

Outline Offshore Construction Method Statement (incorporating Outline Cable Specification and Installation Plan)





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Glossary

Term	Meaning	
Applicant	Morgan Offshore Wind Limited.	
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).	
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.	
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).	
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.	

Acronyms

Acronym	Description
CDM	Construction (Design and Management)
CMS	Construction Method Statement
CSIP	Cable Specification and Installation Plan
DCO	Development Consent Order
EMP	Environmental Management Plan
HSE	Health, Safety and Environment
MCA	Maritime and Coastguard Agency
OSP	Offshore Substation Platform
WTG	Wind Turbine Generator



1 INTRODUCTION

1.1 Purpose

- 1.1.1.1 This Outline Offshore Construction Method Statement (CMS) has been prepared by Morgan Offshore Wind Limited (the Applicant) for the construction phase of the Morgan Offshore Wind Project: Generation Assets (hereafter referred to as the Morgan Generation Assets). It has been prepared in order to set out the proposed structure and overview of content of the Offshore CMS to be submitted post-consent. The fully detailed Offshore CMS prepared post-consent will present the final design of the Morgan Generation Assets, selected from the design envelope parameters presented in Volume 1, Chapter 3: Project description (APP-010).
- 1.1.1.2 As set out in Schedules 3 and 4, Part 2, condition 20(1)(d) of the deemed Marine Licences within the draft Development Consent Order (DCO) (S_D4_8), the Offshore CMS must be prepared in accordance with the construction methods assessed in the Environmental Statement and will include details of:
 - cable specification, installation and monitoring, to include:
 - the technical specification of the inter-array cables and interconnector cables
 - a detailed cable specification and installation plan 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 may exceed 5 percent 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 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 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
 - piling methodology, in the event that driven or part-driven pile foundations are proposed to be used
 - contractors
 - associated ancillary works
 - guard vessels to be employed.
- 1.1.1.3 The purpose of the Offshore CMS is to set out the construction procedures and good working practices for the installation of Morgan Generation Assets infrastructure. The Offshore CMS will demonstrate that the construction procedures to be employed align with those set out with the Morgan Generation Assets Environmental Statement and that construction related mitigation measures detailed within the Environmental



Statement and captured within the Commitments Register (S_D4_16) will be applied during installation. The Offshore CMS also incorporates the Outline Offshore Cable Specification and Installation Plan (CSIP).

1.1.1.4 All contractors (including their subcontractors) involved in the Morgan Generation Assets will be required to comply with the final approved Offshore CMS through conditions of contract.

1.2 Scope

1.2.1.1 The remit of the Offshore CMS is for the Morgan Generation Assets construction phase. The Offshore CMS is applicable to all Morgan Offshore Wind Limited personnel and contractors carrying out construction activities.

1.3 Linkages with other consents management plans

- 1.3.1.1 This document should be read alongside the following related consents management plans, which will be fully complied with during the construction of the Morgan Generation Assets:
 - Design plan (required under Schedules 3 and 4, Part 2, condition 20(1)(a) of the deemed Marine Licences within the draft DCO (S_D4_8)
 - Construction Programme (required under Schedules 3 and 4, Part 2, condition 20(1)(b) of the deemed Marine Licences within the draft DCO (S_D4_8))
 - Outline Offshore Environmental Management Plan (S_D4_11) and associated Annexes, including:
 - Annex A: Marine Pollution Contingency Plan
 - Annex B: Chemical Risk Assessment
 - Annex C: Waste management and disposal arrangements
 - Annex D: Fisheries Liaison and Coexistence Plan
 - Annex E: Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels
 - Annex F: Measures to minimise the potential spread of Invasive Non-Native Species (INNS)
 - Annex G: Dropped Object Procedure Form.
 - Outline offshore written scheme of investigation for archaeology (APP-069)
 - Aids to navigation management plan (required under Schedules 3 and 4, Part 2, condition 20(1)(g) of the deemed Marine Licences within the draft DCO (S_D4_8))
 - Outline marine mammal mitigation protocol (S_D4_12)
 - Outline vessel traffic management plan (REP2-017).

1.4 Document structure

- 1.4.1.1 The Offshore CMS is structured as follows:
 - Section 2: Provides an overview of the Morgan Generation Assets.



- Section 3: Outlines the relevant roles of the personnel involved in the construction of the Morgan Generation Assets, the responsibilities of each role and the chain of command throughout the construction phase. Contact details of each key role are also provided.
- Section 4: Sets out the construction management framework for the Morgan Generation Assets with reference to industry guidance, including in relation to health and safety and environmental management, and provides information on Morgan Offshore Wind Limited's expectations for training and experience for those involved in the construction of the Morgan Generation Assets.
- Section 5: Provides the construction procedures for each component of the Morgan Generation Assets 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.
- Annexes: includes Annexes which form part of the Offshore CMS, including:
 - Annex A: Cable specification and installation plan
 - Annex B: Scour protection management and cable protection management
 - Annex C: Compliance with the Environmental statement
 - Annex D: Pro-forma and contact details for key personnel, contractors and subcontractors
 - Annex E: Pro-forma for notification to MMO of vessels.



2 PROJECT BACKGROUND

2.1 Project overview

- 2.1.1.1 The Morgan Array Area is 280 km² in area and is located 22.22 km (12 nm) from the Isle of Man coastline, 37.13 km (20.1 nm) from the northwest coast of England and 58.5 km (31.6 nm) from the Welsh coastline (Anglesey) (when measured from Mean High Water Springs (MHWS)). The Morgan Array Area is located wholly within English offshore waters (beyond 12 nm from the English coast) (Figure 2.1). Key components of the offshore infrastructure will comprise of up to 96 wind turbines, up to four offshore substation platforms (OSPs), up to 60 km of interconnector cables and up to 390 km of inter-array cables.
- 2.1.1.2 Offshore construction is planned to commence in 2026 for a duration of up to four years, with the project expected to be fully operational by 2030. The Morgan Generation Assets will have a lifetime of 35 years.
- 2.1.1.3 This section will cross refer to the Design Plan required under Schedules 3 and 4, Part 2, condition 20(1)(a) of the deemed Marine Licences within the draft DCO (S_D4_8) and the Construction Programme required under Schedules 3 and 4, Part 2, condition 20(1)(b) of the deemed Marine Licences within the draft DCO (S_D4_8).



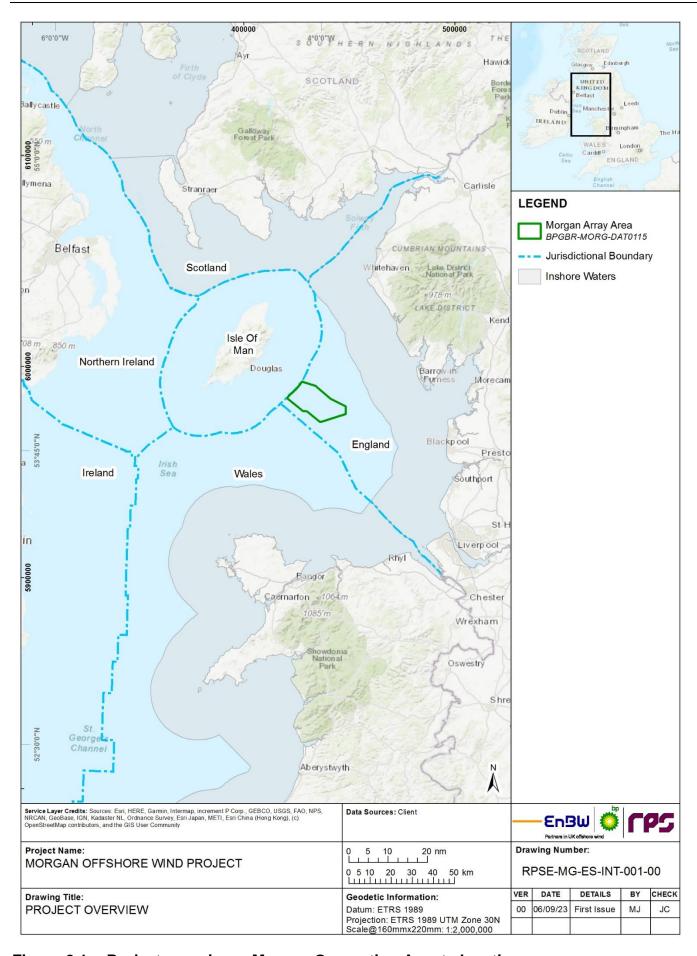


Figure 2.1: Project overview – Morgan Generation Assets location.



3 ROLES AND RESPONSIBILITIES

3.1 Overview

- 3.1.1.1 This section of the Offshore CMS will set out the roles and responsibilities and chain of command of all relevant project personnel in relation to the Offshore CMS. Roles and responsibilities will be defined in the Offshore CMS prepared post-consent, following the appointment of the relevant contractors. Example roles may include the following:
 - Project Manager
 - Quality Manager
 - Health, Safety and Environment (HSE) Manager
 - Incident Manager
 - Environmental Manager
 - Marine coordinator
 - Package Managers
 - Contractors
 - Subcontractors
 - Company Fisheries Liaison Officer (CFLO)
 - Retained Archaeologist.
- 3.1.1.2 All Morgan Offshore Wind Limited personnel and contractors will have a responsibility to comply with the requirements of the Offshore CMS. The key roles identified above will be further described in the sections below, with contact details provided in section 3.3.
- 3.1.1.3 A figure will be provided in the Offshore CMS prepared post-consent, illustrating the key roles and chain of command.

3.2 Key roles in relation to the implementation of the Offshore CMS

3.2.1 Project Manager

- 3.2.1.1 To include the role and key responsibilities of the Project Manager.
- 3.2.2 Quality Manager
- 3.2.2.1 To include the role and key responsibilities of the Quality Manager.
- 3.2.3 Health, Safety and Environment (HSE) Manager
- 3.2.3.1 To include the role and key responsibilities of the HSE Manager.
- 3.2.4 Incident Manager
- 3.2.4.1 To include the role and key responsibilities of the Incident Manager.

3.2.5 Environmental Manager

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

3.2.6 Marine Coordinator

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

3.2.7 Package Managers

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

3.2.8 Contractors

3.2.8.1 To include the role and key responsibilities of contractors.

3.2.9 Subcontractors

3.2.9.1 To include the role and key responsibilities of subcontractors.

3.2.10 Company Fisheries Liaison Officer (CFLO)

3.2.10.1 To include the role and key responsibilities of the CFLO. This section will also provide cross reference to the roles and responsibilities set out within the Outline fisheries liaison and co-existence plan (S_D4_13).

3.2.11 Retained Archaeologist

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

3.3 Key contact details

- 3.3.1.1 This section of the Offshore CMS will provide a table of contact details for the key roles above.
- 3.3.1.2 Morgan Offshore Wind Limited will provide the name, function, company number, registered or head office address of any agent or contractor appointed to engage in the licensed activities, within seven days of appointment, as required by Schedules 3 and 4, Part 2, condition 26 of the deemed Marine Licences within the draft DCO (S_D4_8). This will be delivered through the submission of the proforma included in Annex D.



4 MORGAN OFFSHORE WIND LIMITED CONSTRUCTION MANAGEMENT FRAMEWORK

4.1 Overview

- 4.1.1.1 This section of the Offshore CMS will provide an overview of the overarching construction management framework within which the Morgan Generation Assets will be delivered. It will detail the prevailing industry guidance available to inform the Morgan Generation Assets construction management framework, highlight wider obligations under the Construction (Design and Management) Regulations 2015 (CDM regulations) and the Morgan Generation Assets Offshore EMP, and provide details of training and competence requirements, before summarising contractor and subcontractor obligations.
- 4.1.1.2 The Morgan Generation Assets construction management framework will ensure the safe, compliant installation of the Morgan Generation Assets components, as described in the Offshore CMS.

4.2 Industry guidance

- 4.2.1.1 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 wind farms. This section will be completed post-consent with the latest guidance available to inform the construction phase. Examples include:
 - MGN654 Offshore Renewable Energy Installations (OREIs) Guidance on UK Navigational Practice, Safety and Emergency Response Issues
 - G+/DROPS, published through the Energy Institute, June 2019, Reliable securing booklet for offshore wind (1st Ed.)
 - The G+, published through the Energy Institute, July 2018, Working at height in the offshore wind industry (2nd Ed.)
 - RenewableUK, March 2014, Offshore Wind and Marine Energy H&S Guidelines
 - RenewableUK, December 2013, H&S First Aid Needs Assessment
 - The G+, published through the Energy Institute, October 2023, The safe management of small service vessels used in the offshore wind industry (3rd Ed.)
 - RenewableUK, 2015, Vessel Safety Guide
 - The Crown Estate, September 2014, Construction vessel guideline for the offshore renewables industry
 - RenewableUK, November 2013, Guidelines for Selection and Operation of Jackups in Marine Renewable Energy Industry
 - The Carbon Trust, February 2015, Cable Burial Risk Assessment Methodology, Guidance for the Preparation of Cable Burial Depth of Lowering Specification.

4.3 Regulatory requirements

4.3.1.1 The Morgan Generation Assets 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.

4.3.1.2 Morgan Offshore Wind Limited will require compliance with the CDM regulations in the design and construction of the Morgan Generation Assets 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

- 4.4.1.1 This section will include reference to adequate relevant training and experience, competence and certification.
- 4.4.1.2 Morgan Offshore Wind Limited will require that all personnel engaged in the construction of the Morgan Generation Assets have adequate relevant experience and training, in order to safely perform the duties that are required of them within their remit. Morgan Offshore Wind Limited will require that all employed personnel are adequately supported at all levels.
- 4.4.1.3 Where training or certification is required to perform duties under a role, Morgan Offshore Wind Limited will require that relevant certification and training records are made available for inspection where necessary.
- 4.4.1.4 Contractors will provide appropriate training and certification of training and will require that subcontractors adhere to the Morgan Offshore Wind Limited requirements in regard to training and competence through conditions of contract.
- 4.4.1.5 Morgan Offshore Wind Limited personnel, contractors and subcontractors will undergo site inductions prior to commencing work on site and attend regular toolbox talks as appropriate.
- 4.4.1.6 Morgan Offshore Wind Limited 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

4.5.1.1 Morgan Offshore Wind Limited will require contractors and subcontractors, in undertaking the construction of the Morgan Generation Assets, 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. Morgan Offshore Wind Limited will require that all commitments as set out in the Commitments Register (S_D4_16) and good working practices (see section 5) are applied throughout the construction phase.



5 CONSTRUCTION PROCEDURES, COMMITMENTS AND GOOD WORKING PRACTICES

5.1 Overview

- 5.1.1.1 This section will form the 'core' of the Offshore CMS, setting out the final design of the Morgan Generation Assets and the final construction methods and procedures to be followed, selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010), including key equipment. This section will include the relevant commitments as set out in the Commitments Register (S_D4_16) as relevant to each component, methodology and/or procedure, and good working practices.
- 5.1.1.2 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 installation
 - Stage 3: Offshore substation platform installation
 - Stage 4: Inter-array and interconnector cable installation
 - Stage 5: Wind turbine installation
 - Stage 6: Commissioning.
- 5.1.1.3 This section will cross-refer to the Construction Programme required to be submitted under Schedules 3 and 4, Part 2, condition 20(1)(b) of the deemed Marine Licences within the draft DCO (S_D4_8).

5.2 Commitments and good working practices

5.2.1.1 The overarching commitments and good working practices, as committed to in the Morgan Generation Assets Environmental Statement, and which will be applied to all stages of the Morgan Generation Assets installation, are set out in the Commitments Register, included as part of the Offshore EMP (S_D4_11). Commitments relevant to each stage of the construction process will be included in the relevant sections of the final Offshore CMS.

5.3 Construction ports and marine coordination centre

5.3.1.1 This section will present the proposed arrangements for the construction ports and Marine Coordination Centre (MCC) which will support the Morgan Generation Assets construction phase activities.

5.4 Stage 1: Seabed preparation

- 5.4.1.1 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 Schedules 3 and 4, Part 2, condition 20(1)(d)(iii) of the deemed Marine Licences within the draft DCO (S_D4_8)) and to include list of vessels (see also Annex E)

- Commitments and good working practices, particularly with reference to those set out in Table 5.1.
- 5.4.1.2 The final methodology for seabed preparation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the Environmental Statement in Annex C.

Table 5.1: Commitments made in relation to seabed preparation (from S_D4_16).

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co21 (MMS: 2.8)	Benthic ecology	Development of and adherence to a Design Plan (DP) which includes micro-siting requirements relating to any benthic habitats of conservation, ecological or economic importance constituting Annex I reef habitats.
Co22 (MMS: 1.1, 2.2)	Physical processes, benthic ecology, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	Development of, and adherence to, an Offshore CMS. The CMS will include details of scour protection management, to be used around offshore structures and foundations to reduce scour as much as is practical. Consideration will be given for the use of scour protection which is of such a nature that it may be more readily removable at decommissioning.
Co24 (MMS: 1.5, 2.5)	Physical processes, benthic ecology, fish and shellfish ecology	The Offshore CMS will include a Cable Specification and Installation Plan (CSIP) which will further minimise sandwave clearance volumes as far as possible.
Co31 (MMS: 1.4, 2.4, 3.7)	Physical processes, benthic ecology, fish and shellfish ecology	Material arising from drilling and/or sandwave clearance is to be deposited in close proximity to the works and within the licenced disposal area applied for (which is the Morgan Array Area).
Co75 (MMS: 8.4	Marine archaeology and cultural heritage	The WSI includes the establishment of a PAD, which details the methodology for further site investigation, including archaeological input into specifications for, and archaeological analysis of, any post-consent, site investigation. The responsibilities of the Morgan Generation Assets Retained Archaeologist includes being consulted in the preparation of any pre-construction surveys where relevant, including geophysical, geotechnical and ROV/diver survey and, if appropriate, in monitoring/checking of data.
Co77 (MMS: 8.6)	Marine archaeology and cultural heritage	The WSI and PAD details that archaeologists are to be consulted in the preparation of pre-construction cable route clearance or other pre-construction clearance operation, where relevant, and, if appropriate, to carry out archaeological monitoring of such work.

5.5 Stage 2: Foundation installation

- 5.5.1.1 This section will set out the following in relation to foundation installation:
 - Final specification for all wind turbine and OSP foundations

- Specification for any scour protection (with full details set out in Annex B: scour protection management and cable protection management)
- Key equipment and construction methodology, to include details of drilling methods and disposal of drill arisings where applicable (in line with Schedules 3 and 4, Part 2, condition 20(1)(d)(iii) of the deemed Marine Licences within the draft DCO (S_D4_8)) and piling methodology, if applicable (in line with Schedules 3 and 4, Part 2, condition 20(1)(d)(iv) of the deemed Marine Licences within the draft DCO (S_D4_8)), and to include list of vessels (see also Annex E)
- 5.5.1.2 Commitments and good working practices, particularly with reference to those set out in Table 5.2.
- 5.5.1.3 The final design for the foundations and the final methodology for foundation assembly and installation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the Environmental Statement in Annex C.

Table 5.2: Commitments made in relation to foundation installation (from S_D4_16).

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co19 (MMS: 6.6)	Fish and shellfish ecology, commercial fisheries	Development of and adherence to a Design Plan which includes implementation of a Scallop Mitigation Zone (SMZ) over an area of core scallop grounds within the Morgan Array Area with a minimum area of 34 km².
Co21 (MMS: 2.8)	Benthic ecology	Development of and adherence to a Design Plan (DP) which includes micro-siting requirements relating to any benthic habitats of conservation, ecological or economic importance constituting Annex I reef habitats.
Co22 (MMS: 1.1, 2.2)	Physical processes, benthic ecology, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	Development of, and adherence to, an Offshore CMS. The CMS will include details of scour protection management, to be used around offshore structures and foundations to reduce scour as much as is practical. Consideration will be given for the use of scour protection which is of such a nature that it may be more readily removable at decommissioning.
Co31 (MMS: 1.4, 2.4, 3.7)	Physical processes, benthic ecology, fish and shellfish ecology	Material arising from drilling and/or sandwave clearance is to be deposited in close proximity to the works and within the licenced disposal area applied for (which is the Morgan Array Area).
Co57 (MMS: 3.1, 4.1)	Fish and shellfish ecology, marine mammals	Development of, and adherence to, a Marine Mammal Mitigation Protocol (MMMP), based on the Outline MMMP (document reference J17) that requires implementation of an initiation stage of a piling soft start and ramp-up ¹ .

¹ It is noted that the use of piling soft-start and ramp-up measures is to reduce associated risk of injury from underwater sound, noting this will not be effective for all fish species. Note: these measures are not required to and will likely not be sufficient to avoid all significant injury effects on impacts to fish receptors.



Reference number	Topic(s)	Description of mitigation or monitoring measure
Co58 (MMP: 3.2, 4.2)	Fish and shellfish ecology, marine mammals	The MMMP sets a maximum separation limit of 15 km for concurrent piling.
Co59 (MMP: 3.3, 4.3)	Fish and shellfish ecology, marine mammals	The MMMP sets a minimum separation limit of 1.4 km for concurrent piling
Co60 (MMP: 3.4, 4.4)	Fish and shellfish ecology, marine mammals	The MMMP sets the limit on maximum hammer energy used during concurrent piling at 3,000 kJ and during the single event piling at 4,400 kJ.
Co61 (New commitment not in MMS)	Fish and shellfish ecology, marine mammals	The MMMP sets out that no more than two piling vessels will be operating within the Morgan Generation Assets development area at one time (i.e. one concurrent piling event only).
Co63 (MMS: 3.8, 4.6)	Fish and shellfish ecology, marine mammals	MMMP to ensure appropriate mitigation is in place for activities that could potentially lead to injurious effects on marine mammals including: piling, UXO clearance and some types of geophysical activities.
Co66 (MMS: 3.12, 4.7)	Fish and shellfish ecology, marine mammals	Development of, and adherence to, an UWSMS (developed from the Outline document reference APP-068) to ensure appropriate mitigation is established and adhered to if final design identifies a risk of significant effects on marine mammal, cod and or herring receptors.
Co74 (MMS: 8.3)	Marine archaeology and cultural heritage	Development of, and adherence to, an Outline Offshore Written Scheme of Investigation (WSI) including the establishment of PAD, prior to any post-consent works within the Morgan Array Area.
Co76 (MMS: 8.5)	Marine archaeology and cultural heritage	The WSI and PAD ensures operational awareness and avoidance, where possible, of the location of archaeological anomalies identified as having a low potential.
Co78 (MMS: 8.7)	Marine archaeology and cultural heritage	The WSI and PAD details the delivery of any mitigation including, where necessary, identification and modification of AEZs and TAEZs.
Co82 (MMS: 8.1)	Marine archaeology and cultural heritage	Development of, and adherence to Archaeological Exclusion Zones (AEZs) around those sites identified as having high and medium archaeological potential as presented in the Offshore Historic Environment Plan (APP-086) and the Outline Offshore WSI and PAD (APP-069).
		The Design Plan will include final wind turbine locations to avoid any AEZs identified in pre-construction site investigation surveys or micrositing requirements as set out in the Offshore WSI and PAD.
Co83 (MMS: 8.2)	Marine archaeology and cultural heritage	Development of, and adherence to Temporary Archaeological Exclusion Zones (TAEZs) based on all available information including the stated positional accuracy, the recorded size of the target and the potential archaeological significance as presented in the Offshore Historic Environment Plan (APP-086) and the Outline Offshore WSI and PAD (APP-069).



5.6 Stage 3: Offshore substation platform installation

- 5.6.1.1 This section will set out the following in relation to OSP installation:
 - Final specification for all OSPs
 - Key equipment and construction methodology, including list of vessels (see also Annex E)
 - Commitments and good working practices.
- The final design for OSPs and the final methodology for OSP installation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the Environmental Statement in Annex C.

5.7 Stage 4: Inter-array and interconnector cable installation

- 5.7.1.1 This section will set out the following in relation to inter-array and interconnector cable installation (with full details set out in Annex A: Cable specification and installation plan):
 - Final technical specification for all inter-array and interconnector cables
 - Specification for any cable protection and cable crossings (with full details set out in Annex B: scour protection management and cable protection management)
 - Key equipment and construction methodology, including list of vessels (see also Annex E)
 - Details of cable monitoring which includes a risk based approach to the management of unburied or shallow buried cables (in line with Schedules 3 and 4, Part 2, condition 20(1)(d)(i)(cc) of the deemed Marine Licences within the draft DCO (S_D4_8))
- 5.7.1.2 Commitments and good working practices, particularly with reference to those set out in Table 5.3
- 5.7.1.3 The final design for the inter-array and interconnector cables and the final methodology for inter-array and interconnector cable installation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the Environmental Statement in Annex C.

Table 5.3: Commitments made in relation to cable installation (from S_D4_16).

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co21 (MMS: 2.8)	Benthic ecology	Development of and adherence to a Design Plan (DP) which includes micro-siting requirements relating to any benthic habitats of conservation, ecological or economic importance constituting Annex I reef habitats.
Co25 (MMS: 1.2, 2.1, 3.6)	Physical processes, benthic ecology, fish and shellfish ecology, commercial fisheries, shipping and navigation, other sea users	The CSIP will include measures for cable burial where possible and cable protection. Consideration will be given for the use of cable protection which is of such a nature that it may be more readily removable at decommissioning.
Co27 (MMS: 6.1)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will incorporate the Cable Burial Risk Assessment (CBRA) where cable protection shall be designed to minimise snagging hazards as far as possible. For example, by minimising height above seabed, smooth and shallower profiles, grade used for rock placement, type of rock (e.g. smoother edges) and target cable burial depth will be determined to minimise the risk of snagging hazards and cable exposure as far as possible.
Co28 (MMS: 6.15)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will detail cable protection management and scour protection management, to outline cable burial depth, which includes consideration of seabed level change, cable protection and monitoring of inter array and interconnector cables.
Co29 (MMS: 6.3)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will include measures where the time delay between sequential cable installation operations (e.g. cablelay and post-lay burial), shall be minimised to as short as reasonably practicable.
Co30 (MMS: 1.3, 2.3, 7.5, 9.7)	Physical processes, benthic ecology, commercial fisheries, shipping and navigation, other sea users	As per the standard navigation requirements, the cable protection will cause no more than a 5% reduction in water depth (referenced Chart Datum) without prior written approval from the Licensing Authority in consultation with the MCA. This will ensure any cable protection is sufficiently low profile to cause minimal changes to wave, tide and sediment transport.
Co48 (MMS: 6.20)	Commercial fisheries, shipping and navigation, other sea users	'As-laid' co-ordinates of cables within the Morgan Array Area (i.e. inter array cables) shall be recorded and submitted to the UK Hydrographic Office (UKHO) and the Kingfisher Information Service – Offshore Renewable and Cable Awareness (KIS-ORCA Service). 'As-laid' cables shall be marked on Admiralty Charts and fisherman's awareness charts (paper and electronic format).
Co74 (MMS: 8.3)	Marine archaeology and cultural heritage	Development of, and adherence to, an Outline Offshore Written Scheme of Investigation (WSI) including the establishment of PAD, prior to any post-consent works within the Morgan Array Area.
Co76 (MMS: 8.5)	Marine archaeology and cultural heritage	The WSI and PAD ensures operational awareness and avoidance, where possible, of the location of archaeological anomalies identified as having a low potential.

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co78 (MMS: 8.7)	Marine archaeology and cultural heritage	The WSI and PAD details the delivery of any mitigation including, where necessary, identification and modification of AEZs and TAEZs.
Co82 (MMS: 8.1)	Marine archaeology and cultural heritage	Development of, and adherence to Archaeological Exclusion Zones (AEZs) around those sites identified as having high and medium archaeological potential as presented in the Offshore Historic Environment Plan (APP-086) and the Outline Offshore WSI and PAD (APP-069).
		The Design Plan will include final wind turbine locations to avoid any AEZs identified in pre-construction site investigation surveys or micrositing requirements as set out in the Offshore WSI and PAD.
Co83 (MMS: 8.2)	Marine archaeology and cultural heritage	Development of, and adherence to Temporary Archaeological Exclusion Zones (TAEZs) based on all available information including the stated positional accuracy, the recorded size of the target and the potential archaeological significance as presented in the Offshore Historic Environment Plan (APP-086) and the Outline Offshore WSI and PAD (APP-069).

5.8 Stage 5: Wind turbine installation

- 5.8.1.1 This section will set out the following in relation to wind turbine installation:
 - Final specification for all wind turbines
 - Key equipment and construction methodology, including list of vessels (see also Annex E)
- 5.8.1.2 Commitments and good working practices, particularly with reference to those set out in Table 5.4.
- 5.8.1.3 The final design for wind turbines and the final methodology for wind turbine installation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design with the project design envelope set out in the Environmental Statement in Annex C.



Table 5.4: Commitments made in relation to wind turbine installation (from S D4 16).

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co6	Physical processes, benthic ecology, fish and shellfish ecology, marine mammals, offshore ornithology, commercial fisheries, marine archaeology and cultural heritage, other sea users, seascape, landscape and visual resources, aviation and radar, climate change	Reduction in the maximum number of wind turbines from 107 at PEIR to 96 turbines for the DCO Application.
Co8 (MMS: 5.1, 7.3)	Offshore ornithology, shipping and other sea users	The Applicant has committed to a minimum lower blade tip height (air draught) of 34 m above LAT (26 m above HAT) an increase from the recommended minimum safe clearance of 22 m above MHWS (≈ 30 m above LAT) set out within MGN654.
Co80 (MMS: 8.9, 10.1)	Marine archaeology and cultural heritage, seascape, landscape and visual resources	The nacelles, blades and towers will be painted light grey.

5.9 Stage 6: Commissioning

5.9.1.1 This section will set out the final testing and certification stage of the construction of the Morgan Generation Assets before the project becomes fully operational.

5.10 Associated ancillary works

- 5.10.1.1 This section will set out the ancillary works associated with the Morgan Generation Assets. As set out in Schedule 1, Part 2, Ancillary Works (3) of the draft Development Consent Order (S_D4_8), this includes works within the order limits which fall within the scope of the work assessed in the Environmental Statement comprising:
 - Temporary landing places, moorings or other means of accommodating vessels in the construction and/or maintenance of the authorised development
 - Buoys, beacons, fenders and other navigational warning or ship impact protection works.

5.11 Guard vessels

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



6 CONSTRUCTION CLOSE OUT REPORT

- In line with Schedules 3 and 4, Part 2, condition 31 of the deemed Marine Licences within the draft DCO (S_D4_8), Morgan Offshore Wind Limited will submit a close out report to the MMO, MCA, Trinity House, the 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 wind turbine generators
 - The installed wind turbine generator parameters
 - As built plans
 - Latitude and longitude coordinates of the centre point of the location for each wind turbine and OSP provided as Geographical Information System data referenced to WGS84 datum
 - Latitude and longitude coordinates of the inter-array and interconnector cables provided as Geographical Information System data referenced to WGS84 datum.





7 REFERENCES

The Carbon Trust (2015)	Cable Burial Risk Asses	ssment Methodolog	y, Guidance for the
Preparation of Cable Bur	ial Depth of Lowering Sp	pecification, Availab	le at:

Accessed: December

Document Reference: S_D4_22



8 ANNEX A: OUTLINE CABLE SPECIFICATION AND INSTALLATION PLAN, INCLUDING CABLE BURIAL RISK ASSESSMENT

8.1 Introduction

8.1.1 Purpose

- 8.1.1.1 This Outline cable specification and installation plan (CSIP) has been prepared by Morgan Offshore Wind Limited (the Applicant) for the construction phase of the Morgan Offshore Wind Project: Generation Assets (hereafter referred to as the Morgan Generation Assets). The CSIP, including a CBRA, will be set out in detail post-consent, following the completion of the final design of the Morgan Generation Assets. This Outline CSIP sets out the proposed structure and overview of content of the CSIP.
- 8.1.1.2 As set out in Schedules 3 and 4, Part 2, condition 20(1)(d) of the deemed Marine Licences within the draft DCO (S_D4_8), the Offshore CMS must include a detailed CSIP, incorporating a cable burial risk assessment. The detailed cable specification and installation plan will identify the risk of needing any cable protection that may exceed 5 percent 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 taken to ensure existing and future safe navigation is not compromised.
- 8.1.1.3 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 Morgan Generation Assets Environmental Statement and that construction related mitigation measures detailed within the Environmental Statement and captured within the Commitments Register (S_D4_16) will be applied during installation.
- 8.1.1.4 All Morgan Offshore Wind Limited contractors involved in the Morgan Generation Assets will be required to comply with this CSIP through conditions of contract.

8.1.2 **Scope**

8.1.2.1 The remit of the CSIP is for the Morgan Generation Assets construction phase. The CSIP is applicable to all Morgan Offshore Wind Limited personnel and contractors carrying out cable installation activities.

8.1.3 Document structure

- 8.1.3.1 The CSIP will be broadly structured as follows:
 - Section 8.2: Provides the location of the inter-array and interconnector 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

- 8.2.1.1 This section will cross refer to the Design Plan required under Schedules 3 and 4, Part 2, condition 20(1)(a) of the deemed Marine Licences within the draft DCO (S_D4_8) which will include the proposed layout of all cables.
- 8.2.1.2 This section will include the detailed technical specifications of the inter-array and interconnector cables for the Morgan Generation Assets.

8.3 Pre-construction surveys informing cable routing

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

8.4 Cable burial risk assessment

- 8.4.1.1 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.
- 8.4.1.2 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 should 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

- 8.5.1.1 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 Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement.
- 8.5.1.2 This section will include:
 - Key equipment and construction methodology, including list of vessels (see also Annex E)
 - Commitments and good working practices, with particular reference to those set out within in section 5.7 of the Outline Offshore CMS.

8.6 Cable protection requirements

8.6.1.1 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 Annex D: scour protection management and cable protection management.

8.7 Cable monitoring

8.7.1.1 Cables and cable protection will be monitored as set out in the Outline offshore operations and maintenance plan (APP-079) and the Offshore IPMP (REP2-013). This is summarised in Table 8.1.

Table 8.1: Summary of cable monitoring.

Activity	Activity description	Source
Routine inspections	Visual inspections and performance tests of the inter-array and interconnector cable and any cable protection, including at the entry into J-tubes. This activity will be conducted up to once per year with access via SOV or CTV. Inspections of cable entry into J-tubes will be conducted with an ROV.	Outline offshore operations and maintenance plan (APP-079)
Geophysical surveys	Geophysical survey of the seabed and assets will be carried out from vessels with SSS, MBES and/or magnetometer equipment. Geophysical surveys will be deployed to check cable protection coverage of subsea cables. The surveys will have no interaction with the seabed. Geophysical surveys will be conducted up to once every three years.	Outline offshore operations and maintenance plan (APP-079)
Monitoring changes to, and recovery of, sandwaves following the installation of interarray/interconnector cables	Data from the pre-construction hydrographic and side scan sonar surveys will establish a baseline on the presence and nature of sandwaves within the Morgan Array Area. The equivalent post-construction hydrographic and side scan sonar surveys will establish the change to/recovery of a representative sample of these features following sandwave clearance and cable installation activity. The duration of any such surveys will be informed by the results of the first post-construction monitoring in discussions with the regulatory authority and its statutory advisors.	Offshore IPMP (REP2-013)



9 ANNEX B: SCOUR PROTECTION MANAGEMENT AND CABLE PROTECTION MANAGEMENT

- 9.1.1.1 As set out in Schedules 3 and 4, Part 2, condition 20(1)(d) of the deemed Marine Licences within the draft DCO (S_D4_8), the Offshore CMS must include 'scour protection management and cable protection management 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'.
- 9.1.1.2 This section will therefore set out:
 - The need for scour protection and cable protection
 - The type of scour protection and cable protection
 - The source of scour protection and cable protection
 - The quantity of scour protection and cable protection
 - The installation methods for scour protection and cable protection
 - Reporting.
- 9.1.1.3 The final design for scour protection and cable protection will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement.
- 9.1.1.4 Relevant commitments relating to scour protection and cable protection are set out in Table 9.1.
- 9.1.1.5 In line with Schedules 3 and 4, Part 2, condition 30 of the deemed Marine Licences within the draft DCO (S_D4_8), following completion of the construction phase, Morgan Offshore Wind Limited will provide the MMO and the relevant statutory nature conservation bodies with a report setting out details of the cable protection and scour protection used for the authorised scheme. The report will include the following information:
 - The location of cable protection and scour protection
 - The volume of cable protection and scour protection
 - Any other information relating to the cable protection and scour protection as agreed between the MMO and Morgan Offshore Wind Limited.



Table 9.1: Commitments made in relation to scour protection and cable protection (from S_D4_16).

Reference number	Topic(s)	Description of mitigation or monitoring measure
Co22 (MMS: 1.1, 2.2)	Physical processes, benthic ecology, fish and shellfish ecology, commercial fisheries, marine archaeology and cultural heritage	Development of, and adherence to, an Offshore CMS. The CMS will include details of scour protection management, to be used around offshore structures and foundations to reduce scour as much as is practical. Consideration will be given for the use of scour protection which is of such a nature that it may be more readily removable at decommissioning.
Co25 (MMS: 1.2, 2.1, 3.6)	Physical processes, benthic ecology, fish and shellfish ecology, commercial fisheries, shipping and navigation, other sea users	The CSIP will include measures for cable burial where possible and cable protection. Consideration will be given for the use of cable protection which is of such a nature that it may be more readily removable at decommissioning.
Co26 (MMS: 6.2)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will include measures to minimise the use of cable protection as far as reasonably practicable.
Co27 (MMS: 6.1)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will incorporate the Cable Burial Risk Assessment (CBRA) where cable protection shall be designed to minimise snagging hazards as far as possible. For example, by minimising height above seabed, smooth and shallower profiles, grade used for rock placement, type of rock (e.g. smoother edges) and target cable burial depth will be determined to minimise the risk of snagging hazards and cable exposure as far as possible.
Co28 (MMS: 6.15)	Commercial fisheries, shipping and navigation, other sea users	The CSIP will detail cable protection management and scour protection management, to outline cable burial depth, which includes consideration of seabed level change, cable protection and monitoring of inter array and interconnector cables.
Co30 (MMS: 1.3, 2.3, 7.5, 9.7)	Physical processes, benthic ecology, commercial fisheries, shipping and navigation, other sea users	As per the standard navigation requirements, the cable protection will cause no more than a 5% reduction in water depth (referenced Chart Datum) without prior written approval from the Licensing Authority in consultation with the MCA. This will ensure any cable protection is sufficiently low profile to cause minimal changes to wave, tide and sediment transport.



10 ANNEX C: COMPLIANCE WITH THE ENVIRONMENTAL STATEMENT

10.1.1.1 The final design of the Morgan Generation Assets and the final methodology for each stage of the Morgan Generation Assets installation will be selected from the design envelope presented in Volume 1, Chapter 3: Project description (APP-010) and will therefore fall within the envelope of that assessed within the Morgan Generation Assets Environmental Statement. This will be demonstrated by including a tabulated comparison of the final design presented in the Offshore CMS with the project design envelope set out in the Environmental Statement, within this section.



11 ANNEX D: PRO-FORMA AND CONTACT DETAILS FOR KEY PERSONNEL, CONTRACTORS AND SUBCONTRACTORS

- In line with Schedules 3 and 4, Part 2, condition 20(1) of the deemed Marine Licences within the draft DCO (S_D4_8), Morgan Offshore Wind Limited must provide the MMO with the name, function, company number (if applicable), registered or head office address (as appropriate) of any agent or contractor appointed to engage in the licensed activities within seven days of appointment.
- 11.1.1.2 This Annex will include a proforma for the submission of this information to the MMO.



12 ANNEX E: PRO-FORMA FOR NOTIFICATION TO MMO OF VESSELS

- 12.1.1.1 In line with Schedules 3 and 4, Part 2, condition 26(2) of the deemed Marine Licences within the draft DCO (S_D4_8), Morgan Offshore Wind Limited 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.
- 12.1.1.2 This Annex will include a proforma for the submission of this information to the MMO.