purpose of the CSIP is to set out the location and technical specification of the cables, provide the CBRA, and to set out the cable laying techniques. The CSIP will demonstrate that the construction procedures to be employed align with those set out with the Project ES and that construction related mitigation measures detailed within the ES and captured within the Commitments Register (Document Reference 9.31) will be applied during installation.

75. All Applicant contractors involved in the Project will be required to comply with this CSIP through conditions of contract.

8.1.2 Scope

76. The remit of the CSIP is for the Project construction phase. The CSIP is applicable to all the Applicant's personnel and contractors carrying out cable installation activities.

8.1.3 Document structure

77. The CSIP will be broadly structured as follows:

- **Section 8.2**: Provides the location of the inter-array and platform link cables, and their technical specification
- **Section 8.3**: Provides details on the pre-construction surveys conducted to inform cable routing
- **Section 8.4**: Provides the CBRA
- **Section 8.5**: Sets out the cable installation techniques
- **Section 8.6**: Sets out cable protection requirements
- **Section 8.7**: Provides details of cable monitoring.

8.2 Location of cables and technical specifications

78. This section will cross refer to the Design Plan required under Schedule 6, Part 2, Condition 9(1)(a) of the dML within the draft DCO (Document Reference 3.1)) which will include the proposed layout of all cables.

79. This section will include the detailed technical specifications of the inter-array and platform link cables for the Project.

8.3 Pre-construction surveys informing cable routing

80. This section will provide a summary of pre-construction surveys carried out to inform inter-array and platform link cable routing, including a summary of the key findings and factors affecting cable routing.

8.4 Cable burial risk assessment

81. This section will include the results of the CBRA which will be undertaken for the project post-consent. The CBRA will be informed by geophysical and geotechnical survey data and other site-specific data on the existing environment. This section will contain an overview of the resulting risk assessment.

82. As set out in The Carbon Trust guidance in CBRA methodology (The Carbon Trust, 2015):

- ‘The key objective of the CBRA methodology is to have a repeatable process that defines a target Depth of Lowering which is practically and economically achievable whilst providing adequate protection’ (The Carbon Trust, 2015).
- The CBRA method produces a probability of a strike on the cable given this selected Depth of Lowering. The method would then be used iteratively to find the optimum Depth of Lowering that results in a probability of a strike which is acceptable to the developer, operator and stakeholders as appropriate’.

8.5 Cable installation techniques

83. This section will set out the detailed cable installation methodology, including key equipment to be used. The final methodology for cable installation will be selected from the design envelope presented in Chapter 5 Project Description (Document Reference 5.1.5) will therefore fall within the PDE of that assessed within the Project ES.

84. This section will include:

- Key equipment and construction methodology, including list of vessels (see also **Appendix D**)
- Commitments and good working practices, with particular reference to those set out within in **Section 5.8** of the Outline CMS.

8.6 Cable protection requirements

85. As noted in **Section 8.4** above, the CSIP will identify where burial to the required depth is not possible and where cable protection will be required in order to provide the required level of protection to the cables. Full details of cable protection management will be included within the Scour Protection and Cable Protection Management Plan (an outline of which was submitted as part of the DCO Application (REP1-056).

8.7 Cable monitoring

86. Cables and cable protection will be monitored as set out in the Outline Offshore Operation and Maintenance Plan (Document Reference 6.6) and the In Principle Monitoring Plan (IPMP) (Document Reference 6.4). This is summarised in **Table 8.1.**

Table 8.1 Summary of cable monitoring

Activity	Activity description	Source
Routine inspections	During the lifetime of the Project, periodic geophysical surveys would be required to ensure the cables remain buried and if they do become exposed, reburial works would be undertaken. Post construction surveys in the initial three to five years are often dictated by the DML.	Outline Offshore Operation and Maintenance Plan (Document Reference 6.6)
Geophysical surveys	A single survey within the windfarm site using full seabed coverage swathe bathymetric, Multibeam Echosounder (MBES) and Side Scan Sonar (SSS) surveys (to meet the requirements of Marine Guidance Note (MGN) 654 and its Annexes) of the area(s) within the Order Limits in which it is proposed to carry out construction works, (noting that it is possible certain areas within the order limits may not be developed).	In Principle Monitoring Plan (IPMP) (Document Reference 6.4)

9 Appendix B: Compliance with the Environmental Statement

87. The final design of the Project and the final methodology for each stage of the Project installation will be selected from the PDE presented in Chapter 5 Project Description (Document Reference 5.1.5) and will therefore fall within the envelope of that assessed within the Project ES. This will be demonstrated by including a tabulated comparison of the final design presented in the CMS with the project design envelope set out in the ES, within this section.

10 Appendix C: Pro-Forma and Contact Details for Key Personnel, Contractors and Subcontractors

88. In line with Schedule 6, Part 2, Condition 13 of the dML within the draft DCO (Document Reference 3.1), Morecambe Offshore Windfarm Ltd (the Applicant) must provide the MMO with the name, address and function of any agent, contractor or subcontractor that will carry out any of the licensed activities on behalf of the undertaker to the MMO in writing no less than 24 hours before that agent, contractor or subcontractor carries out any such licensed activities.

89. This Annex will include a proforma for the submission of this information to the MMO.

11 Appendix D: Pro-Forma for Notification to MMO of Vessels

90. In line with Schedule 6, Part 2, Condition 13(2) of the dML within the draft DCO (Document Reference 3.1), Morecambe Offshore Windfarm Ltd must notify the MMO in writing of any vessel being used to carry on any licensed activity. Such notification must be received by the MMO no less than 24 hours before the commencement of the licensed activity. Notification must include the master's name, vessel type, vessel IMO number and vessel owner or operating company.

91. This Annex will include a proforma for the submission of this information to the MMO.