



Morecambe Offshore Windfarm: Generation Assets Development Consent Order Documents

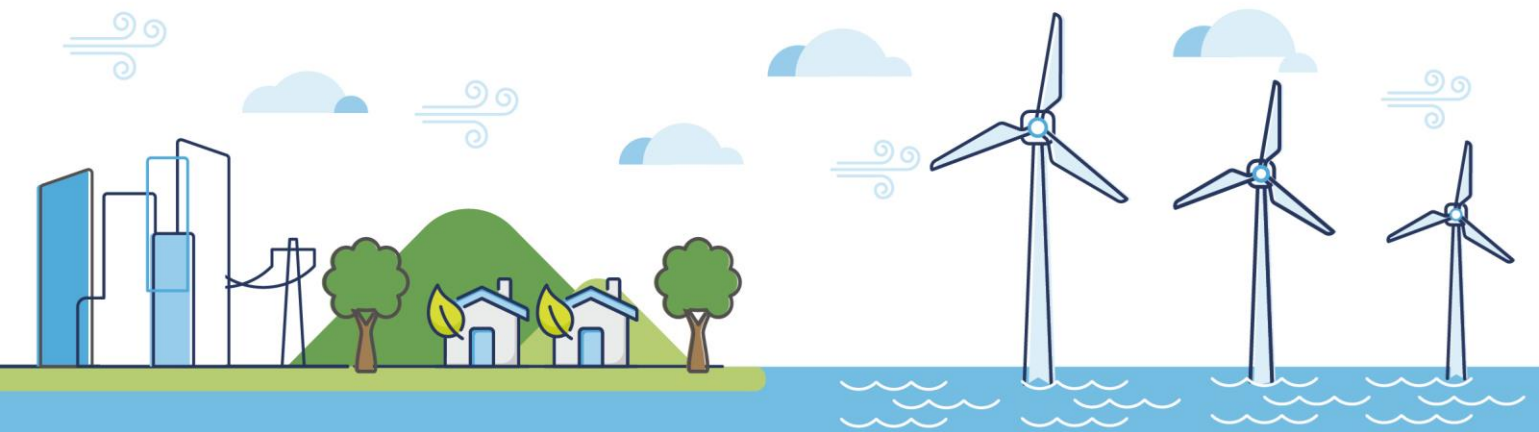
Volume 4

Outline Project Environmental Management Plan

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Glossary of Acronyms

BWM	Ballast Water and Sediments
CRA	Chemical Risk Assessment
CSIP	Cable Specification and Installation Plan
CTV	Crew Transfer Vessels
DCO	Development Consent Order
DML	Deemed Marine Licence
EMP	Environmental Management Plan
EMS	Environmental Management System
EPCI	Engineering, Procurement, Construction and Installation
EPS	European Protected Species
ES	Environmental Statement
FIR	Fishing Industry Representative
FLCP	Fisheries Liaison and Coexistence Plan
FLO	Fisheries Liaison Officer
GBS	Gravity Base Structure
HSE	Health, Safety and Environment
IAPP	International Air Pollution Prevention
IMCA	International Marine Contractors Association
IMO	International Maritime Organisation
IOPP	International Oil Pollution Prevention Certificate
IPMP	In Principle Monitoring Plan
ISO	International Organisation for Standardisation
JNCC	Joint Nature Conservation Committee
MAIB	Marine Accident Investigation Branch
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MMOs	Marine Mammal Observers
MPCP	Marine Pollution Contingency Plan
NSIP	Nationally Significant Infrastructure Project
OFLO	Offshore Fisheries Liaison Officer
OOMP	Outline Offshore Operation and Maintenance Plan
OREI	Offshore Renewable Energy Installations

OSP	Offshore Substation Platform
PEMP	Project Environmental Management Plan
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
SECA	Sulphur Emission Control Areas
SNCB	Statutory Nature Conservation Bodies
SOP	Standard Operation Procedure
TH	Trinity House
UKHO	United Kingdom Hydrographic Office
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator

Glossary of Unit Terms

km	Kilometre
km ²	square kilometre
m ²	square metre
MW	Megawatt

Glossary of Terminology

Applicant	Morecambe Offshore Windfarm Ltd
Archaeologists	A professional who specialises in human history and prehistory through the excavation of sites and the analysis of artefacts and other physical remains.
Aspect and Impacts Register	Essential document related to International Organisation for Standardisation (ISO) 14001 requirements that identifies and gives significance to the environmental impact of organisation's activities.
Contractor	A person or company responsible for managing and implementing environmental plans and programmes including the preparation of environmental documentation on behalf of the developer.
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 WTG to each other and the OSP(s).
Landfall	Where the offshore export cables would come ashore.
Marine Mammal Observers (MMOs)	Environmental consultant certified under an approved Joint Nature Conservation Committee (JNCC) course to assess the presence and behaviour of marine mammals at sea.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The transmission assets for 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 export cables	The cables which would bring electricity from the OSP(s) to the landfall.
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.

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 OSP(s) are still included in the description of the Transmission Assets for the purposes of this ES 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

Onshore export cables	The cables which would bring electricity from landfall to the onshore project substation and from the onshore project substation to a National Grid substation.
Onshore project substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of electrical transformers.
Ornithologists	Professional specialised in bird ecology.
Principal contractor	A person or company responsible for managing and overseeing the implementation of environmental plans and programmes environmental management on site, with more than one contractor.
Project team	A multi-disciplinary team consisting of individuals from Applicant who are ultimately responsible for the construction, operation and maintenance and decommissioning phases of the Project, who are supported by a wider group of contractors and sub-contractors.
Platform link cable	An electrical cable which links one or more OSP(s).
Regulator	Institution or body that supervises a particular industry or business activity.
Safety Zones	An area around a structure or vessel which should be avoided, as set out in Section 95 the Energy Act 2004 and the Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations due to the flow of water.
Wind turbine generator (WTG)	A fixed structure located within the windfarm site that converts the kinetic energy of wind into electrical energy.
Windfarm site	The area within which the WTGs, inter-array cables, OSP(s) and platform link cables will be present.



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1 Introduction

1.1 Purpose of this document

1. There are potential environmental sensitivities associated with an offshore windfarm development, which need to be identified and considered before construction takes place.
2. These potential effects have been assessed in the Environmental Statement (ES). The ES also outlined the embedded mitigation such as refinements to the Project design and adoption of best practice measures. Where necessary, additional mitigation to be adhered to during the construction, operation and maintenance, and decommissioning phases has also been proposed.
3. The Project Environmental Management Plan (PEMP) provides a key mechanism, through which the relevant regulatory authorities can be assured that environmental impacts associated with the construction, operation and decommissioning of the offshore infrastructure would be formally controlled and mitigated.
4. Therefore, prior to commencement of construction (with a draft/outline of some of these plans provided in the Development Consent Order (DCO) Application) the following documentation must be submitted and approved in writing by the MMO, in consultation with Trinity House (TH), the Maritime and Coastguard Agency (MCA) and the UK Hydrographic Office (UKHO) as appropriate:
 - Design plan
 - Construction programme
 - PEMP (outlined in this document) (Document Reference 6.2)
 - Schedule of Mitigation (Document Reference 5.5)
 - Monitoring plan (outlined in the In Principle Monitoring Plan (IPMP); Document Reference 6.4)
 - Marine mammal mitigation protocol (MMMP), (as per the draft MMMP; Document Reference 6.5)
 - Offshore Operation and Maintenance Plan (OOMP), (as per the Outline OOMP; Document Reference 6.6)
 - Scour Protection and Cable Protection Plan (as per the Outline Scour Protection and Cable Protection Plan; Document Reference 6.8)
 - Vessel Traffic Management Plan (as per the Outline Vessel Traffic Management Plan; Document Reference 6.9)
 - Offshore Written Scheme of Investigation (OWSI) (Outline OWSI provided; Document Reference 6.10)
 - Offshore construction method statements

- Aids to navigation management plan
 - Cable Specification and Installation Plan
5. This Outline PEMP is submitted as part of the DCO Application and its purpose is to set out a framework for the PEMP, including the measures that are proposed to manage the environmental risks associated with the construction and operation of the of the Project, noting all works are offshore. The document is based on the ES, industry good practice and relevant legislation (at the time of preparation).
 6. The PEMP would be prepared following post-consent detailed design as required in the deemed Marine Licence (DML) included within the draft DCO.

1.2 Background

7. Morecambe Offshore Windfarm Generation Assets is a proposed offshore windfarm located in the Eastern Irish Sea, approximately 30km off the Lancashire coast (**Figure 1.1**). It is being developed by Morecambe Offshore Windfarm Ltd (the Applicant).
8. As the windfarm is an offshore generating station of over 100MW, it is defined under the Planning Act 2008 as a Nationally Significant Infrastructure Project (NSIP) and as such it requires a DCO.
9. A Government-initiated review of offshore windfarm transmission connections has concluded that the Morecambe Offshore Windfarm would share a grid connection location at Penwortham in Lancashire with the Round 4 Morgan Offshore Wind Project, also located in the Eastern Irish Sea. Given this, the Applicant intends to deliver a coordinated grid connection with the Morgan Offshore Wind Project and submit a separate DCO application for the transmission assets for both projects.
10. For the purposes of this document the “Project” refers to the Morecambe Offshore Windfarm Generation Assets.
11. The Project would include infrastructure to be located within the offshore windfarm site (spanning 87km²), namely fixed foundation wind turbine generators (WTGs), inter-array cables, offshore substation platform(s) (OSP(s)) and possible platform link cables to connect OSP(s). WTGs and OSP(s) would be fixed to the seabed with four possible foundation types (i.e. Gravity Base Structure (GBS), multi-legged pin-piled jacket, monopile or multi-legged suction bucket jacket) as described in **Chapter 5 Project Description** of the ES (Document Reference 5.1.5).
12. Construction is expected to start at the earliest in 2026/2027, and while a detailed programme is not finalised at this stage, construction is anticipated to be over a 2.5 year period.

Figure 1.1. Morecambe Offshore Windfarm location

2 Scope

13. The scope of the PEMP is included in the draft DCO. Prior to construction, the PEMP would be submitted for approval by the MMO providing the information requested in the relevant DML condition. Controls and processes that are to be adopted to mitigate environmental impacts of the Project must be implemented in line with this Outline PEMP. The PEMP is an iterative document that would be developed and refined as the Project progresses through the detailed design process, procurement and construction and in consultation with key stakeholders.
14. A series of Engineering, Procurement, Construction and Installation (EPCI) contractors would be responsible for the detailed design, construction and installation of the main infrastructure associated with the Project, including WTG foundations, turbine installation, offshore cable laying and OSP(s) installation. These may be managed as individual contracts or as a framework.
15. Requirements within the PEMP would be communicated to the nominated contractors, as required, to discharge the relevant licence conditions and to communicate Project environmental requirements and standards to facilitate incorporation into their Environmental Management Plans (EMPs). The PEMP would be the responsibility of the Project Team to manage in close working with Contractors.
16. Additional information with regard to environmental management requirements and project specific requirements are set out in the ES, DCO requirements and DML conditions.
17. The Applicant operates an Environmental Management System (EMS) based on the requirements of ISO 14001:2015, which describes the processes and procedures by which the Applicant would identify and manage significant risks associated with its operations. The EMS is a primary mechanism by which environmental policy commitments, such as compliance with relevant legislation and standards, pollution prevention and continual improvement in environmental performance are delivered. The Applicant would be compliant with the requirements of the EMS and ensure contractors are too.
18. The PEMP would include the following information, as required by the DCO:
 - A Marine Pollution Contingency Plan (MPCP) (**Section 6.7.7**)
 - Chemical Risk Assessment (**Section 6.7.1**)
 - Waste management and disposal arrangements (**Section 6.7.2** and **6.7.3**)
 - Appointment and responsibilities of a Fisheries Liaison Officer (FLO) and Fisheries Liaison and Coexistence Plan (FLCP) (**Section 6.3**)

- Management of key environmental issues (including measures to minimise the potential spread of invasive non-native species and procedures to be adopted within vessel transit to minimise disturbance to marine mammals and rafting birds) (**Section 6.1**)
19. The PEMP would also include the following information, as relevant, in connection with environmental management and other plans and DCO conditions:
- Project description and environmental sensitivities (**Section 3**)
 - Environmental management structure and responsibilities and associated documentation (**Section 4 and 5**)
 - Navigation safety (**Section 6.4**)
 - Aviation safety (**Section 6.5**)
 - Archaeological Written Scheme of Investigation (WSI) (**Section 6.6**)
 - Method statements (**Section 6.8**)
 - Offshore safety management (**Section 7**)
 - Environmental incident response and contingency (**Section 8**)
 - Environmental audits, monitoring and vessel inspections (**Section 9**)
 - Legislative and regulatory compliance (**Section 10**)
 - Training and awareness (**Section 11**)
 - Communication and reporting (**Section 12**)
 - Subcontractor management (**Section 13**)

3 Project description and environmental sensitivities

20. **Chapter 5 Project Description** of the ES outlines the Project description based on a design envelope. Following final detailed design, this section of the PEMP would set out information with regard to the detailed design and the associated environmental sensitivities. Sensitive ecological, archaeological or human receptors, constraints from other infrastructure, site layout plan, and the scope of works to be undertaken, in particular, would be considered.
21. The relevant EPCI contractors would be expected to have their own Aspect and Impacts Register as part of their internal EMS.

4 Environmental management structure and responsibility

22. Environmental management roles and responsibilities for the Project Team would be documented. This section of the PEMP would set out the environmental responsibilities, including identification of key staff, their environmental management responsibilities and how these link with other members of the Project Team, such as the Project Manager, the Project Health Safety and Environmental Manager(s) and/or Advisors along with environmental specialists such as FLO, Ornithologists, Marine Mammal Observers (MMOs) or Archaeologists. The contact details for the key individuals of EPCI contractors would also be included in the PEMP.
23. Interactions with stakeholders such as Statutory Nature Conservation Bodies (SNCBs) and the MMO would also be covered in this section.
24. It is expected that the Applicant would employ a Principal Contractor who would be responsible for environmental management on site, including the preparation of environmental documentation e.g. monitoring reports.

5 Associated documentation

25. This section of the PEMP would refer to relevant associated EMS and Project specific documentation that requires to be considered when developing the PEMP. Examples include, but are not limited to:
 - Contract requirements (such as environmental standards)
 - EPCI Contractors' EMS requirements
 - Project Emergency Response Plan
 - Project Health and Safety Plan
 - Project ES
 - DCO requirements
 - DML conditions
 - Risk registers
 - Legal registers

6 Management of other key environmental issues

26. This section provides an overview of the controls and procedures to be adopted to mitigate the environmental effects associated with the Project. Further details would be provided in the PEMP following detailed design.

27. An Offshore IPMP and a Schedule of Mitigation are provided with the DCO Application, outlining the approach to monitoring and mitigation based on the outcomes of the impact assessments detailed in chapters 7 to 22 of the ES.
28. The PEMP would outline the mitigation measures to be adopted as relevant ensuring the designated members of the Project Team are aware of the measures that need to be implemented and managed.

6.1 Physical environment

29. In line with the offshore IPMP, and as per the draft DCO (Document Reference 3.1), prior to construction a geophysical survey must be carried out with due regard to, but not be limited to, the need to undertake a swath-bathymetric survey as outlined and secured in the draft DCO.
30. During construction, in line with the offshore IPMP and the draft DCO, underwater sound monitoring must be carried out for the first four piles of each piled foundation type to be installed unless otherwise agreed with the MMO.
31. Post-construction, in line with the IPMP and with the draft DCO, another geophysical survey must be carried out, as outlined and secured in the draft DCO.
32. As part of the construction method statement condition, a Scour Protection and Cable Protection Plan would be prepared, as per the draft DCO. The draft DCO sets out reporting procedures regarding scour and cable protection.
33. Additionally, a Cable Specification and Installation Plan (CSIP) would be prepared, as per the draft DCO. 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.

6.2 Marine ecology

6.2.1 Invasive non-native species

34. Implementation of biosecurity measures would be in line with international and national regulations and guidance as noted in the IPMP and Schedule of Mitigation, namely:
 - International Convention for the Prevention of Pollution from Ships (MARPOL). The MARPOL sets out appropriate vessel maintenance
 - The Environmental Damage (Prevention and Remediation) (England) Regulations 2015, which set out a polluter pays principle where the operators who cause a risk of significant damage or cause significant damage to land, water or biodiversity would have the responsibility to prevent damage occurring, or if the damage does occur would have the duty to reinstate the environment to the original condition

- The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) (International Maritime Organisation (IMO), 2004), which provide global regulations to control the transfer of potentially invasive species
35. Monitoring, as outlined in the IPMP, would seek to identify if further measures are required.

6.2.2 Marine mammals

6.2.2.1 Piling

36. A MMMP for piling, in accordance with the draft MMMP (submitted with the DCO Application) and as secured through the draft DCO), would detail the proposed mitigation measures to reduce the risk of any physical or permanent auditory injury to marine mammals during all piling operations. This would also include details of the embedded mitigation, for the soft-start and ramp-up.
37. A Construction Method Statement would be prepared for foundation installation, as per the draft DCO, following final design to detail the procedures for soft-start and ramp-up of piling activity, in accordance with those assessed in **Chapter 11 Marine Mammals** (Document Reference 5.1.11) of the ES.
38. It is likely that a risk assessment for European Protected Species (EPS) (cetaceans) would be incorporated into the PEMP and an EPS licence(s) applied for where applicable.
39. Further assessment would be conducted prior to construction, based on the foundation type and installation method, to determine if there is the risk of significant disturbance to marine mammals. This would then be used to determine if further mitigation measures which reduce sound propagation and disturbance are required. If they are required, then a review would be conducted to determine what is the most appropriate and effective method based on the latest and available methods prior to construction. This would include a review of all suitable noise abatement measures at that time.

6.2.2.2 Vessel collision

40. The MMMP would also include embedded good practice measures to reduce vessel collision risk with marine mammals as outlined in Annex 1 of the draft MMMP in accordance with the draft DCO.
41. These measures include that vessel movements, where possible, would follow set vessel routes and hence, areas where marine mammals are accustomed to vessels, in order to reduce any increased collision risk. All vessel movements would be kept to the minimum number that is required, to reduce any potential collision risk. In the instance of Project related vessels transiting

to and from the port, the vessels would use main shipping channels and endeavour to stay at least 1km from the coast, where possible. However, it is noted that this distance could not be committed to within existing shipping channels/entrance into ports.

42. Operators of all vessels would be made aware of the risk and measures to avoid marine mammal collisions during mobilisation briefings. In order to reduce the risk of collisions, meetings would be undertaken with all vessel operators to promote collision awareness and avoidance, including adherence to an agreed Code of Conduct.
43. A Code of Conduct for vessel operators would be produced and issued to all contractors to reduce the risk of collision with marine mammals across all phases of the Project.
44. The Code of Conduct for good practice would be developed prior to construction based on the latest information and guidance.
45. The Code of Conduct for good practice to avoid marine mammal collisions with vessels would include, but not be limited to:
 - Avoid deliberately approaching marine mammals when sighted
 - Avoid abrupt changes to course or speed should marine mammals approach the vessel or bow-ride
 - Where possible, vessels would maintain a steady speed, and direction, to allow any marine mammal to predict where the vessel may be headed, and to move out of the way or avoid surfacing in the path of the vessel
 - Consideration of minimum distances (outside of shipping routes) from seal haul-out sites, particularly during sensitive periods such as pupping and moulting
 - Protocol to report any collisions

6.2.3 Offshore ornithology

46. The PEMP would include the final procedures to be adopted within vessels transit corridors to minimise disturbance to red throated diver and common scoter during construction and operation and maintenance activities in accordance with the draft DCO.
47. Potential impacts on red throated diver and common scoter during construction and operation and maintenance works would be mitigated through:
 - Minimising maintenance vessel traffic, where possible, during the most sensitive time period in November to April

- Restricting vessel movements where possible to existing navigation routes (to areas where red throated diver and common scoter density is likely to be lowest)
 - Maintaining direct transit routes (to minimise transit distances through areas used by red throated diver and common scoter)
 - Avoidance of over-revving of engines (to minimise noise disturbance)
 - Considering the potential for crew transfer vessels (CTV) to travel in convoy en route to the windfarm site and seeking to do so where it is considered practicable
 - Avoiding rafting birds either in-route to array from operational port and/or within the windfarm site (dependent on location) and where possible avoid disturbance to areas with consistently high diver density
48. The Project team would make maintenance vessel operators aware of the importance of the species and the associated mitigation measures through toolbox talks.

6.3 Fisheries Liaison and Coexistence Plan

49. A FLCP would be prepared in accordance with the Outline FLCP (Document Reference 6.3) with an aim of ensuring relevant fishing fleets are notified of the commencement of licensed activities. The requirement for this is secured through the DML (draft DCO).
50. The FLCP as per the Outline FLCP would set out the Applicant's strategy to facilitate coexistence between the Project and the commercial fisheries industry. It provides an outline of the approach to fisheries liaison and preliminary mitigation measures throughout the lifetime of the Project from surveying the pre-construction, construction and decommissioning of Project.
51. The content of the FLCP covers the roles and responsibilities for the FLO, Onshore Fishing Industry Representative (FIR) and Offshore Fisheries Liaison Officer (OFLO). It also presents a timeframe for the distribution of Project information.
52. Co-existence and mitigation measures include:
- Regular and routine communications to provide suitable notice to enable decisions around operating practices to be made
 - Minimising fishing clearance zones during surveys/construction where safe and practicable in order to reduce the size of the impact to the fishing industry
 - Timing of activities where feasible to avoid seasonal fishing hotspots
 - Consideration of the use of guard vessels to assist with offshore works in order to help search for fishing gear ahead of survey/construction vessels and liaise with fishing vessels in the vicinity

- Development of a Standard Operation Procedure (SOP) for the Project's vessels and contracted vessels on how to reduce interactions with fishing activity and communicate proactively with the fishing industry during surveys, construction, and maintenance work
- Provision of procedures for the safe recovery of lost or snagged fishing gear
- Development of a procedure for claims for loss or damage of fishing gear
- Early provision of construction and cable laying plans, including location and methods for cable protection, if required
- Cable monitoring throughout construction and operation to locate cable that needs remedial work and the provision of appropriate communication with the fishing industry in the event that cables become unburied (i.e. through the FIR and FLO and other communication channels as seen fit such as the Kingfisher Information Service).

6.4 Navigation safety

53. The PEMP would include procedures to ensure that during and post-construction vessel traffic is monitored in accordance with the Vessel Traffic Management Plan, as per the Outline Vessel Traffic Management as per the DML (draft DCO).
54. The PEMP would include procedures to ensure the appropriate aids to navigation and colouring of structures are in place and notifications are sent to Trinity House and the MMO in accordance with the DML (draft DCO).
55. Additionally, the draft DCO requires an Aids to Navigation Management Plan to be agreed with the MMO and the Trinity House.

6.5 Aviation safety

56. The PEMP would include procedures to ensure the appropriate aviation safety and guidance are in place in accordance with the DCO requirements listed in the DML (draft DCO).

6.6 Marine archaeology and cultural heritage

57. The Archaeological WSI would be produced in accordance with the Outline WSI and would set out the commitment that the Applicant has made for the investigation, mitigation and recording of any archaeological remains encountered, or suspected, during construction, operation and decommissioning. It comprises the following:

- An outline of the development options and a summary of the potential impacts associated with the development
- Details of any archaeological exclusion zones
- Details of agreed recommended mitigation and monitoring requirements

- An outline of responsibilities and communication requirements
 - Details of the agreed protocol for archaeological discoveries
 - A scheme of investigation for further archaeological works
58. The WSI would be monitored and updated throughout the pre-construction and construction phase to ensure that the scheme of investigation is appropriate to the final design. The requirement for this is secured through the draft DCO.

6.7 Chemicals, drilling and debris

59. It is the responsibility of each Contractor to have in place adequate controls for the delivery, storage and use of fuels, oils and chemicals on vessels and other materials as required. This includes checks that chemicals to be used offshore comply with relevant regulations. The following control measures would be applied where possible:
- Oils and lubricants used in the wind turbines would be biodegradable where possible and all chemicals would be certified to the relevant standard
 - Where grout is required, careful use would be ensured at all times to avoid excess grout being discharged to the environment
 - All wind turbines would be designed to retain spilled fluids within the nacelle and tower. In addition, offshore electrical platforms would be designed with a self-contained bund to contain any spills and prevent discharges to the environment
 - Best practice procedures would be put in place when transferring oil or fuel between offshore electrical platforms and service vessels
 - Appropriate spill plan procedures would also be implemented in order to appropriately manage any unexpected discharge into the marine environment. To avoid discharge or spillage of oils it is anticipated that the transformers would be filled for their operational life and would not need interim oil changes
60. Within their EMP, each contractor must consider the delivery, storage and handling of hazardous materials and in particular oils and fuels taking into account the legal requirements and good practice guidelines. Contractors should also consider the recovery and/or contingency of hazard materials in the case of any accidental spill.
61. Oils and chemicals must be clearly labelled, and each contractor should retain an up-to-date hazardous substance register. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel.

62. Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas taking into account security, the location of sensitive receptors and pathways, and safe access and egress for plant and manual handling.
63. Spill response materials should be provided nearby and be readily accessible, with local project personnel trained in spill response.
64. Vessels of more than 400 gross tonnage should maintain an oil record book and the sulphur content of fuels must comply with MARPOL (International Convention for the Prevention of Pollution from Ships) Annex VI requirements in relation to Sulphur Emission Control Areas (SECAs) and hold a valid International Oil Pollution Prevention Certificate (IOPP).

6.7.1 Chemicals

65. A Chemical Risk Assessment (CRA) would be produced, with the aim of minimising the risk of pollution incidents occurring by assessing the risks of spills occurring, stating how the chemicals should be stored and transported and ensuring best practice techniques are used when handling all chemicals. The requirement for this is secured through the draft DCO.

6.7.2 Drilling cuttings and other construction materials

66. The PEMP would outline procedures for the management and disposal of any spoil material, and associated mud produced during drilling activities, if required, or any material from the seabed preparation to be disposed of in accordance with the limits of the DML details of licensed marine activities of the draft DCO.
67. Therefore, the final PEMP would include reporting procedures regarding:
 - Disposals location and quantities
 - Origin of the material to be disposed of
 - Sources of any rock material used in the construction
 - Any loss or misplace of any rock material used in the construction
 - Measures to avoid any waste concrete slurry or wash water from concrete or cement works being discharged into the marine environment

6.7.3 Waste management

68. Where waste is produced, reuse, recycle or recovery should be considered where practical and economically feasible prior to considering disposal.
69. Each contractor would be responsible for the collection, storage and disposal of any waste produced as part of the project. Vessel operators would be

required to liaise with port operators to facilitate appropriate storage, transfer, segregation and disposal of waste.

6.7.4 Wastewater discharges

70. Controls for any wastewater discharges (such as effluent discharges, ballast waters, bilge waters, and deck runoff) would comply with MARPOL Annex IV requirements and would be included in the PEMP, in accordance with the latest legislation, regulatory limits and good practice.
71. Monitoring records in relation to the disposal of foul water, bilge water or ballast water during the construction phase must be retained.

6.7.5 Emissions to air

72. Vessel emissions associated with the Project would comply with MARPOL Annex VI requirements in relation to ozone depleting substances regulations, nitrogen oxide, sulphur oxide and particulate and volatile organic compounds. Where relevant, vessels must have a valid International Air Pollution Prevention (IAPP) certificate.

6.7.6 Dropped objects

73. The PEMP would outline procedures to be followed in the case floating or non-floating objects are dropped in the marine environment. It should detail who to report the incident to, where to document the incident, and methods for recovery. Designated members of the Project Team and the Regulator (in this case, The MMO and The Crown Estate) must approve the procedure before contractors may begin work.

6.7.7 Marine Pollution Contingency Plan

74. The PEMP would outline procedures to be followed in case of marine pollution through the MPCP. This would provide guidance to the Project Team personnel, its contractors and subcontractors on the actions and reporting requirements in the event of spills and collision incidents (including oil, chemical and grout spills) during construction and operation. The requirement for this is secured through the PEMP of the draft DCO.

6.8 Method statement and risk assessment

75. It is the responsibility of the contractors to have in place method statements and risk assessments approved by the Project Team for works being carried out on-site (construction and during operation and maintenance (works as detailed in the Outline OOMP)). Where relevant, the method statement should cross reference applicable environmental risk assessments.

76. The risk assessments should identify environmental hazards and outline subsequent control measures. Control measures should be developed, implemented and monitored to ensure that any impact on the environment is avoided or minimised. Approval for these method statements with the relevant authorities would be required.
77. A toolbox talk should be presented by the contractor to key personnel involved in the work activities. This would consist of a method statement outlining the risks involved and the control measures personnel are expected to comply with. Individuals must sign a method statement briefing attendance record sheet, providing acknowledgment of their presence at the briefing. The contractor would retain these records. Toolbox talks are an opportunity for the contractor to disclose any other environmental sensitivities that the contractors must be aware of.

7 Offshore safety management

78. In accordance with the DML (draft DCO), all recommendations as appropriate within MGN654 “Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues” (MCA, 2021) (or any equivalent guidance that replaces or supersedes it) and its annexes should be adequately addressed.
79. As stated in **Section 6.7.7**, a MPCP would also be developed.

8 Environmental incident response and contingency

80. It is essential that any environmental incidents (including dropped objects into the marine environment) are reported and managed correctly to allow their impact to be reduced to a minimum and to decrease the risk of the incident re-occurring.

8.1 Emergency response plan

81. The PEMP would outline procedures to be followed in the case of an environmental incident in accordance with the Emergency Response Cooperation Plan (ERCoP) which informs roles, responsibilities, and contacts in case of an emergency setting out instructions and reporting procedures to be followed.
82. The PEMP would also give regards to any safety procedure outlined through the draft Vessel Management Plan and Safety Zone Statement (Document Reference 4.5).

8.2 Reporting

83. All environmental incidents must be reported, investigated and recorded to the designated members of the Project Team and in accordance with statutory incident reporting (see also **Section 12.557**).
84. EPCI Contractors are required to produce monthly reports for the designated members of the Project Team to record health, safety and environmental performance (see also **Section 12**).

8.2.1 Lessons learned/incident follow-up

85. If an environmental incident occurs, it must be thoroughly investigated by the relevant contractor to establish the root cause and prevent any recurrence. Dependent on the severity of the incident, the Project Team may wish to manage or assist with the investigation process.
86. Risk assessments to be reviewed following incidents, and additional risk controls identified if appropriate.

9 Environmental audits, monitoring and vessel inspections

87. A programme of performance and compliance monitoring must be established for the Project, this would be documented in the PEMP and include, but not necessarily be restricted to, the following items (**Sections 9.1, 9.2, and 9.3**), where relevant.

9.1 Environmental audits

88. Environmental audits should comprise both internal audit and external audits.
89. The Applicant's audit programme includes a requirement to audit construction sites on a periodic basis. An audit checklist would be used by the Applicant to ensure that a standard approach is applied consistently. Environmental audits would be carried out by experienced auditors, either from within the Project Team, or via delegated specialists.

9.2 Vessel inspections and audits

90. Environmental vessel inspections should be based on the International Marine Contractors Association (IMCA) standards, IMCA M 189/S 004 (Marine Inspection Check List for Small Boats) or IMCA M 149 (Common Marine Inspection Document). A log of all vessel audits and associated close out actions should be maintained. This would be the approach adopted by the Project Team.

9.3 Environmental monitoring

91. An Offshore IPMP has been submitted with the DCO Application. It is recognised that monitoring is an important element in the management and verification of the actual Project impacts for certain receptors. The requirement for, and appropriate design and scope of monitoring, would be agreed with the Regulator (in this case, the MMO) and appropriate stakeholders (e.g. SNCBs) prior to construction works commencing.

10 Legislative and regulatory compliance

10.1 DCO conditions

92. UK Offshore sites are granted permission to be constructed under specific consents and licences issued by Government bodies such as the MMO.
93. Specific limits for emissions to air, discharges to land and water and working practices (such as seasonal exclusions) are contained within these consents/licences and may not be breached at any time. The DCO and DML would be the key permissions to be adhered to for offshore construction and operation of the project.
94. The Principal Contractor must ensure that all relevant requirements and conditions for the Project are complied with.
95. Requirements and conditions would be reviewed by the designated members of the Project Team on a periodic basis, to ensure compliance.

10.2 Legal register

96. It is the Applicant's policy to minimise the impact of its construction and operation and maintenance activities on the environment by complying with all relevant environmental legislation and good practice.
97. To ensure that the Applicant is aware of the requirements of current environmental legislation and good practice, an Environmental and Planning Legal Register would be maintained by the Project Team.
98. The Legal Register details relevant environmental legislation requirements for the business and also includes details of associated control measures.
99. Contractors would be required to ensure that all relevant environmental legislation and good practice are complied with on site. Adequate records of environmental information and audits to demonstrate compliance with both legal and Project environmental requirements would be maintained by the Contractor.

10.3 Regulatory reference material

100. Key reference material in this section of the PEMP should include the following.
- Register of relevant DCO requirements/DML conditions
 - Project Legal Register
 - Good Practice Guidance/Industry Standards

11 Training and awareness

11.1 Project/vessel inductions

101. The overarching Project induction must include reference to compliance with the relevant requirements and conditions of the Project including those specific to vessel management practices.
102. A vessel induction must take place with all vessel personnel present. It must include an environmental component. The Contractor's project team should nominate designated personnel to be responsible for the preparation and delivery of site induction and maintaining attendee records.
103. The environmental component of the vessel induction is expected to include reference to environmental management contacts, site specific environmental sensitivities, waste management arrangements, hazardous material management, fuel, oil, and chemical management; environmental emergency response, reporting of incidents and complaints.
104. Mobilisation briefings should also include information about the adherence to an agreed Code of Conduct, awareness regarding the risk and measures to avoid marine mammal collisions (**Section 6.2.2.2**) and measures to minimise disturbance to sensitive seabirds (**Section 6.2.3**).

11.2 Toolbox talks

105. Toolbox talks are an effective method for the dissemination of information relating to work activities. The contractor must deliver environmental toolbox talks to all on-site personnel, when required. Attendee records must be kept by the contractor as they are likely to be inspected as part of environmental audits.

11.3 Emergency response

106. The Contractor must ensure that all staff, including any sub-contractors, are trained in the Morecambe Offshore Windfarm environmental emergency response procedures, as outlined in **Section 8.1**. This is to ensure that they are able, and prepared, to respond to an incident promptly and effectively.

12 Communication and reporting

12.1 Meetings

107. Regular environmental meetings and debriefs must be held. Frequent health, safety and environment (HSE) meetings must take place on all construction and maintenance vessels with representatives from the Project Team, the Principal Contractor, and key sub-contractors. Minutes of meetings would be recorded, and standard agenda items would include status of outstanding items, reports of environmental incidents or complaints, stakeholder engagement, toolbox talks issued/delivered, and key findings of environmental inspections and audits.
108. The Principal Contractor and Project Team are expected to host regular meetings whereby important environmental information would be shared with the wider Project Team, contractor and subcontractor group members to raise awareness of environmental issues.

12.2 Community/marine users complaints

109. The Applicant values its relationship with the communities/marine users that may interact with Morecambe Offshore Windfarm. All work would be carefully planned to minimise disturbance to them.
110. Contractors must ensure that any complaints are reported to the designated members of the Project Team and investigated promptly.
111. The PEMP would detail the procedure in place to report, register, identify the root causes of and resolve public complaints in relation to offshore works. It would also include a process to prevent similar issues from reoccurring.

12.3 Fisheries liaison

112. As discussed in **Section 6.3**, a FLO would be appointed for the duration of the construction, operation and decommissioning works.

12.4 Stakeholders

113. Reference would be made to any reporting requirements in relation to stakeholders set out under the DCO and/or DML.

12.5 Reporting

114. All environmental and Health and Safety incidents (including dropped objects into the marine environment) and near misses must be reported, investigated and recorded to the designated members of the Project Team and in accordance with statutory incident reporting requirements and expectations including:
- Marine Accident Investigation Branch (MAIB) (Merchant Shipping Act)

- Health, Safety and Environment (HSE) Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)
- Harbour Authority under Port Marine Safety Code (MCA, 2016)

115. Risk assessments to be reviewed following incidents, and additional risk controls identified if appropriate.
116. EPCI Contractors are required to produce monthly reports for the designated members of the Project Team to record health, safety and environmental performance.

13 Sub-contractor management

117. The PEMP would set out how the Principal Contractor would manage their sub-contractors. This may range from the selection and assessment processes through to the assessment of performance on the vessel.
118. For example, expectations of Contractors working on behalf of the Applicant are primarily detailed in the PEMP and the following documents:
- Contract schedules including specific environmental requirements
 - Environmental policy
 - Environmental statement

14 References

IMO (2004). The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention),

Marine Accident Investigation Branch (MAIB) (1995). (Merchant Shipping Act 1995.)

MARPOL (1973/1978) The International Convention for the Prevention of Pollution from Ships.

MCA (2021). Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response.

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1157005/MGN_654.pdf (Accessed January 2024)

MCA (2016). Port Marine Safety Zone. For all UK Harbour Authorities and other marine facilities, berths and terminals. Moving Britain Ahead. November 2016.

RIDDOR (2013). Health, Safety and Environment (HSE) Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

The Environmental Damage (Prevention and Remediation) (England) Regulations (2015). Available at: <https://www.legislation.gov.uk/ukxi/2015/810/contents> (Accessed January 2024)