codling wind park

Construction Environmental Management Plan


codling
wind park

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Abbreviations

Abbreviation	Term in Full
AEZ	Archaeological Exclusion Zone
ACA	Architectural Conservation Area
BWM	Ballast Water Management
CAA	Civil Aviation Authority
CEMP	Construction Environmental Management Plan
CLO	Community Liaison Officer
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea, 1972
CRU	Commission for Regulation of Utilities
CWP	Codling Wind Park
CWPL	Codling Wind Park Limited
DTTAS	Department of Transport, Tourism and Sport
EC	European Commission
ECoW	Environmental Clerk of Works
EEZ	Exclusive Economic Zone
EDF R	Électricité de France Renewables
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Environmental Protection Agency
ERCoP	Emergency Response and Cooperation Plan
EU	European Union
FLO	Fisheries Liaison Officer
FMMS	Fisheries Management and Mitigation Strategy
FOS	Fred Olsen Seawind
GP	General Practitioner
Gt	Gross tonnes
HDD	Horizontal Directional Drilling
HMS	His Majesty's Ship
HNS	Hazardous and Noxious Substances

HSSE	Health Safety Security and Environment
IAC	Inter Array Cables
IMCA	International Marine Contractors Association
INNS	Invasive Non-Native Species
IOPP	International Oil Pollution Prevention
IPMP	In Principle Monitoring Plan
IRCG	Irish Coastguard
ISO	International Organisation for Standardisation
km	Kilometre
IRCG	Irish Coast Guard
MAP	Maritime Area Planning
MARPOL	International Convention for the Prevention of Pollution from Ships
MAS	Maritime Assistance Service
MCA	Maritime Coastguard Agency
MCC	Marine Coordination Centre
MGN	Marine Guidance Note
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMMP	Marine Mammal Mitigation Protocol
MPCP	Marine Pollution Prevention and Contingency Plan
MRCC	Marine Rescue and Coordination Centre
MW	Megawatts
NCP	National Contingency Plan
NIS	Natura Impact Statement
NRA	National Roads Authority
NtM	Notice to Mariner
OECC	Offshore Export Cable Corridor
OREIs	Offshore Renewable Energy Installations
OfTI	Offshore Transmission Infrastructure
OTI	Onshore Transmission Infrastructure
O&M	Operations and maintenance
OSS	Offshore Substation Structure
PAD	Protocol for Archaeological Discoveries
PDA	Planning and Development Act

PIN	Petroleum Incident Notification Form
RACI	Responsible Accountable Consulted Informed
SAC	Special Area of Conservation
SECA	Sulphur Emission Control Area
SOPEP	Ship Oil Pollution Emergency Plan
SPA	Special Protection Area
UAU	Underwater Archaeological Unit
VHF	Very High Frequency
WTG	Wind Turbine Generator

Definitions

Glossary	Meaning
array site	The red line boundary area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the Offshore Substation Structures (OSSs) are proposed.
Archaeological Exclusion Zone (AEZ)	An area identified within the wider Array Site or OECC in which construction activities are excluded to ensure the protection of archaeological sites or features.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure, and any associated temporary works.
Codling Wind Park Limited (CWPL)	A joint venture between Fred. Olsen Seawind (FOS) and Électricité de France (EDF) Renewables, established to develop the CWP Project.
Summary of Mitigation	A summary of all commitments to manage and mitigate potential environmental impacts from the CWP Project
Contractor	The Contractor for the CWP Project as defined in the Conditions of Contract
Developer	The developer, Codling Wind Park Limited (CWPL).
dropped object	Materials or equipment carried by personnel, lifted or carried from support vessels, or smaller items fitted to the wind turbine, such as nuts and bolts or lights, accidentally falling from height into the marine environment.
Environmental Impact Assessment (EIA)	A systematic means of assessing the likely significant effects of a proposed project, undertaken in accordance with the EIA Directive and the relevant Irish legislation.
Environmental Impact Assessment Report (EIAR)	The report prepared by the Developer to describe the findings of the EIA for the CWP Project.
export cables	The cables, both onshore and offshore, that connect the offshore substations with the onshore substation.
generating station	Comprising the wind turbine generators (WTGs) and inter-array cables (IACs).
inter-array cables (IACs)	The subsea electricity cables between each WTG and between the OSSs.
interconnector cables	The subsea electricity cables between OSSs.
Invasive Non Native Species (INNS)	Species that are introduced, intentionally or unintentionally, outside of their natural geographic range, causing environmental, social and/or economic impacts.
landfall	The point at which the offshore export cables are brought onshore and connected to the onshore export cables via the transition joint bays (TJB).

Natura Impact Statement (NIS)	The report prepared by the Developer to describe the findings of the Natura Impact Assessment for the CWP Project.
Maritime Area Planning (MAP) Act 2021	An Act to regulate the maritime area, to achieve such regulation by means of a National Marine Planning Framework, maritime area consents for the occupation of the maritime area for the purposes of maritime usages that will be undertaken for undefined or relatively long periods of time (including any such usages which also require development permission under the Planning and Development Act 2000) and licences for the occupation of the maritime area for maritime usages that are minor or that will be undertaken for relatively short periods of time
Marine Coordination	The management and surveillance of people, vessels and offshore structures with regard to the safe preparation and execution of offshore activities, in order to minimise the probability of an incident, and to provide effective response if an incident does occur.
method statements	Documents developed by the contractor and their subcontractor(s) that provide details of the different construction activities for the CWP Project.
offshore development area	The entire footprint of the offshore infrastructure and associated temporary works that will form the offshore boundary for the development consent application.
offshore export cables	The cables that transport electricity generated by the WTGs from the offshore substations (OSSs) to the landfall.
offshore export cable corridor (OECC)	The area between the Array Site and the landfall, within which the offshore export cables cable will be installed along with cable protection and other temporary works for construction.
offshore infrastructure	The offshore infrastructure, comprising of the WTGs, IACs, OSSs, Interconnector cables, offshore export cables and other associated infrastructure such as cable and scour protection.
offshore substation structure (OSS)	A fixed structure located within the array site, containing electrical equipment to aggregate the power from the wind turbine generators and convert it into a more suitable form for export to shore.
offshore transmission infrastructure (OfTI)	The offshore transmission assets comprising the OSSs, interconnector cables and offshore export cables. The EIAR considers both permanent and temporary works associated with the OfTI.
onshore development area	The entire footprint of the OTI and associated temporary works that will form the onshore boundary for the development consent application.
onshore transmission infrastructure (OTI)	The onshore transmission assets comprising the TJBs, onshore export cables and the onshore substation. The EIAR considers both permanent and temporary works associated with the OTI.
onshore substation	Site containing electrical equipment to enable connection to the national grid.

operations and maintenance (O&M) activities	Activities (e.g., monitoring, inspections, reactive repairs, planned maintenance) undertaken during the O&M phase of the CWP Project.
parameters	Set of parameters by which the CWP Project is defined and which are used to form the basis of assessments.
Regulatory Authority	An independent governmental body established by legislative Act, in order to set standards in a specific field of activity, or operations and to regulate those activities or operation in the public interest. In the case of the CWP Project the regulatory authorities are An Bord Pleanála (ABP), the coastal planning authorities, the Maritime Area Regulatory Authority, and any other public body specified by ABP for that purpose of discharging a planning condition. Ireland's new Maritime Area Regulatory Authority (MARA) will then be responsible for compliance monitoring and enforcement during construction (including pre-construction surveys), O&M and decommissioning.
transition joint bay (TJB)	This is required as part of the OTI and is located at the landfall. It is an underground bay housing a joint which connects the offshore and onshore export cables.
unexploded ordnance	Explosive ordnance that has been primed, fused, armed, or otherwise prepared for use in an armed conflict or disposed of or dumped offshore. It may have been fired, dropped, launched or projected and should have exploded but failed to do so.

1 INTRODUCTION

1.1 Purpose of the CEMP

1. This Construction Environmental Management Plan (CEMP) supports the consent application for the Codling Wind Park (CWP) Project, an offshore wind farm located in the Irish sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow. The CWP Project is being developed by Codling Wind Park Limited (CWPL) (hereafter 'the Developer'), a 50/50 joint venture between Fred Olsen Seawind (FOS) and EDF Renewables (EDF R).

2. The Developer is applying for permission for all components of the CWP Project under Section 291 of the Planning and Development Act (PDA) (as inserted by the Maritime Area Planning (MAP) Act 2021). This includes:

   - The generating station which comprises the wind turbine generators (WTGs), inter array cables (IACs) and interconnector cables;
   - The offshore transmission infrastructure (OfTI) which comprises the offshore substation structures (OSSs) and offshore export cables;
   - The landfall which describes the point at which the offshore export cables are brought onshore; and
   - The onshore transmission infrastructure (OTI), which comprises the onshore export cables, the onshore substation and associated infrastructure.

3. This CEMP is provided as part of the consent application for the CWP Project and sets out the linkages between the impact assessments (as detailed in **Chapters 6** to **32** of the EIAR and the Natura Impact Statement (NIS)), project development activities and the likely conditions associated with any consents granted.

4. The purpose of the CEMP is to provide a management framework, to ensure appropriate controls are in place to manage environmental risks associated with the construction of the CWP Project. It outlines environmental procedures that require consideration throughout the construction process, in accordance with legislative requirements and industry best practice.

5. The CEMP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of consent. It will be a live document which will be updated as project development progresses and a revised version will be submitted to the relevant authority, prior to the start of construction.

1.2 Scope of the CEMP

6. It is anticipated that the development and implementation of a CEMP will form a condition of any consent granted. The Developer has also committed to the development and implementation of a CEMP within the EIAR and supporting documents for the CWP Project.

7. The CEMP provides an overarching framework for environmental management during the construction of the CWP Project, to ensure that any adverse effects on the environment and local communities are minimised. The CEMP has the following primary objectives:

   (i) To ensure environmental consent requirements relevant to the construction of the CWP Project are implemented in full to manage and to mitigate environmental effects as identified within the EIAR, Natura Impact Statement (NIS) and supporting documents;

   (ii) To ensure compliance with legislative requirements and relevant industry good practice;

(iii) *To provide guidance and ensure consistency in approach and performance of environmental management across all project personnel and contractors during the construction of the CWP Project;*

(iv) *To define environmental principles and standards and provide a framework for compliance monitoring and inspection, to ensure the agreed environmental aims are being met; and*

(v) *To ensure a prompt response to any non-compliance with legislative requirements or the EIAR, including reporting, remediation and any additional mitigation measures required.*

8. The CEMP should be read in conjunction with the EIAR, NIS and supporting documentation for the CWP Project. In the unlikely event of any contradiction between this document and the EIAR/NIS, the EIAR/NIS shall take precedence.

1.3 Implementation of the CEMP

9. Key to the implementation of the CEMP is the delegation of responsibility for the CEMP to the relevant appointed contractors, who will regularly liaise with and update the Developer on all environmental issues relating to the CWP Project during the construction phase. As part of the appointment of contractors and agreement of contracts, the Developer will determine the lines of communication for environmental compliance with the local authorities and relevant stakeholders.

10. The appointed contractors will be responsible for developing final construction methods and installation procedures for the CWP Project. Contractors will ensure that all relevant environmental and maritime legislation is complied with, that all necessary licences and permissions are obtained, that all primary (i.e. designed in) mitigation measures are applied and that good working practices are adhered to, at all times, to minimise risks to the environment.

11. Contractors will be responsible for implementing the CEMP through contractual agreements and detailed Employers Requirements with the Developer. Contractors will also be required to complete their own project Environmental Management Plans (EMPs) that are specific to individual work packages. Contractors are likely to have internal management system requirements and contractor EMP templates, and therefore the format of these plans may differ from contractor to contractor, but in each case, these must be compliant with this CEMP.

12. All project personnel are required to ensure compliance with the requirements of this CEMP (and subsequent revisions thereof) and are responsible for ensuring that their actions constitute good environmental practice. All personnel are also encouraged to provide feedback and suggestions for improvements to ensure effective environmental management of all construction activities.

13. A code of conduct will also be developed which will ensure that all project personnel are authorised to stop work if works are observed to be unsafe, or there is a danger to life or the environment.

1.4 Structure of the CEMP

14. In line with the requirements set out above, the structure of this CEMP is as follows:

- Section 2: Linkages with other management plans
- Section 3: CWP Project Description
- Section 4: Environmental Management Framework
    - Environmental Roles and Responsibilities
    - Contractor Requirements
    - Compliance Monitoring and Reporting

- Environmental Incidents and Non-compliance procedures
- Inspections
- Communications
- Competence, Training and Awareness

- Section 5: Offshore Environmental Risk Management and Compliance
  - Coastal Processes and Marine Water Quality
  - Marine Ecology
  - Marine Archaeology and Cultural Heritage
  - Seascape Landscape and Visual
  - Other Marine Users
  - Offshore Biosecurity and Invasive Species Management
  - Offshore Chemicals, Oils and Fuels
  - Offshore Waste Management
  - Unexploded Ordnance
  - Dropped Objects
- Section 6: Onshore Environmental Risk Management and Compliance
  - Onshore Biodiversity Management
  - Onshore Biosecurity and Invasive Species Management
  - Onshore Archaeology and Cultural Heritage
  - Onshore Chemicals and Fuels Management
  - Emergency and Incident Response
  - Onshore Waste Management
  - Traffic Management
  - Dust Suppression and Management
  - Water Environment
  - Airborne Noise and Vibration Control
  - Utilities
- Section 7: Contact Details
- Section 6: Compliance with the Consent Application

15. Further details of the key aspects identified above is provided within the following sections, however, it should be noted that this list is not exhaustive and will be reviewed and updated within the final CEMP, prior to construction and in line with the final design of the CWP Project.

1.5 CEMP Audience

16. The CEMP will be submitted to the relevant authority in consultation with other stakeholders, as required, and in compliance with the specific requirements of the relevant consent conditions.

17. The CEMP is intended to be referred to by all personnel involved in the construction of the CWP Project including CWP personnel, contractors and subcontractors. All method statements and work plans produced in relation to the CWP Project will comply with the requirements set out in this CEMP.

18. Compliance with the CEMP will be monitored by the appointed contractors, the Developer, and the relevant authority.

19. Copies of the CEMP will be held in the following locations:

- The Developer's head office;
- The Developer's construction office and marine coordination centre;
- At the premises of any contractor (as appropriate), appointed by the Developer; and;
- On board any vessel engaged in construction activities.

1.6 Revisions to the CEMP

20. As set out above, the CEMP is considered to be a 'live' document and will be reviewed on a regular basis to allow any changes to the construction programme, operations, or unforeseen issues to be incorporated at any stage, and as deemed necessary by the Developer, their agents or relevant authorities. The CEMP will also be subject to regular review to address, for example:

- Any conditions stipulated in the planning consents;
- Any requirements/issues highlighted through consultation prior to construction;
- Any changes/updates to best practice and best available techniques at the time of construction; and
- To ensure it incorporates the findings of any pre-construction surveys.

21. This CEMP will be provided to the appointed contractors who will have responsibility for ensuring compliance, throughout the construction phase.

22. This will be informed by regular environmental monitoring and inspections to confirm the efficacy and implementation of all relevant mitigation measures and commitments identified in the application documentation.

23. Appointed contractors are required to include further details and/or confirmation in the updated version of the CEMP which will be consistent with contractors own EMPs and which will include:

- Confirmation of contractor roles and responsibilities, communication and reporting procedures;
- Detailed Construction Method Statements, including Risk Assessments;
- Confirmation of mitigation measures and procedures within approved supporting plans and documentation, for example, the Protocol for Archaeological Discoveries (PAD), Construction and Demolition Waste Management Plan (CDWMP) and Fisheries Management and Mitigation Strategy (FMMS).
- Details of environmental non-compliance and pollution emergency response procedures (onshore and offshore), including personnel and contact numbers;

24. The appointed contractor's shall also agree and implement monitoring measures to ensure the effectiveness of the CEMP throughout construction.

2 LINKAGES WITH OTHER MANAGEMENT PLANS

25. The CEMP sets out overarching environmental management procedures for the CWP Project and as such may be linked with other management plans or consent conditions. A number of anticipated management plans are also provided alongside the CEMP in support of the planning application for the CWP Project. Linked management plans are provided in **Table 2-1**.

26. This will be reviewed within the final CEMP to include linked management plans and conditions, with consideration of any consents granted.

Table 2-1 Linked management plans

Management Plan	Summary Description	Application/Post Consent
EIAR **Chapter 33 Summary of Mitigation and Monitoring**	Sets out the mitigation measures and commitments made within the EIAR, NIS and supporting documentation to manage and mitigate potential impacts on the environment from the CWP Project.	EIAR **Chapter 33 Summary of Mitigation and Monitoring** is provided in support of the planning application.
In Principle Project Environmental Monitoring Plan (IPPEMP)	Sets out agreed monitoring proposals for environmental interests and features, to further understanding and to confirm assessments made within the EIAR. For example; onshore biodiversity monitoring, water quality monitoring, ornithological monitoring, marine mammal monitoring and monitoring of sensitive seabed features.	An **IPPEMP** is provided in support of the planning application.
Fisheries Management and Mitigation Strategy (FMMS)	Sets out the mitigation and communication strategy relating to the commercial fishing industry, in order to minimise or avoid effects on fishing vessels and activities.	A **FMMS** is provided in support of the planning application.
Marine Mammal Mitigation Protocol (MMMP)	Sets out the approach to marine mammal mitigation and monitoring in relation to the CWP Project in order to minimise or avoid effects on identified marine mammal interest features.	A **MMMP** is provided in support of the planning application.
Protocol for Archaeological Discoveries (PAD)	Sets out the reporting protocol in the event of marine archaeological discoveries being made prior to, during or following construction of the CWP Project. Further detail is provided in Section 5.3 of this CEMP.	A PAD is provided in EIAR **Chapter 14 Marine Archaeology & Cultural Heritage** support of the planning application.
Navigational Safety Plan (NSP)	Sets out procedures to be followed and marine coordination and communication to ensure the safe navigation of vessels including, proposed safety zones, advisory safe passing distances, appropriate marking of all offshore infrastructure, necessary consultation and promulgation of information and compliance with necessary international legislation.	A **NSP** is provided in support of the planning application.

Management Plan	Summary Description	Application/Post Consent
Lighting and Marking Plan (LMP)	Sets out construction and operational and maintenance phase lighting requirements for all offshore infrastructure and demarcation of the offshore development area such as buoy requirements.	A **LMP** is provided in support of the planning application.
Emergency Response and Cooperation Plan (ERCoP)	Sets out emergency response procedures and protocols for the CWP Project including the measures available to contain/clean any marine pollution incidents and offshore emergency response resources.	An ERCoP will be prepared by contractors and submitted to the regulatory authority as a condition of consent, prior to the commencement of construction.
Construction and Demolition Waste Management Plan (CDWMP)	Sets out the approach to waste management during the construction phase, to ensure compliance with waste management legislation and statutory consents. In terms of onshore activities, it will also outline protocols for managing excavated materials during the earthworks phases.	A **CDWMP** Is provided in support of the planning application.
Onshore Invasive Species Management Plan	Identifies the location of Invasive Non Native Species (INNS) within the onshore development area boundary and details management options applicable to the construction phase.	A **Onshore Invasive Species Management Plan** Is provided in support of the planning application.
Traffic Management Plan (TMP) (EIAR **Appendix 27.2)**	Sets out how onshore construction traffic will access and egress the onshore development area. It will detail traffic management protocols applicable to construction traffic using the local road network during the construction phase.	An CTMP is provided in EIAR **Appendix 27.2** in support of the planning application.
Rehabilitation Schedule	Prepared in accordance with the MAP Act (as amended by the Maritime and Valuation (Amendment) Act 2022) to provide preliminary information on the approaches to decommissioning the offshore and onshore components of the CWP Project. A final Rehabilitation Schedule will require approval from the statutory consultees prior to the undertaking of decommissioning works. This will reflect discussions held with stakeholders and regulators to determine the exact methodology for decommissioning, taking into account available methods, best practice and likely environmental effects.	A **Rehabilitation Schedule** is provided in support of the planning application.

3 THE CWP PROJECT

27. The CWP Project is a proposed OWF located in the Irish sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow.

28. This section of the CEMP presents a high level description of the offshore and onshore components of the CWP Project which includes:

- The generating station which comprises the wind turbine generators (WTGs), inter array cables (IACs) and interconnector cables;
- The offshore transmission infrastructure (OfTI) which comprises the offshore substation structures (OSSs)and offshore export cables;
- The landfall which describes the point at which the offshore export cables are brought onshore; and
- The onshore transmission infrastructure (OTI), which comprises the onshore export cables, the onshore substation and associated infrastructure.

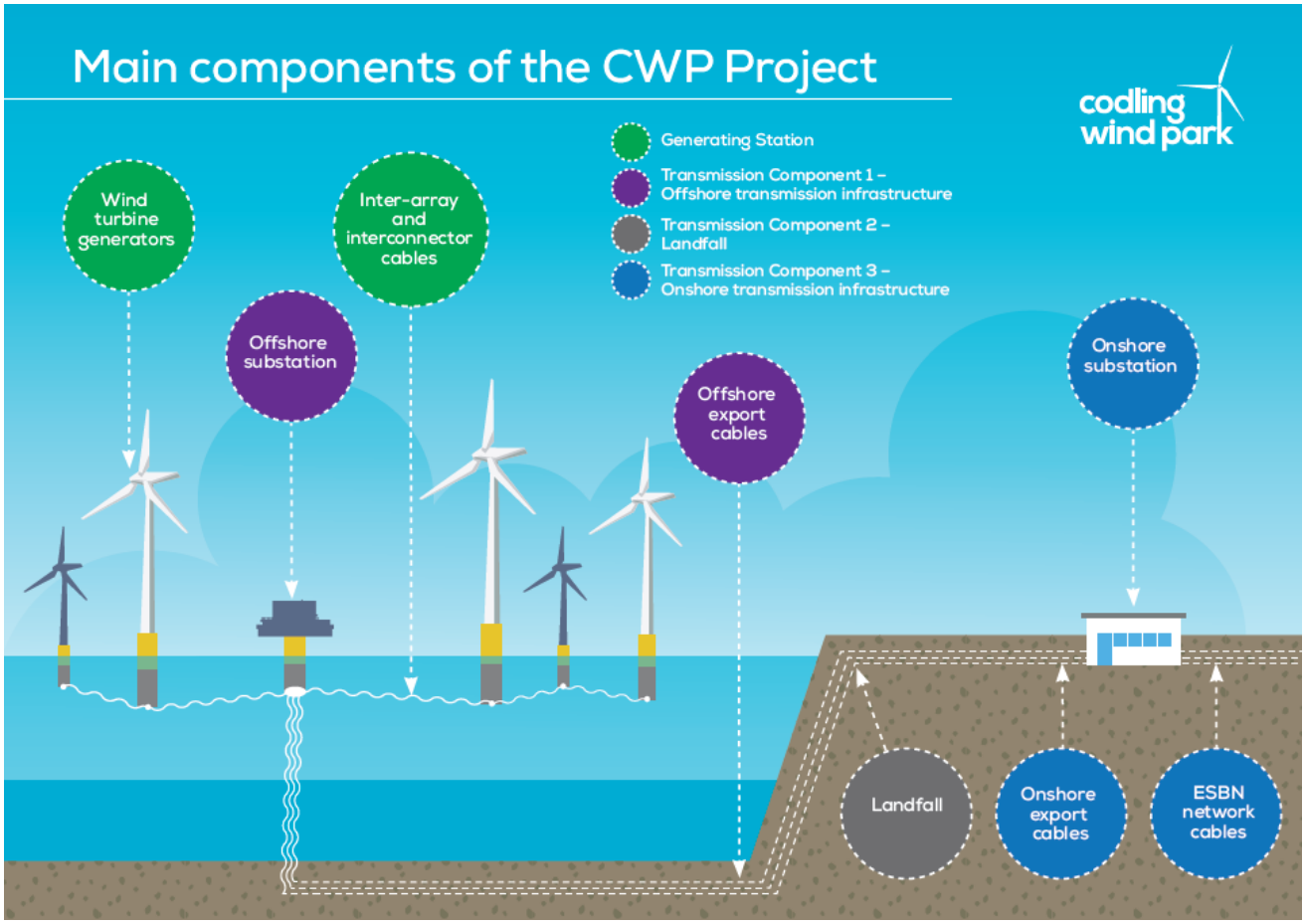


Plate 3-1 Illustrates these project components and how they relate to each other.

3.1.1 Generating station

29. The Developer is seeking limited flexibility on the size, and therefore the number of wind turbine generators (WTGs), that will be installed. Two WTG layout options are currently proposed:

- WTG Layout Option A, consisting of 75 WTGs with a rotor diameter of 250 m; and
- WTG Layout Option B, consisting of 60 WTGs with a rotor diameter of 276 m.

30. The Developer is seeking planning permission for both WTG layout options, but only one of these will be constructed (and therefore not both or a combination of both).

31. Each WTG will be fixed into position using monopile foundation which consists of a single tubular section of steel. The WTG tower will either be bolted directly to a flange on the top of the monopile foundation or will be grouted into a transition piece which is in turn grouted onto the foundation.

32. Scour protection is required to ensure that erosion of the seabed around the monopile foundation does not affect the stability or integrity of the structure. For the CWP Project, rock armour placed around the base of monopile foundation is the proposed form of scour protection.

33. IACs will distribute the electrical power generated at the WTGs to the OSSs where the combined generated power can be converted to a higher voltage for transmission to shore and connection to the onshore grid. In addition to the IAC network, two interconnector cables will connect the northern and southern OSS's to the central OSS.

34. Two IAC layouts are proposed; one for each WTG layout option. The interconnector alignments are the same for both WTG layout options.

35. The Developer will, where practicable, bury all cables within the array site. In cases where burial is inadequate due to unforeseeable seabed conditions, cable protection will be implemented as mitigation to avoid risks to other marine operations. For the CWP Project, rock placement is the proposed form of cable protection within the array site.

3.1.2 Offshore transmission infrastructure (OfTI)

36. The key components of the OfTI include:

- Three OSSs, each comprising an OSS topside fixed atop a single monopile foundation with a transition piece bolted and/or grouted to the monopile;
- Scour protection at each OSS foundation;
- Three 220 kV offshore export cable circuits; and
- Cable protection for the offshore export cables (including cable crossings for the latter).

37. The function of the OSSs is to collect the incoming electricity from the WTGs and transform this to a higher voltage for transmission to the shore, via the offshore export cables.

38. OSS scour protection will be achieved using the same type and design of scour protection for the WTG monopiles.

39. As with the IACs and interconnector cables, the Developer will, where practicable, bury all offshore export cables. In cases where burial is inadequate due to unforeseeable seabed conditions, cable protection will be implemented as mitigation to avoid risks to other marine operations. For the CWP Project, rock placement is the proposed form of cable protection along with concrete mattresses at cable crossing locations.

3.1.3 Landfall

40. The landfall on the southern edge of the Poolbeg peninsula, describes the point at which the offshore export cables (part of the OfTI) are brought onshore and connected at three transition joint bays (TJBs) to the onshore export cables (part of the Onshore Transmission Infrastructure (OTI)).

41. Landfall is a complex interaction between land and the marine environment. For the CWP Project, the following activities in the scope of 'landfall', extending from approximately 4 km offshore to the TJBs onshore:

- Non-ducted offshore export cable laying in the shallow water and intertidal area from the limits of vessel operability (approximately 4 km from the high water mark (HWM)) to the nearshore approximately 350 m from the HWM;
- At approximately 350 m from the HWM, ducted offshore export cable laying, referred to as the 'intertidal cable ducts', from the non-ducted offshore export cables in the intertidal area to the seaward extent of the landfall cable ducts at the onshore/marine interface; and
- Ducted offshore export cable laying, referred to as the 'landfall cable ducts', extending from the intertidal cable ducts to the to the transition joint bays (TJBs) onshore.

42. The landfall works will be supported by a construction compound, referred to in the CWP Project planning application as 'Compound A'.

3.1.4 Onshore transmission infrastructure (OTI)

43. The key components of the OTI include:

- Three 220 kV onshore export cable circuits;
- The onshore substation; and
- Three 220 kV ESBN network cable circuits.

44. The onshore export cable circuits will connect to the offshore export cables at the TJBs and will transfer the electricity onwards to the onshore substation. The cables will be installed within an underground tunnel that extends from within Compound A, near the landfall, to the onshore substation site.

45. Tunnel shaft compound areas will support the construction of the underground tunnel.

46. The onshore substation will be a gas insulated switchgear (GIS) design, where the HV equipment is designed to be insulated by pressurised gas. In summary the substation will include:

- Perimeter structures including upgraded revetements and coastal retaining walls;
- Land reclamation for the Electricity Supply Board (ESB) building;
- Raised site platform;
- One GIS building;
- One ESB building;
- Three Shunt reactors (incorporated within the GIS building);
- One Statcom building;
- Three Harmonic filters;
- Upgrades to the existing access road from Pigeon House Road to the site entrance;
- A new bridge to provide vehicle access across the Dublin Waste to Energy plant cooling water discharge channel;
- New internal access road layout within the site boundary;
- Drainage infrastructure; and
- Security and lighting.

47. The three ESB network cable circuits will connect from the onshore substation to the Poolbeg 220 kV substation, which will then transfer the electricity onwards to the Irish Electricity Grid.

48. The works to construct the OTI will be supported by a number of temporary construction compounds.

3.1.5 Construction programme and working hours

49. The construction programme for the CWP Project is dependent on a number of factors which may be subject to change, including the determination of the application for planning consent and the availability and lead in times associated with procurement and installation of project components.

50. An indicative construction programme for the CWP Project is presented below, which assumes a total construction duration of four years, including commissioning.

51. Construction of the offshore components for the CWP Project will be completed in a number of stages. These may not necessarily be consecutive and some flexibility is required in the construction process to account for changing construction programmes due to, for example, fabrication delays or vessel availability. Offshore construction will take place 24 hours per day.

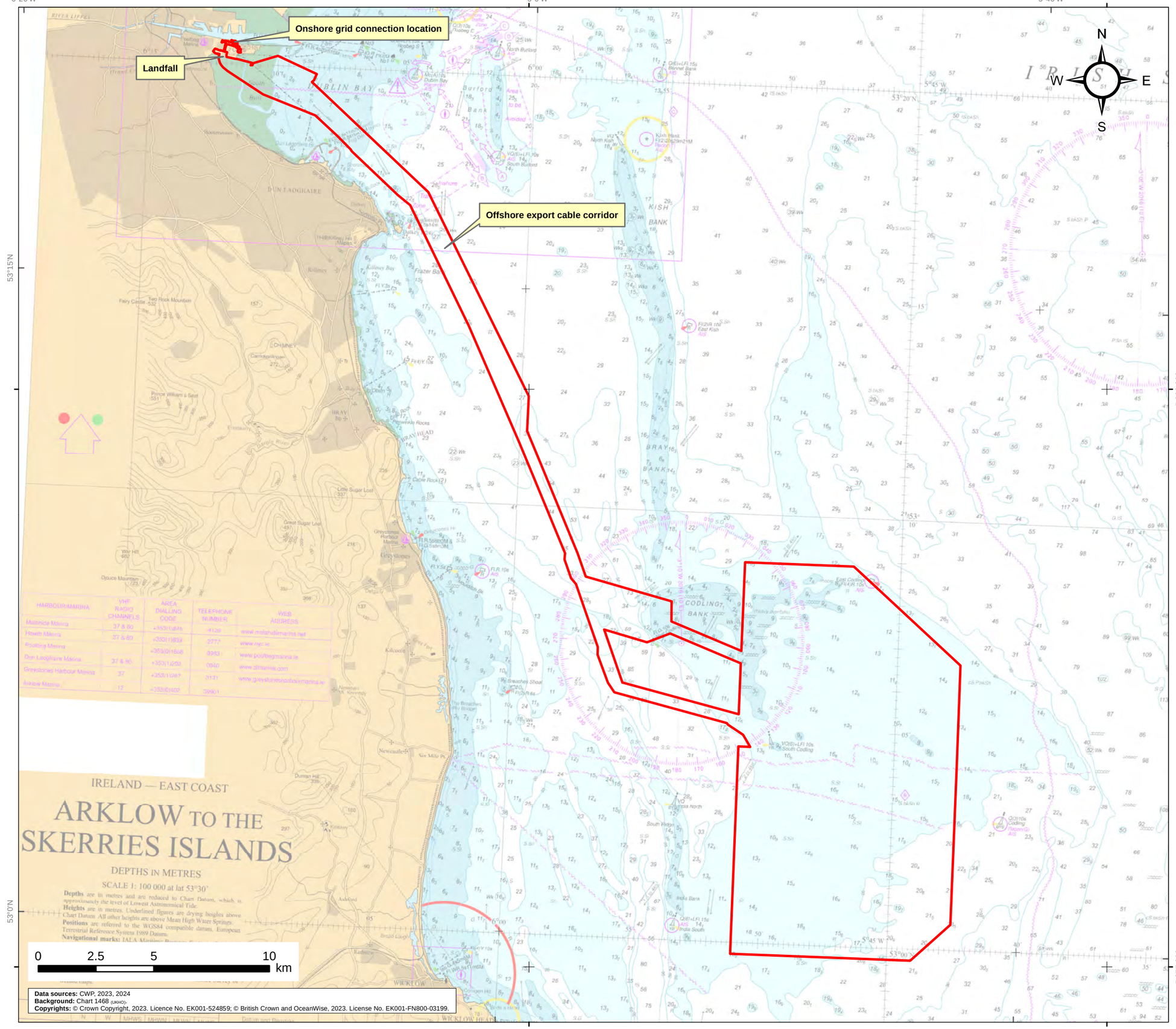
52. Construction of the onshore components for the CWP Project will commence with the onshore substation preliminary works, including the establishment of access roads, site preparation and temporary compounds.

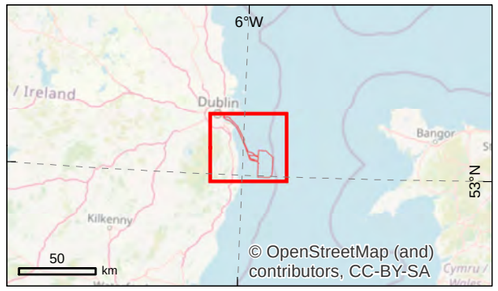
53. Onshore construction activities will mostly take place during daytime hours Monday to Friday (7 am to 7 pm) and a half day on Saturdays (up to 2 pm). In the event of it being deemed necessary to undertake works outside these hours, it will be necessary to obtain prior written approval from Dublin City Council (DCC). Such approval would typically only be granted on submission of details of the activity accompanied by an assessment of potential noise impact.

54. Evening, night-time and Sunday working will be required during certain periods to facilitate landfall works at low tide and HDD activities onshore that cannot be undertaken under day-time conditions.

Table 3-1 Indicative Construction Programme

Indicative construction programme	Year 1		Year 2		Year 3		Year 4		Year 5	
Onshore substation construction and commissioning										
Landfall works (Phase 1)										
Landfall works (Phase 2)										
Onshore export cable installation										
WTG and OSS foundation installation (incl. scour protection)										
WTG installation										
OSS Topside installation and commissioning										
IAC and interconnector cable installation										
Offshore export cable installation										
WTG commissioning										





Legend

Planning application boundary

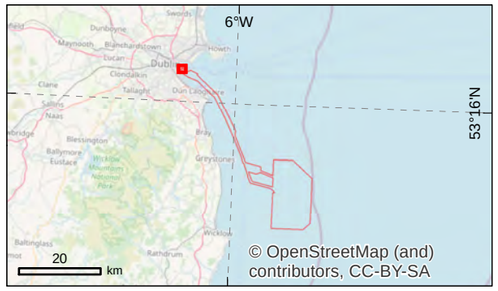
codling wind park	*Project:* Codling Wind Park	*Contractor:*	*Website:*

Figure 3.1
Offshore development area

CWP doc. number: CWP-CWP-ENG-08-01-MAP-1578

Internal descriptive code:	*Size:*	*CRS:*
WE - PAB - UKHO.1468 - (SD.CEMP.FIG.03.01)	A3 *Scale:* 1:160,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
00	Final for issue	2024/08/15	JM	CD	ES



Legend

- Planning application boundary
- Onshore substation site
- Poolbeg 220kV substation
- Transition joint bay
- High water mark

codling wind park	*Project:* Codling Wind Park	*Contractor:* *Website:*

Figure 3.2
Onshore development area

CWP doc. number: CWP-CWP-ENG-08-01-MAP-1579

Internal descriptive code:	*Size:*	*CRS:*
PB - PAB..TJBs6..SS.PP.PL - FUT.SS.ESBN..HWM - (OSM..SD.CEMP.FIG.03.02)	A3 *Scale:* 1:6,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
00	Final for issue	2024/08/15	JM	CD	ES

4 ENVIRONMENTAL MANAGEMENT FRAMEWORK

55. This section of the CEMP sets out an overview of the anticipated Environmental Management framework, roles and responsibilities and reporting procedures that will be employed by the Developer in order to manage environmental risks during the construction of the CWP project. This framework will also ensure commitments made and mitigation requirements identified within the EIAR are delivered, and the anticipated requirements of consent conditions are complied with. This will be reviewed and updated, as required, prior to construction.

4.1 Environmental roles and responsibilities

56. Anticipated roles and responsibilities of key personnel relevant to the implementation, management and monitoring of the CEMP are set out in the RACI matrix in **Table 4-1**. Roles and responsibilities will be subject to specific contractual agreements upon appointment of contractors and any additional/further appointments required as conditions of consent.

Table 4-1 RACI Matrix relevant to the implementation of the CEMP

Procedural Responsibilities **R - Responsible for the action** **A - Accountable for the action** **C - Consulted during the action** **I - Informed after action completion**	**Project Director**	**EPCI Director**	**Project Managers**	**Consent Manager**	**Environmental Advisor**	**Ecological/ Environmental Clerk of Works**	**Fisheries Liaison Officer**	**Project Archaeologist**	**Lead HSSE Manager**	**Contractors**	**Project Personnel**
Ensures adequate resources and budgetary support are provided for overall implementation of the CEMP	A	R	R								
Ensures the implementation of the CEMP and relevant environmental monitoring programs required under the consents		A	C	C	R	C	C	C	R	R	
Develops and implements objectives and targets for the CWP Project Environmental Management System ensuring the goals of the CEMP are achieved and maintained.	A	R	C	C	R	C	C	C	R	I	C
Reviews and approves relevant contractor documents from a compliance perspective, including the Contractor EMPs		A	R	C	R	R	R	R	R	I	I
Ensures that environmental compliance monitoring is undertaken in accordance with all relevant project Environmental Management Procedures and Plans, monitors changes in legislation, and communicates results to		A	C	C	R	R			R	R	C

relevant stakeholders including regulatory authorities.											
Identifies all environmental risks associated with the construction activities, provides specialist input and advice on environmental obligations		A	I	I	R	R		R	R	R	C
Informs all contractors of the CEMP, develops suitable training and awareness materials relating to compliance with management plans and consent conditions and disseminates associated documentation as required		A	I	I	C	R	R	C	R	C	C
Plans, manages coordinates and monitors contracted works during the construction and commissioning phase until project completion		C	I	I	C	C		C	C	A&R	C
Manages communication between the CWP Project and the commercial fishing industry and provision of information relating to the safe operation of fishing activity within and in the vicinity of the offshore development area		A	I	C	C	C	R			C	C

4.2 Contractor Requirements

4.2.1 Method statements

57. In undertaking construction of the CWP Project, contractors and their sub-contractors will ensure compliance with all relevant environmental and maritime legislation and that all necessary licences and permissions are obtained. The Developer will require that all design embedded mitigation measures and adherence to good working practice is applied by the contractors and their subcontractors throughout the construction phase and the implementation of such measures will be managed by the contractors and monitored by the Developer.

58. Prior to construction of the CWP Project, contractors and subcontractors, as appropriate, will be expected to provide Method Statements for required construction activities. Construction activities requiring method statements will as a minimum include, onshore and offshore site preparation works and onshore and offshore installation activities.

59. Method Statements will be reviewed by the EPCI Director, Project Managers, Heath Safety, Security and Environment (HSSE) Manager and, where necessary, the Consent Manager to ensure that relevant legislation is adhered to, good working practice is applied throughout the construction process and environmental commitments of the EIAR and project consent are complied with.

60. Method Statements must contain as a minimum:

- Location and duration of the activity;
- Work to be undertaken and methods of construction;
- Licence and permission requirements;
- Plant and materials to be used;
- Labour and supervision requirements;
- Environmental considerations (including relevant control measures); and
- Health Safety and Security considerations.

61. Any deviation from an approved Method Statement will require formal review and sign off by the Developer before any changes are undertaken.

4.2.2 Environmental Management Plans (EMPs)

62. All contractors will be required to develop and implement their own EMPs which will be compliant with this CEMP and which will set out roles and responsibilities including communications with the Developer, together with appropriate environmental control measures and monitoring systems to be employed during the construction works.

63. Contractors will be required to plan works in advance to ensure that, in so far as is reasonably practicable, measures to reduce environmental impacts are integrated into the method statements and that commitments set out within the consents and EIAR and NIS are complied with. Contractor EMPs will cover the activities of all subcontractors and relevant parties that may affect the works and this will be documented in EMPs, as appropriate.

64. Contractor EMPs will include procedures to monitor compliance with CWP's environmental requirements. The detailed provisions of the contractor EMPs will be subject to review and acceptance by the Developer prior to commencement of construction.

4.2.3 Risk Assessments

65. In undertaking construction of the CWP Project, contractors and their sub-contractors, as appropriate, will be expected to produce Risk Assessments for required construction activities. Construction activities requiring method statements will as a minimum include onshore and offshore site preparation works and onshore and offshore installation activities.

66. Risk assessments will be reviewed by the HSSE Manager, Project Managers and, where necessary, the EPCI Director to ensure that relevant legislation is adhered to and good working practice is applied throughout the construction process.

67. Risk assessments will include as a minimum:

- General site information, including location, grid reference and site plan;
- Hazards identified and risk assessment undertaken including;
    - Type or risk;
    - Risk rating assessed (High, Medium, Low);
    - Identified control/risk management measures; and
    - Assessment of residual risk.
- Contact details, including HSSE Manager, relevant project personnel, contractors and subcontractors and any third parties such as landowner or regulatory authorities; and
- Emergency services contact details and information on nearest welfare facilities.

68. Any deviation from an approved Risk Assessment will only be permitted with prior approval from relevant parties and will require formal review and sign off by the Developer before any changes are undertaken.

4.3 Compliance Monitoring and Reporting

69. A number of contractors may be engaged on the CWP project and therefore, it is important that communication pathways and reporting are in place to ensure that information is shared effectively.

70. Contractors will undertake compliance monitoring of all construction activities and will provide regular reports to the Developer as required. In order to monitor compliance with relevant management plans and consent conditions, the Developer will utilise a number of information sources. These will be reviewed by the appropriate project personnel, as required, to ensure compliance with the CEMP. These are anticipated to include, but are not limited to, the following:

- Contractor Daily Progress Reports, which provide a log of daily activities for the previous 24 hours, including records of inspections undertaken and any environmental incidents/observations;
- Contractor Monthly Progress Reports, which provide the following:
    - Any non-compliance events within the previous month;
    - Any environmental incidents and severity;
    - Number of inspections carried out in the previous month;
    - Results of construction environmental monitoring;
    - Number of Environmental Toolbox talks, or Environmental training given;
    - Waste volumes for each waste stream arising from contractor and sub-contractor works; and
    - Fuel usage (as appropriate) including any bunkering operations undertaken.
- Control Room Daily Progress Reports, which provide a log of daily commissioning/energisation activities;

71. For any offshore works the following information will also be utilised:

- Vessel Daily Activity Logs, which provide a log of daily activities on CWP Project vessels for the previous 24 hours, including records of inspections undertaken and any environmental incidents/observations.

- Vessel walkdown reports, which provides a compliance check of vessel environmental management procedures and storage prior to mobilisation, including, bunkering, ballast water, waste, chemicals and oils, deposits and dropped objects, INNS and antifouling;
- Marine Coordination updates, which provide a daily update on health, safety, security, and environment (HSSE) activities during the previous 24 hours, including any recorded incidents, and a look ahead to activities taking place over the next 24 hours; and
- Liaison and correspondence with the CWP Project Fisheries Liaison Officer (FLO), including FLO Progress Reports, which provides a log of FLO activities and monitoring of compliance with the FMMS.

72. Data and information sources will be reviewed and updated within the final CEMP, following receipt of planning consent, appointment of the contractor(s) and confirmation of vessels selected.

4.4 Environmental Incidents and Non-compliance procedures

73. It is essential that any environmental incidents that occur are reported and appropriately managed to ensure potential impacts are reduced to a minimum and to decrease the risk of the incident re-occurring. All environmental incidents and near misses must be reported, investigated, and recorded by contractors and communicated to the Developer as soon as possible in line with the requirements of the CWP Incident Reporting and Investigation procedures (CWP-CWP-HSE-01-04-POL-0004).

74. Contractors are responsible for identifying and documenting all risks to the environment associated with the CWP Project construction activities, ensuring all suitable controls and processes are in place to prevent any environmental incidents or non-compliance with the CWP Project consents or EIAR and ensuring corrective actions are identified and implemented to minimise the risk of a similar incident occurring again. It is anticipated that the following procedures will be followed in the event of an incident occurring:

- The relevant project personnel including the HSSE Manager, relevant Project Manager and onshore / offshore Environmental Clerk of Works (ECoWs) will be contacted at the earliest opportunity (within 60 minutes by phone or email);
- If required due to the nature of the incident and to safeguard the environment, project personnel will be required to stop works and the area will be made safe;
- The size of the incident will be assessed and determined if it can be controlled by project personnel or if emergency services are required to attend;
- The appropriate authorities will be contacted;
- The HSSE Manager will investigate the incident and the findings will be sent to the appropriate authorities; and
- Appropriate reporting procedures will be followed. An initial incident report will be provided by the contractor to the HSSE Manager within 24 hours, an interim investigation report will be provided within five working days and a full investigation report will be provided within 15 days. This will include an assessment of immediate causes, underlying causes, recommendations and a corrective action plan including timescales and responsibilities.

75. Appropriate personnel appointed by the Developer will report any non-compliance or environmental incidents to the regulatory authority as required.

76. Personnel appointed by the applicable Project Manager will investigate the incident and ensure all mitigation measures are implemented and preventative action is taken. A deadline for closure of the incident will be determined according to the urgency and severity. Where the incident comprises a serious or repeated environmental breach (i.e., regulatory breach) the HSSE Lead shall also request an improvement plan to be developed by the applicable contractor. This shall include identification of root causes, remediation measures, timescales for implementation and those responsible for the close out of the improvement plan.

77. Reporting procedures for any non-compliance incidents will be reviewed and updated within the final CEMP, following receipt of planning consent and appointment of contractors.

4.5 Inspections

78. Contractors will undertake daily inspections of project construction activities and will provide daily progress reports to the Developer. This will include monitoring compliance with the CEMP and contractor EMPs, monitoring environmental control measures and undertaking equipment checks to reduce the risk of any environmental incidents occurring. Designated personnel from the contractor's team will be responsible for preparing and maintaining Daily Progress Reports, Monthly Progress Reports, and Vessel/Site Daily Activity Logs and Vessel/Site Walk Down Reports, as appropriate.

79. As a minimum, the following checks will be undertaken of project facilities, including offshore vessels, prior to mobilisation:

- Waste management and storage facilities;
- Fuel, oil and chemical management and storage facilities;
- Hazardous material management and storage facilities;
- Environmental incidents and Emergency response procedures;
- Spill response kits;
- Vessel personal awareness and documentation;
- Bunkering facilities and logistics;
- Ballast water, INNS management and antifouling;
- Onshore site boundaries, fencing and entrances that adjoin the road network and publicly accessible areas.

80. All contractors and their sub-contractors will be required to undertake inspections, which should include environmental and consent compliance applicable during their scope of work/activities.

81. The Developer will also inspect a contractor or subcontractor on related processes and procedures, as and when deemed necessary, to monitor compliance with the CEMP. Inspections shall be focused on known or perceived environmental risk in construction activities, or if there is a trend in general poor performance, area poor performance, or a demonstrable reduction in overall performance between inspections. This will ensure compliance with the CEMP and that environmental commitments of the EIAR, NIS and project consents are adhered to.

4.6 Communications

4.6.1 Internal Communication

82. Contractors will liaise regularly with the Developer regarding the programme of works, nature of the operations, and methods to be employed to minimise potential environmental impacts during construction. This will include progress meetings and updates, both face to face and virtual, as well as the production and submission of progress reports, including Daily Progress Reports, Monthly Progress Reports and Vessel Daily Activity Logs, as appropriate.

4.6.2 External Communication

83. It is anticipated that the HSSE Manager and onshore and offshore ECoWs will be responsible for reporting on compliance to the relevant authorities, MARA and other stakeholders as required. This will include reporting on any non-compliance or environmental incidents.

84. On appointment of the contractor(s), the Developer will confirm the lines of communication for environmental compliance with the local authorities and relevant stakeholders, and agreed reporting procedures will be detailed within the final CEMP.

4.6.3 Complaints Procedure

85. The Developer values its relationship with the communities that surround the CWP Project and it is important that any complaints received during construction activities are investigated and resolved as soon as possible.

86. Since 2020 the CWP Project has employed a dedicated communications and engagement team to ensure proactive and well informed stakeholder engagement. Central to this is the Community Liaison Officer (CLO) whose role is to establish project awareness among local communities, build local relationships and engage proactively throughout the project area. The CLO will remain in place throughout the construction of the CWP Project to provide a vital link between the project and the local communities and to ensure community needs and any issues are addressed.

87. All project personnel, including contractors and sub-contractors are required to perform their duties in accordance with the CEMP and contractor EMPs, to minimise the risk of any complaints;

88. Any complaints received regarding the construction works will be recorded and categorised appropriately (e.g., noise, visual disturbance etc.) within a central Site Complaints Log. The complaints log will include the following key details:

- Name, address and contact details of the complainant (with the complainant's permission);
- Brief outline of the complaint;
- Date of complaint;
- Name of the person receiving complaint details;
- Agreed timeline for response to complaint;
- All complaints will be communicated to the Developer as soon as it is practical to do so;
- All complaints will be followed up and resolved as far as possible; and
- The complainant, Developer and other stakeholders will be kept informed of the progress in resolving the complaint.

89. Contact details and details for the CLO, are provided in **Section 7** of this CEMP. This will be reviewed and updated within the final CEMP prior to construction.

4.7 Competence, Training and Awareness

90. All contractors will be responsible for ensuring the competency of their personnel, including subcontractors, to ensure compliance with the CEMP and contractor EMPs, and to ensure the requirements of the EIAR and project consents are implemented. In order to ensure that environmental awareness and compliance is communicated effectively at the start and throughout the construction works, the CEMP and its contents will be communicated to all project personnel via project inductions. These will be mandatory for all employees, contractors and subcontractors working on the CWP Project.

91. Contractors shall be responsible for identifying the training needs of their personnel to ensure suitably qualified and experienced professionals will be engaged for this purpose. Ongoing training will include site briefings and toolbox talks to equip relevant staff with the necessary level of knowledge on environmental topics. A range of approaches and methods will be used for training and raising awareness of environmental issues for the CWP Project; these will include project meetings, environmental inductions, toolbox talks, environmental notice boards, and environmental bulletins and alerts.

92. Suitably qualified and experienced personnel shall be appointed by contractors to supervise construction works. This shall include professionally qualified environmental management staff, with relevant experience in the environmental management principles set out within this CEMP. Contractors shall provide the Developer with relevant contact details of the appointed competent person(s) prior to the commencement of construction.

93. Contractors will be also required to develop their own site inductions which should include appropriate environmental material relevant to the CWP Project. Contractors are expected to undertake assurance monitoring of procedures set out within their own EMPs to ensure all personnel understand their roles and responsibilities in the event of an incident or non-compliance.

4.7.1 Meetings

94. Contractors will be expected to convene regular project team meetings to communicate environmental information to the relevant project personnel, including sub-contractors, and to raise awareness of environmental issues.

95. Environmental meetings and debriefs will be held local to the CWP Project site. Periodic HSSE meetings will be required to be held on site and on all construction and maintenance vessels and will likely comprise representatives from the Developer, contractors, and sub-contractors. Shift meetings will also be held when needed at the start of a shift to exchange information related to upcoming works.

96. When operating 24 hours a day the shift meeting functions as a handover meeting between the previous and upcoming shifts. Standard agenda items will include status of outstanding items, reports of any environmental incidents or complaints, stakeholder engagement, toolbox talks issued / delivered, and key findings of environmental inspections.

4.7.2 Toolbox Talks

97. Toolbox talks are considered to be an effective method for the dissemination of information relating to work activities. Toolbox talks will be delivered by the contractor with support from the appointed project ECoWs to on-site personnel and will be targeted to specific environmental issues. The purpose of toolbox talks is to ensure that everyone is aware of roles, responsibilities and procedures prior to a work activity taking place, as well as making personnel aware of any potential environmental risks or issues. Toolbox talks attendance sheets will be reviewed as part of environmental monitoring undertaken.

4.7.3 Project / vessel inductions

98. All project and/or vessel personnel must have a site and/or vessel induction that includes an environmental component. Designated personnel from the contractor's team should be responsible for preparing and delivering the site and/or vessel inductions and maintaining documented attendee records.

99. Site and/or vessel inductions will include reference to compliance with relevant requirements and conditions, environmental management contacts, site specific environmental sensitivities, waste management arrangements, hazardous material management, fuel, oil and chemical management; environmental emergency response and reporting of incidents and complaints.

4.7.4 Emergency response

100. Contractors will establish a project specific Emergency Response Plan for handling environmental incidents and emergencies and will ensure that all staff including any subcontractors are trained in the project environmental emergency response procedures, so that they are able and prepared to respond to an incident promptly and effectively. Where appropriate, environmental emergency response plans developed will be tested by the contractor.

101. Details of Emergency Response Procedures will be set out within the Emergency Response and Cooperation Plan (ERCoP).

5 OFFSHORE ENVIRONMENTAL RISK MANAGEMENT AND COMPLIANCE

102. The following sections provide an overview of the approach to the management of offshore environmental sensitivities during construction of the CWP Project, as identified within the EIAR, NIS and supporting documentation.

103. The siting, design and ongoing refinement of the CWP Project has taken account of physical constraints, as well as environmental, technical, social and commercial considerations to identify sites and cable routes that are both environmentally acceptable and technically deliverable. Full details of the site selection process for the CWP Project are set out in **Chapter 3, Site Selection and Consideration of Alternatives** of the CWP EIAR and details of the final project design parameters are provided in **Chapter 4, Project Description**.

104. A summary of mitigation (EIAR **Chapter 33 Summary of Mitigation**) is also provided in support of the consent application which sets out a detailed summary of all mitigation measures and commitments made within the EIAR, NIS and supporting documentation for the CWP Project. Mitigation measures and commitments relevant to the construction of the offshore components of the CWP Project that will be adhered to by contractors and their subcontractors are detailed in the following sections and summarised in the following tables:

- **Table 5-1**: Environmental Management Commitments - Marine geology, sediments and coastal processes and marine water quality;
- **Table 5-2**: Environmental Management Commitments - Marine ecology including subtidal and intertidal ecology, fish, shellfish and turtle ecology, ornithology, marine mammals and offshore bats;
- **Table 5-3**: Environmental Management Commitments - Marine archaeology and cultural heritage;
- **Table 5-4**: Environmental Management Commitments - Seascape, landscape, and visual receptors; and
- **Table 5-5**: Environmental Management Commitments - Other marine users including, commercial fisheries, shipping and navigation, aviation military and radar and material assets and marine infrastructure.

5.1 Coastal Processes and Marine Water Quality

105. The construction of the CWP Project has the potential to impact upon coastal processes and marine water quality within the offshore development area and wider study areas. An assessment of potential impacts on coastal processes and marine water quality is provided within the EIAR for the CWP Project. This includes:

- **Chapter 6 Marine Geology, Sediments and Coastal Processes**; and
- **Chapter 7 Marine Water Quality**.

106. A summary of the assessments undertaken, the environmental sensitivities identified and topic specific mitigation and management measures proposed are provided in the following sections.

5.1.1 Marine Geology, Sediments and Coastal Processes

107. The CWP Project is located on the Codling Bank, one of the largest sandbanks in the Irish Sea. It forms part of a series of coast-parallel, north-south trending, offshore banks. These banks form a punctuated line along the eastern Irish coast, and from north to south include Bennet, Kish, Frazer, Bray, India, Arklow, Glassgorman, Rusk, Blackwater / Moneyweights, Lucifer, Long and Holdens banks. Uniquely, within the context of these banks, Codling Bank is a stable formation which consists of glacial outwash sand and gravel moraine sediments deposited during the last ice age.

108. The tidal regime in the vicinity of the offshore development area is complex due to the location of an amphidromic point at Courtown to the southeast of the Irish coast. The tidal range progressively increases with distance from the amphidromic point, varying from a micro-tidal range in the south of the region to a meso-tidal range to the north of the region. Water depths across the array area are observed between -28 m and -6 m relative to the Lowest Astronomical Tide (LAT), with deeper water levels observed towards the southeast, decreasing in depth towards the northeast. Comparatively, water levels within the OECC typically vary between -40 m and -20 m as the cable traverses the seabed to shore. The tides are semi-diurnal (occur twice daily). Typical depth-averaged tidal flows exceed >1 m/s, and range from 0.5 to >2 m/s. The tidal current regime, on occasion, is affected by surges. Surge induced currents within the Irish Sea are typically weak, however interactions between surge and tide may potentially impact on local sediment transport via an increase in local flow rates and, during negative surges, the transfer of wave energy to the seabed. Generally, waves are locally wind-generated approaching the site from the South.

109. Surveys performed for the CWP Project revealed that the seabed is dominantly composed of gravel (> 2 millimetres in size). Samples collected in the centre of the array area and across northern sections of the OECC displayed a greater percentage of sand (0.063 – 2.0 mm). Sandwaves and megaripples with wave heights of up to 4 m were observed along an approximately 5 km wide band, running from north-west to south-east across most of the central region of the site. The presence of these features is indicative of the seabed being mobile under the prevailing regime. However, their presence is limited to isolated locations dominantly comprised of sand sized sediments. Within the prevailing gravel deposits, the formation of bedforms is limited.

110. A number of designated habitats are in proximity to the offshore development area. The OECC traverses a Special Area of Conservation (SAC) (North Dublin Bay) and two Special Protection Areas (SPAs) (South Dublin Bay and River Tolka SPA and Irelands eye SPA). The North Dublin Bay SAC is designated in part, due to its mudflats, sandflats and dune habitats which are susceptible to changes to the prevailing hydrodynamic conditions. Further details of the coastal and marine environment across the offshore development area, including geology, sediments and coastal processes are provided in **Chapter 6 Marine Geology, Sediments and Coastal Processes** of the CWP Project EIAR.

111. Potential impacts to seabed sediments and coastal processes from the CWP Project have been identified and include temporary disturbance to the seabed and increased suspended sediment concentrations, associated with the pre-construction surveys and the installation or removal of offshore infrastructure, and alteration to seabed morphology, hydrodynamic, wave, sediment transport regimes and coastal processes. Alteration can be short or longer term, associated with the construction and decommissioning or operation and maintenance phases of the CWP Project.

112. **Table 5-1** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to marine geology, sediments and coastal processes.

5.1.2 Marine Water Quality

113. Ireland's water environment is broadly split between two jurisdictional units to monitor and manage the marine environment and related activities, as set out by the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD). The CWP Project is adjacent to the east coastline between Wicklow and Dublin, the onshore infrastructure, landfall and part of the OECC lie within the WFD jurisdiction, while the remainder of the OECC and the array site lie within the remit of the MSFD. Further description of the study areas defined and waterbodies identified is provided in **Chapter 7 Marine Water Quality** of the CWP Project EIAR.

114. The overall water quality of Irelands' marine environment is good, and trend information (where available) indicates steady improvements in most areas. In general Wicklow coast has high ecological status and the majority of Dublin Bay has good ecological status. However, Tolka Estuary and North Bull Island have moderate WFD status and Tolka Estuary is at risk of failing to meet WFD targets by 2027. The remaining water bodies are expected to achieve 2027 WFD targets.

115. Waters around Ireland are typically well-mixed, in terms of temperature and salinity, though there is some regional variation due to bathymetry, land run-off and seasonal changes. The Irish Sea in general is considered to be a non-problem area for eutrophication with coastal and offshore areas showing no indication, however, inshore, and coastal areas experience greater levels of nutrient input from land run-off and are, therefore, at higher risk. In terms of suspended sediments, the Irish Sea is noted to have naturally high levels of suspended matter, particularly around Wicklow Head, and water clarity is lower in winter due to higher wind speeds and storms, resulting in greater seabed sediment disturbance, as well as greater volumes of run-off from terrestrial sources. No marine INNS were identified during site-specific surveys of the offshore development area; however, a number of INNS species have been reported within the region.

116. In general contaminant levels in the coastal and transitional water bodies is low and compliant with Environmental Quality Standards. Chemical analysis of eight sample stations within the offshore development area indicated some elevated levels of contaminants but these fall below upper Action Levels and sediments are likely to be suitable for sea disposal. Further details of water quality in and around the CWP Project is provided in **Chapter 7 Marine Water Quality** of the CWP Project EIAR.

117. There are a number of protected areas in the vicinity of the CWP Project and these include Natura 2000 sites (SACs and SPAs), designated shellfish areas, nutrient sensitive areas and bathing waters. The closest designated shellfish area to the CWP Project is Malahide approximately 13 km north of the OECC. The Poolbeg landfall is situated within the nutrient sensitive area of Liffey Estuary (Upper and Lower), Tolka Estuary and South Bull lagoon and there are eight bathing water areas within 4 km of the CWP Project. Further details of designated sites within the study areas defined are provided in **Chapter 7 Marine Water Quality** of the CWP Project EIAR.

118. Potential impacts to marine water quality from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning, respectively. Impacts include increased suspended sediment concentrations and resuspension of contaminants, the introduction of noise, electromagnetic field (EMF) and heat effects, and the introduction of INNS or accidental pollution events associated with construction, operation and maintenance and decommissioning phases.

119. **Table 5-1** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to marine water quality.

5.1.3 Summary – Coastal Processes and Marine Water Quality

120. **Table 5-1** below sets out the management commitments to be adhered to by contractors and their subcontractors in relation to coastal processes and marine water quality. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 5-1 Environmental Management Commitments – Coastal Processes and Marine Water Quality

Topic	Environmental Management Commitments	Commitment Reference
Marine Geology, Sediments and Coastal Processes	Bedform clearance operations will be undertaken only where necessary, thereby minimising sediment disturbance and alteration to seabed morphology.	C02
	The Developer will, where practicable, bury all cables within the offshore development area: • IACs and interconnector cables will have a minimum depth of cover of 1.0 m; and • Offshore export cables will have a minimum depth of cover of 1.4 m.	C03

Topic	Environmental Management Commitments	Commitment Reference
	In cases where burial is inadequate due to unforeseeable seabed conditions, and at cable crossings, cable protection will be implemented as mitigation to avoid risks to other marine operations.	
	Disposal of dredged material will occur in suitable locations within the offshore development area, and in accordance with the requirements under a disposal at sea licence which will be sought separately. This has the benefit of minimising impacts on seabed morphology and the wider sediment regime.	C04
	During WTG installation, equipment such as jack up vessels (if required) are expected to remain in any one location for a limited period of time (hours to a few days). This will ensure any impacts on the prevailing hydrodynamic, wave and sediment regimes and coastal processes is minimised.	C05
Marine Water Quality (see also Marine Geology, Sediments and Coastal Processes)	Bedform clearance operations will be undertaken only where necessary – see marine geology, sediments and coastal processes.	C02
	Drill fluids, where required, will comply with industry best practice and standards to minimise risk to the environment.	C09
	Grouts will comply with the relevant maritime industry specifications which are designed for safety, and suitable for use in the marine environment.	C10
	Installation of the landfall cable ducts using open cut methods will require the excavation of a single swathe with three cable trenches between the TJBs and the intertidal area, within which cable ducts for each of the three cable circuits will be laid and buried. Prior to the commencement of open cut cable duct installation, a temporary cofferdam will be installed to act as a barrier to tidal inundation whilst the existing stone covered foreshore is temporarily removed, and the ducts installed. The type of cofferdam that is used will be determined post consent once a cable installation contractor has been appointed, however a water or sand filled cofferdam is likely to be a viable option, taking into account the low tidal pressures. Other options include a berm created using existing sediment or temporary sheet piling. The cofferdam will be installed in such a way as to permit open cut trenching from the onshore area to the intertidal area, allowing a dry working area below the HWM. As well as providing a temporary flood defence structure, the cofferdam will act as a barrier to prevent the transport of sediment and any associated contaminants from the onshore works area into the marine environment. After installation of the temporary cofferdam, open cut trenching and cable duct installation will commence between the repositioned footpath and the intertidal area (within the cofferdam). A trench for each of the three circuits (up to 3 m in depth) will be excavated using a backhoe and / or 360° excavator, with access provided via the haul road. Based on water level monitoring, groundwater levels are c.3.5 to 4 m bgl, therefore limited groundwater is expected to be encountered during the excavation. However, any water encountered within the open cut trenching will be collected at sumps, treated on site, and discharged to the existing sewerage network. There will be no discharge of surface water or groundwater to the intertidal area.	C58
	Dewatering may be required from excavations where groundwater is encountered. The groundwater will be pumped and tankered off-site for discharge under licence, at a licensed facility. Dewatering will be undertaken in accordance with CIRIA C750 ‘Groundwater control – design and practice’ 2nd Ed (CIRIA, 2016).	C59

Topic	Environmental Management Commitments	Commitment Reference
	Contractors will adopt specific measures relevant to the prevention of contaminant supply to water bodies. These are secured through this CEMP and will prevent immediate discharge of contaminated water and sediment from the onshore construction works into adjacent water bodies and / or the surface drainage network. The measures include: • Situating concrete and cement mixing and washing areas at least 10 m away from the nearest water body. These areas will incorporate settlement and recirculation systems to allow water to be re-used. All washing out of equipment would take place in a contained area and the water collected for disposal offsite. • Storing all fuels, oils, lubricants, and other chemicals in impermeable bunds with at least 110% of the stored capacity, with any damaged containers being removed from site. Refuelling would take place in a dedicated impermeable area, using a bunded bowser, located at least 10 m away from the nearest water body, where practicable to do so. • Ensuring that spill kits are available on site at all times as well as sandbags and stop logs for deployment on the outlets from the site drainage system in case of emergency spillages. • Foul drainage (e.g. from construction welfare facilities) will be collected through mains connection to an existing mains sewer (if such a connection is available) or collected in an alarmed holding tank located within the planning application boundary and transported off site for disposal at a licensed facility with appropriate treatment capacity within its existing permit. In the event of a widespread leak or spill, the following measures shall be implemented in addition to the most up to date standard practices at the time of the event: • The source of the leak or spill shall be cut off as soon as possible; • Fuel/ oil shall be bunded immediately to prevent further spread; • The relevant authorities shall be contacted including those who will be able to assist in the clean-up of the leak or spill; and • A remediation plan shall be implemented to monitor and remediate the leak or spill. Measures specific to the control of drilling fluids (i.e., bentonite) during the tunnel and HDD installation are listed below: • The drilling fluid / bentonite will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used); • The area around the bentonite batching, pumping and recycling plant will be bunded using terram and sandbags in order to contain any spillages; • Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area; • The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding environment. This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur, then drilling will be immediately stopped; • Spills of drilling fluid will be cleaned up immediately and stored in an adequately sized skip before being taken off site; • Daily monitoring of the works area and the water treatment and pumping system, will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment is discharged.	C53
	Cable trenches can act as preferential pathways which could allow groundwater to migrate to the foreshore i.e. within the landfall cable ducts. While material on the peninsula at the landfall is permeable, it is proposed to	C102

Topic	Environmental Management Commitments	Commitment Reference
	limit the potential for preferential pathways along the cable trenches by using lower permeability backfill material between the TJBs and foreshore (i.e. material with lower permeability than that surrounding the cable trenches). This will prevent unintended longitudinal drainage along the trench.	

5.2 Marine Ecology

121. The construction of the CWP Project has the potential to disturb marine ecology features within the offshore development area and wider study areas. An assessment of potential impacts on marine ecology features is provided within the EIAR and NIS for the CWP Project. This includes:

- **Chapter 8 Subtidal and Intertidal Ecology**;
- **Chapter 9 Fish, Shellfish and Turtle Ecology**;
- **Chapter 10 Ornithology**;
- **Chapter 11 Marine Mammals**; and
- **Chapter 13 Offshore Bats**.

122. A summary of the assessments undertaken, the environmental sensitivities identified and topic specific mitigation and management measures proposed are provided in the following sections.

5.2.1 Subtidal and Intertidal Ecology

123. Subtidal habitats within 20 km of the offshore development area are mainly coarse sediment, mixed sediments and sand habitat types with some areas of mud and rock habitats. The intertidal habitats within the study area include areas of rocky coastline interspersed with sections of sandy beaches. In more sheltered areas, vegetated intertidal habitats such as seagrass beds and salt meadows can be present, in addition to extensive mudflats and sandflats such as those present in Dublin Bay.

124. At the array site sediments consist of a mosaic of gravel and cobbles and varying degrees of sandy gravel and gravelly sand habitats throughout and support biotopes dominated by bivalves and polychaetes. The biotopes identified in the OECC were the same as those of the array site with the addition of muddy sand habitats on the approach to the intertidal area.

125. At the landfall and intertidal area, the majority of the habitat types across the shore consist of fine sand habitats, with two small areas of coarser sediment. Casts of polychaete worm Arenicola marina and areas of green and brown seaweeds, typical to sandy shore environments, are also present. In the proposed landfall location of the River Liffey the habitat is sandy mud throughout, dominated by polychaete worms.

126. No Annex I habitats or Annex II species were recorded during the site-specific surveys of the offshore development area. The OECC passes through Rockabill to Dalkey Island SAC, protected for reefs, and into South Dublin Bay SAC, protected for mudflats and sandflats, saltmarsh and dune habitats. Landfall for the CWP Project is also situated within South Dublin Bay SAC. A number of other SACs lie within 20 km of the offshore development area and further details of these protected sites and the subtidal and intertidal communities are set out in **Chapter 8 Subtidal and Intertidal Ecology** of the CWP Project EIAR.

127. Potential impacts to subtidal and intertidal ecology from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning phases. Temporary impacts including habitat disturbance, increase in suspended sediment concentrations and remobilisation of contaminated sediment, the introduction of INNS and potential accidental pollution events were identified during all project phases, as a result of construction, operation and maintenance or decommissioning activities. Longer term impacts including long term habitat loss and habitat creation, through the placement of project infrastructure and EMF and heat effects

associated with the presence of offshore cables, were identified during the operation and maintenance phase.

128. **Table 5-2** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to subtidal and intertidal ecology.

5.2.2 Fish Shellfish and Turtle Ecology

129. Study areas for fish, shellfish and turtle ecology were defined on the basis of the International Council for the Exploration of the Sea (ICES) statistical rectangles where the offshore development area is located. This is the smallest spatial unit over which relevant fisheries data is aggregated.

130. The local study area, in which all direct impacts are contained, included ICES rectangle 35E4 where the entire array site and the southeast section of the OECC is located; and 35E3 and 34E3 where the southeast section of the OECC is contained. For the local study area, a total of 15 fish species and five shellfish species were recorded over a five-year period. The dominant fish and shellfish species were as follows; razor/knife clams), Norway lobster, sword razor shell, whelk, blonde ray, small-spotted catshark, European plaice, great Atlantic scallop, and haddock.

131. The Regional Study Area was used to provide regional context and data coverage for near field indirect impacts (i.e. impacts arising from sediment dispersion) and comprised of 35E4 and 35E3, as well as adjacent ICES statistical rectangles to the north (36E3, 36E4, 37E3 and 37E4) and (34E3, 34E4, 33E3 and 33E4) to the south. For the regional study area in the north, dominant species included: European sprat, haddock, and anglerfish, common edible cockle, sword razor shell, and whelk. In the regional study area to the south catches were dominated by a mixture of European sprat, herring and haddock, along with whelk, edible crab and great Atlantic scallop.

132. The National Study Area was defined as the Irish Sea using ICES division 27.7.a, to reflect international reporting and to provide data against which far-field indirect impacts can be considered (e.g. impacts arising from noise propagation). The fish and shellfish assemblage in the National Study Area was found to be much more diverse with 161 fish species and 64 shellfish species recorded. This is expected as it covers a larger area, and the data includes landings by all member countries.

133. No marine turtles were recorded during the CWP Project's site-specific surveys. Two sightings of leatherback turtle off the counties of Cork and Clare were recorded within the last 12 months on the IWDG citizen science recording scheme.

134. Potential impacts to fish, shellfish and turtles from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning phases. Temporary impacts including, habitat disturbance and habitat loss, increase in suspended sediment concentrations and associated sediment deposition, the introduction of noise and vibration and INNS into the marine environment, potential collision with vessels and potential accidental pollution events were identified during all project phases, as a result of construction, operation and maintenance or decommissioning activities. Longer term impacts, including long term habitat loss through the placement of project infrastructure and EMF effects associated with the presence of offshore cables, were identified during the operation and maintenance phase.

135. **Table 5-2** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to fish, shellfish and turtle ecology.

5.2.3 Ornithology

136. The baseline for ornithology was informed through comprehensive desk-based study combined with site specific surveys including, boat based and digital aerial surveys offshore, transect and point count surveys onshore, including raptor surveys to understand behaviour and flight activity of Peregrine Falcon at Poolbeg

Peninsula, intertidal and estuarine / river Liffey surveys, including species specific breeding tern and black guillemot surveys. Ornithology species assessed for impacts were those considered to be at potential risk to the CWP Project, either due to their abundance, potential sensitivity to wind farm impacts, or due to behavioural characteristics (e.g. commonly fly at within rotor swept altitudes).

137. Twenty-four offshore ornithology species were screened into the assessment across six different biological seasons including, return migration, migration-free breeding, post-breeding migration, migration-free winter, breeding and non-breeding. Thirty-six intertidal species were screened into assessment, and five onshore species and four estuarine and river Liffey species were screened into assessment across breeding and wintering survey seasons..

138. Key designated sites identified in relation to the assessment of impacts upon ornithological receptors are described in **Chapter 10 Ornithology** of the CWP Project EIAR. These include SPAs, Ramsar sites and proposed Natural Heritage Areas (pNHA) and include sites which support important populations of breeding birds and sites that support important numbers of birds during non-breeding periods.

139. Potential impacts to ornithology receptors from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning phases across offshore, onshore, intertidal and estuarine and river Liffey study areas. Impacts during all project phases include direct effects on offshore, intertidal and onshore habitats, disturbance and displacement to bird species through the presence of project infrastructure or, for example noise generation, lighting or human presence, changes in prey availability, accidental pollution events and accidental introduction or spread of INNS which may lead to habitat degradation. Impacts during the operation and maintenance phase also includes potential collision with WTG blades offshore and the presence of infrastructure onshore which could provide new perching or roosting site opportunities for predator species.

140. **Table 5-2** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to ornithology.

5.2.4 Marine Mammals

141. A number of marine mammal species occur in Irish waters including, harbour porpoise, bottle nose dolphin, common dolphin, Risso's dolphin, minke whale, grey seal and harbour seal. The most common marine mammal in Irish waters is the harbour porpoise and data sources indicate the potential for harbour porpoise presence year-round.

142. The study area for the marine mammals assessment was defined to review and characterise the existing environment with respect to marine mammals and to identify potential receptors against which effects from the CWP Project could be assessed.

143. The marine mammals study area varied depending on the species and considering species specific ecology and behaviour. Therefore, the study area for marine mammals was defined at two spatial scales: 1) the Management Unit (MU) scale defined by the Inter-Agency Marine Mammal Working Group (IAMMWG (2015)) and 2) the marine mammal survey area which provided an indication of the local densities of each species within the CWP Project array site / project boundary through the use of aerial surveys. Site-specific surveys were only conducted within the array sites, as Guidance on Marine Baseline Ecological Assessments & Monitoring Activities state that there is no requirement for such surveys within the Offshore Export Cable Corridor (OECC). The CWP Project is located within the following MUs for each species:

- Harbour porpoise: Celtic and Irish Seas MU;
- Bottlenose dolphin: Irish Sea MU;
- Risso's dolphin: Celtic and Greater North Seas MU;
- Common dolphin: Celtic and Greater North Seas MU;
- Minke whale: Celtic and Greater North Seas MU;
- Grey seal: East regions of Republic of Ireland (RoI) and Northern Ireland MU; and

- Harbour seal: East regions of RoI and Northern Ireland MU.

144. A range of density estimates were used in the assessment of impacts for harbour porpoise, dolphin species and minke whale to take account of the range of density estimates available, including from site specific surveys and to represent both site specific and large scale (disturbance) impacts. Full details of the density and abundance of marine mammal species identified are provided in **Chapter 11, Marine Mammals** of the EIAR.

145. Potential impacts to marine mammals from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning phases. Impacts include auditory injury and / or disturbance from noisy activities, including pre-construction surveys, impact piling, UXO clearance and cable laying, during construction, operational WTGs noise during operation and maintenance, noise associated with removal of infrastructure during decommissioning and vessel noise across all project phases. Other impacts identified include the risk of vessel collision and indirect impacts to prey across all project phases.

146. **Table 5-2** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to marine mammals.

5.2.5 Offshore Bats

147. The study area for the offshore bats assessment was defined following the Eurobats guidance (Rodrigues et al., 2015) principally looking at the potential for impacts on migratory bats. To this end, bat activity at potential landfall points on the Welsh and Irish coasts was the key focus of the assessment, reflecting where bats may be likely to leave, or arrive at, one landmass in order to cross to another that may take them through the CWP Project area, i.e. the start or end of any potential offshore migration routes.

148. A comprehensive desk-based review was also undertaken to inform the baseline for offshore bats, which included all bat records within 10 km of the potential landfall on the Irish and Welsh coasts. As well as a search for sites designated for bat interest and a review of literature studying potential bat migrations.

149. Results from the desk study identified that the following nine species of bats are known to be present in both Ireland and Wales:

- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Leisler's;
- Whiskered;
- Daubenton's;
- Natterer's;
- Lesser horseshoe; and
- Brown long-eared.

150. Of these only the three Pipistrellus species and Leisler's are considered likely to migrate although Daubenton's may also forage offshore. These five species were taken through for assessment within **Chapter 13 Offshore Bats** of the CWP Project EIAR.

151. There are 41 areas designated for significant bat roosts in Ireland, of which all are designated for the sedentary lesser horseshoe bat, which is largely associated with the west of Ireland and is not known to migrate. Of the areas designated for roosting bats in Wales they are all designated for either barbastelle (one SAC in west Wales), lesser horseshoe (eight SACs which mention lesser horseshoes) or greater horseshoe bats (three SACs all in south Wales), all of which are considered non-migratory. The closest SAC to the CWP Project designated for bats, was Glynllifon SAC 25 km south of the Anglesey landfall which is designated for lesser horseshoe bats. Further details on bat species likely to occur at the CWP

Project, potential for migration and sites designated for bat roosts is provided in **Chapter 13 Offshore Bats** of the CWP Project EIAR.

152. Potential impacts to bat species from the CWP Project have been identified and include both temporary and longer-term impacts during construction, operation and maintenance and decommissioning phases. Disturbance and lighting impacts may impact bat species during construction, operation and maintenance or decommissioning phases as a result of project infrastructure and activities, while potential collision with WTG blades may occur during the operation and maintenance phase. There is also the potential for positive effects throughout all project phases, as WTG structures may provide stopover resting locations for migrating or foraging bats.

153. **Table 5-2** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to offshore bats.

5.2.6 Summary – Marine Ecology

154. **Table 5-2** sets out the management principles to be adhered to by contractors and their subcontractors in relation to marine ecology. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 5-2 Environmental Management Commitments – Marine Ecology

Topic	Environmental Management Commitments	Commitment Reference
Subtidal and Intertidal Ecology and Fish, Shellfish and Turtle Ecology (see also Marine Geology, Sediments and Coastal Processes, Marine Water Quality and Marine Mammals	Bedform clearance operation will be undertaken only where necessary – see Marine Geology, Sediments and Coastal Processes.	C02
	Contractors will adopt specific measures relevant to the prevention of contaminant supply to water bodies – see Marine Water Quality.	C53
	Cables will be suitably buried or protected by other means where burial is not practicable. This will reduce the potential for effects relating to the presence of Electromagnetic Fields (EMF).	C06
	Prior to the commencement of open cut cable duct installation, a temporary cofferdam will be installed to act as a barrier to tidal inundation – see Marine Water Quality.	C58
	A Marine Mammal Mitigation Protocol (MMMP) has been prepared to outline the mitigation requirements for minimising the impacts on marine mammals during the construction of the CWP Project – see Marine Mammals	C08 / C47 / C111
	Piling works along the River Liffey Channel will not be permitted between March and May to avoid noise impact during the smolt run.	C46
	An Ecological Vessel Management Plan (EVMP) has been prepared to determine vessel routing to and from construction sites and ports and to include a code of conduct for vessel operators. The EVMP includes details of: • The types and specifications of vessels for the CWP Project; • How vessels will be monitored and coordinated; and • The use of defined transit routes to site from key construction and operation ports, where practicable to do so. The EVMP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development	C18

Topic	Environmental Management Commitments	Commitment Reference
	consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	
Ornithology	All WTGs for both layout options will feature a minimum blade tip clearance of 36 m above Mean Sean Level (MSL) (+37.72m LAT). This is beyond the minimum 22 m clearance required for safety of navigation and has been set by the Developer to reduce the potential collision risk for offshore ornithology receptors.	C12
	A MMMP has been prepared to outline the mitigation requirements for minimising the impacts on marine mammals during the construction of the CWP Project. This includes soft start procedures relevant to Ornithology – see Marine Mammals.	C08 / C47 / C111
	Vegetation removal/clearance will commence outside of the breeding bird season (which is from 1 March to 31 August inclusive) to avoid impacts on nesting birds. Where the construction programme does not allow this time restriction to be observed, then these areas will be inspected be inspected by the Ecological Clerk of Works (ECoW) for the presence of breeding birds prior to clearance. Areas found not to contain nests will be cleared within three days of the nest survey, otherwise repeat surveys will be required.	C13
	Where possible, vegetation clearance will be kept to a minimum. The proposed construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas . Construction vehicles will be restricted to designated areas and access tracks to avoid impacting adjacent habitats and to ensure that soil compaction is restricted to these areas. All disturbed ground will be fully reinstated following the completion of the works.	C38
	Construction noise will be managed in accordance with British Standard BS 5228 1:2009 'Code of Practice for Noise and Vibration Control on Construction and Open Sites –Part 1: Noise'. The appointed contractor will put in place the most appropriate noise control measures to ensure that the works in each area comply with the limits detailed in **Chapter 24 Noise and Vibration** and so that minimisation of noise is achieved by best means practicable. Measures to control noise from construction activities are described in **Chapter 24 Noise and Vibration**.	C14
	To reduce the level of artificial lighting, all temporary lighting associated with the construction works will be placed strategically by the appointed contractor following consultation with the appointed ECoW. This will ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay.	C15
	The impact of light associated with offshore construction works shall be reduced through proper placement of light sources in addition to using lights with high directionality. The amount of lighting should be targeted to achieve minimum required or necessary light levels, by reducing the number of lights or by moving from general area lighting to specifically focused task-based lighting.	C21
	The following mitigation measures will be implemented to mitigate potentially significant effects on ornithology receptors associated the installation of the export cables and onshore infrastructure within the nearshore (<500m from MLWS), intertidal, and landfall. During the period September to March, inclusive, the following restrictions will apply to the proposed CWP construction:	C48

Topic	Environmental Management Commitments	Commitment Reference
	• Cable route installation or associated activities, including preparatory works, will not be undertaken within the OECC between MLWS and MHWS. • Vessel activities will not occur within 300 m of the MLWS datum. • Construction activities relating to cofferdam installation will not be undertaken. • Construction activities relating to open cut trenching at landfall will not be undertaken. • Piling activities associated with Transition Joint Bay construction, where required, will not be undertaken. • 2.6m localised screening will be erected around noisy plant sources associated with the open cut excavation including piling works at the temporary cofferdam, tunnel excavation works (within the Compound A) and the HDD installation of the ESBN networks cables; • 2.6m hoarding will be erected around the perimeter of the temporary tunnel compound, located in Compound A and the temporary HDD compound located in Compound C; and • 2.6m high perimeter hoarding will also be erected around the boundaries of Compound A and Compound C. With the exception of notifiable events, for which notification of stakeholders will be required prior to works, the same restrictions will apply between one hour prior to sunset and the following sunrise during the period 15th July – 31st August, inclusive.	
	Appropriately sized exclusion nets will be installed over the harbour wall prior to the Sand Martin breeding season (April to September) to exclude birds from the nesting holes, should it not be possible to avoid works on the harbour wall or reclamation work for the harbour wall during this period. In addition, prior to any works a suitably qualified ecologist will ensure there are no active sand martin nests. The net will be approximately 80 m in length	C49
	Appropriately sized exclusion nets will be installed over the harbour wall prior to the black guillemot breeding season (April to September) to exclude birds from the nesting holes, should it not be possible to avoid works on the harbour wall or reclamation work for the harbour wall during this period. In addition, prior to any works a suitably qualified ecologist will ensure there are no active Black Guillemot nests. The net will be approximately 80 m in length.	C50
	A Breeding Tern Mitigation Strategy has been prepared to mitigate potential impacts to the tern colonies located close to the onshore substation site. The strategy details several mitigation measures including restricted working periods, visual screening, construction sequencing, noise and lighting limits and monitoring and response measures. Full details of the measures proposed are provided in **Chapter 10 Ornithology** of the CWP Project EIAR.	C16
	As part of the design of the façade for the onshore substation bird of prey deterrents were incorporated at 2 locations: • Creating a steep angle (+60°) to the band between the brick base and metal cladding of the façade; and • Raising of the metal cladding above roof parapet, impairing hunting birds' view of target platform.	C17
	An Ecological Vessel Management Plan (EVMP) has been prepared to determine vessel routing to and from construction sites and ports and to	C18

Topic	Environmental Management Commitments	Commitment Reference
	include a code of conduct for vessel operators. The EVMP includes details of: • The types and specifications of vessels for the CWP Project; • How vessels will be monitored and coordinated; and • The use of defined transit routes to site from key construction and operation ports, where practicable to do so. The EVMP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	
	To avoid significant effects and to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the INNS located within the onshore development area, which will be directly impacted, will be removed prior to the construction works commencing. An Onshore Invasive Species Management Plan has been prepared to outline control and management options for Invasive Alien Plant Species (IAPS) identified within the onshore development area boundary. The Onshore Invasive Species Management Plan includes details of: • Survey observations and photographs illustrating invasive species infestation; • Control, treatment and management options for each type of invasive species identified; and • Biosecurity standard operating procedures for personnel and equipment. The Onshore Invasive Species Management Plan will be implemented by the appointed contractor and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	C62
	The replanting of vegetation (ca. 7,856 m^2) will be undertaken at the proposed landfall site following the completion of the works. A mix of native tree species will be planted at the landfall location which will increase the natural diversity of plant species within the area, which will be beneficial to protected mammal species. The replanting will include the planting of native woodland (ca. 4,098 m^2), native shrub (ca. 2,708 m^2) and wildflower beds (ca. 1,050 m^2) at the landfall site, along Shelly Banks Road and Pigeon House Road (see **Figures 23.7**, **23.8** and **23.9** in **Chapter 23 Landscape and Visual Impact Assessment** of the CWP Project EIAR). All planted species will be certified native stock and from an approved supplier of the Green, Low-Carbon Agri-Environmental Scheme (GLAS). The replanting will include a variety of plant species which will increase the species diversity, particularly at the landfall site, which currently comprises dense bramble and invasive plant species.	C60
	It is proposed to construct a sand martin wall within the vicinity of the onshore substation, the location and details of which are presented in **Chapter 10 Ornithology** of the CWP Project EIAR. The construction of the wall will use a precast structure with the approximate dimensions of 3000 mm x 3400 mm x 500 mm. The first row of nests will be at a height of 1.5 m or more from the ground to prevent predators (e.g., mink or fox) reaching them. The nest chambers (of which there will be 36) will be 100 mm in diameter and 225 mm long, and each tunnel is 50 mm in diameter and 350 mm long. The nests will be 250 mm apart and 300 mm between rows. The rear of the nesting	C130

Topic	Environmental Management Commitments	Commitment Reference
	chamber will be sealed with a sewer cap and lockable steel doors fitted to prevent human interference to the nests. These doors can be opened, and the sewer caps removed for nest maintenance. The wall will be located in a similar location to the existing nest sites, located close to a retaining wall near the entrance of the substation area. When construction completed and the wall is operational, a schedule of annual maintenance will be agreed with relevant stakeholders. This involves the removal of old nesting material and other remains to reduce parasite load and add more sand to the nesting chambers for the birds to excavate.	
	It is proposed to install a minimum of 4 no. nest boxes for black guillemots to offset removal of nesting habitat. These will be in-built or "bolt-on" nestboxes suitable for black guillemots placed at on / within perimeter quay walls at the onshore substation. Full details of the measures proposed are provided in **Chapter 10 Ornithology** of the CWP Project EIAR. With regards to disturbance / displacement effects on Black guillemot, a number of other nest sites were located to the east and southeast of the onshore substation. To avoid disturbance of these nesting areas it is proposed to install hoarding / screening around the perimeter of the onshore substation.	C131
Marine Mammals	A Marine Mammal Mitigation Protocol (MMMP) has been prepared to outline the mitigation requirements for minimising the impacts on marine mammals during the construction of the CWP Project. The MMMP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction. Primary mitigation measures in the Geophysical Survey MMMP (section 7 of the MMMP): • Pre-survey visual watch by an MMO (and PAM if required). Primary mitigation measures in the WTG/OSS Piling MMMP (section 8 of the MMMP) and the Onshore Substation Piling MMMP (section 9 of the MMMP): • Pre-piling visual watch by an MMO; and • Pre-piling PAM (if required to supplement to visual observations). Primary mitigation measures in the UXO MMMP (section 10 of the MMMP): • Pre-detonation visual watch by an MMO; and • Pre-detonation PAM (if required to supplement to visual observations).	C08 / C47
	The maximum predicted cumulative PTS impact ranges (15 km for minke whales) are beyond those that can be mitigated by 'industry standard' measures. As such, additional mitigation measures will be required if cumulative PTS is to be mitigated. The WTG/OSS piling MMMP (section 8 of the MMMP) provides an outline of the potential additional mitigation measures that could be implemented to reduce the risk of PTS to negligible levels, including: • Use of ADDs to deter marine mammals from the immediate vicinity of the pile; • Use of at source noise abatement methods; and • Use of alternative piling methods.	C132

Topic	Environmental Management Commitments	Commitment Reference
	The final MMMP with selected mitigation measures will be provided post consent once a piling contractor is in place and final detailed installation methods are known.	
	The Contractor will ensure zonation of the WTG pile driving parameters to minimise potential impacts. See **Chapter 11 Marine Mammals** of the CWP Project EIAR for further details.	C116
	An Ecological Vessel Management Plan (EVMP) has been prepared to determine vessel routing to and from construction sites and ports and to include a code of conduct for vessel operators – see Ornithology.	C18
	Contractors will adopt specific measures relevant to the prevention of contaminant supply to water bodies – see Marine Water Quality (**Table 5-1**).	C53
Offshore Bats	An Ecological Vessel Management Plan (EVMP) has been prepared to determine vessel routing to and from construction sites and ports and to include a code of conduct for vessel operators – see Ornithology.	C18
	The impact of light associated with offshore construction works shall be reduced through proper placement of light sources in addition to using lights with high directionality. The amount of lighting should be targeted to achieve minimum required or necessary light levels, by reducing the number of lights or by moving from general area lighting to specifically focused task-based lighting.	C21
	As bats will have had a minimum of 25 years to find roosting opportunities within the offshore infrastructure, should any gaps, expansion joints, or other crevices be present these will be noted and infrared cameras (or similar) used to check for evidence of potential bat roosting. Any such features will be dismantled carefully, by hand where possible, to ensure that if there are bats roosting within the structures (considered highly unlikely at this time) any risks to them are minimised. An appropriately experience ecologist would be available for contact regarding any bats found resting during this phase.	C23
	Though considered to be of low likelihood, it is possible that bats will roost in the construction vessels, the WTGs or OSSs during construction. As such, the ECoW will be available for advice should any bats be seen resting or otherwise stopping on the vessels or infrastructure. Guides on how to identify the different bats, with life size photos, will also be available to the construction personnel to aid identification of any bats which are seen. If bats are seen this will be logged, with the date, location and weather conditions recorded to aid future research into bat movements within the area.	C22

155. The Developer will require contractors and subcontractors to adopt specific measures when undertaking project operations and activities to ensure compliance with the legislation and guidance set out above. The CEMP will be updated prior to construction, following the appointment of contractors and in accordance with any planning consent received.

5.3 Marine Archaeology and Cultural Heritage

156. The assessment of marine archaeology and cultural heritage features for the CWP Project is set out within **Chapter 14 Marine Archaeology and Cultural Heritage** of the CWP Project EIAR.

157. Marine Archaeology and Cultural Heritage encapsulates the following aspects: palaeogeography, known wrecks and obstructions, identified geophysical receptors, intertidal heritage assets, and the potential for further marine cultural heritage assets. A summary of the assessment undertaken, the environmental sensitivities identified and topic specific mitigation and management measures proposed is provided below.

158. The study area for the marine cultural heritage assessment was defined on the basis of the area over which potential direct and indirect effects of the CWP Project were predicted to occur on marine heritage receptors during the different phases of CWP Project. This comprises the array site and OECC of the CWP Project, including the intertidal area to the HWM and reclaimed area known as Pigeon Park.

159. Within the Marine Archaeology and Cultural Heritage study area the following elements have been identified:

- a total of 32 features of palaeogeographic interest consisting of:
    - six channels and one fine-grained deposit assigned a P1 archaeological rating (high archaeological potential); and
    - 25 cut and fills assigned a P2 archaeological rating (medium archaeological potential).
- a total of 454 seabed anomalies identified as being of possible archaeological interest consisting of:
    - two anomalies assigned an A1 archaeological rating (anthropogenic origin of archaeological interest);
    - 145 anomalies assigned an A2_h archaeological rating (anomaly of likely anthropogenic origin but of unknown date; may be of archaeological interest or a modern feature);
    - 305 anomalies assigned an A2_l archaeological rating (anomaly of possible anthropogenic origin but interpretation is uncertain; may be anthropogenic or a natural feature); and
    - two records assigned an A3 archaeological rating (historic record of possible archaeological interest with no corresponding geophysical anomaly).
- six records relating to archaeological sites, artefacts, material and standing remains within the intertidal zone (to MHWS).
- potential for the discovery of palaeogeographic receptors, potential maritime and aviation receptors, and further intertidal heritage receptors.

160. Further details are provided in **Chapter 14 Marine Archaeology and Cultural Heritage** of the CWP Project EIAR.

161. Impacts to marine archaeology and cultural heritage features may be direct or indirect throughout the construction, operational and maintenance and decommissioning phases. The procedures to be followed on discovering any marine archaeology feature during the construction, operation, maintenance and monitoring of the CWP Project, are set out within the Protocol for Archaeological Discoveries (PAD). The PAD sets out the mechanism for reporting and investigating unexpected archaeological discoveries encountered during the different phases of the Project, to ensure compliance with Irish legislation.

162. The CEMP will be updated prior to construction in accordance with the final PAD, to communicate awareness of sensitive archaeological sites and features to the project team, including contractors and their subcontractors and to set out the procedures to be followed in the event of an unanticipated find.

163. **Table 5-3** below sets out the management principles to be adhered to by contractors and their subcontractors in relation to marine archaeology and cultural heritage. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 5-3 Environmental Management Commitments – Marine Archaeology and Cultural Heritage

Topic	Environmental Management Commitments	Commitment Reference
Marine Archaeology and Cultural Heritage	Bedform clearance operation will be undertaken only where necessary – see Marine Geology, Sediments and Coastal Processes.	C02
	A Protocol for Archaeological Discoveries (PAD) will be in place for the CWP Project. A PAD is proposed for reporting and investigating unexpected archaeological discoveries encountered during the different phases of the project, with a Retained Archaeologist providing guidance and advising industry staff on the implementation of the PAD. The PAD also makes provision for the implementation of temporary exclusion zones around areas of possible archaeological interest, for prompt archaeological advice, and, if necessary, for archaeological inspection of important features prior to further activities in the vicinity. The PAD provides a mechanism to comply with the Irish legislation, including notification to the UAU, and accords with the Code of Practice for Seabed Developers (JNAPC, 2006).	C26
	Positions of WTGs and OSSs have been informed by a wide range of site specific data, including geophysical and geotechnical survey data, used to identify potential archaeological receptors within the offshore development area. Consequently, archaeological exclusion zones (AEZs) around known features of archaeological interest have been avoided. No works that impact the seabed will be undertaken within the extent of an AEZ during the construction, operational, or decommissioning phases. For features assigned A2 archaeological discrimination rating (potential seabed features), no AEZs are recommended. However, these features have been avoided, where possible. Where this has not been possible, further appraisal is proposed prior to construction. For example, where geophysical surveys may be undertaken in advance of the development, or during a UXO survey, it is recommended that the data will be assessed by a suitably qualified archaeological contractor. This will confirm the presence of ferrous material at the location of features identified during the initial assessment, as well as helping to identify any additional ferrous features of archaeological potential within the offshore development area. Further investigations mean that anomalies can either have their archaeological value removed, if they prove to be of non-anthropogenic nature or modern, or their value as archaeological assets confirmed. If their value is confirmed, mitigation in the form of either avoidance (which may be enacted by the implementation of an AEZ) or through remedying or offsetting measures including a Protocol for Archaeological Discoveries (PAD) is recommended.	C24
	With regards to Palaeogeography, should further ground investigation work be undertaken within the study area to inform the final alignment, it is recommended that the archaeological contractor be consulted to advise on potential samples to be acquired for archaeological purposes, particularly from the fine-grained deposits 75015, and other identified units of archaeological interest identified within the data. It is also recommended that any geotechnical logs from within the study area be made available for geoarchaeological assessment by a suitably qualified archaeological contractor. Furthermore, it is recommended that any samples acquired containing material of archaeological potential, particularly those within the channel features 75011, 75014, 75016, 75020, 75021 and 75025 or fine-grained deposit 75015, be made available for geoarchaeological assessment.	C25
	With regards to intertidal heritage assets, a targeted archaeological walkover survey shall be undertaken along the final offshore export cable	C27

Topic	Environmental Management Commitments	Commitment Reference
	alignments within the OECC. This will enable the identification of any further cultural heritage receptors with surface expression along the proposed cable routes leading up to the landfall. Furthermore, a metal detection survey, including excavation of identified targets is recommended to identify any material of archaeological potential located along the proposed cable alignments. For the one known intertidal heritage receptor (1001–1003) it is recommended that the site is re-established to verify the feature and an archaeological recording is undertaken prior to construction works. This would entail a photographic record, drawing record and assessment, following current best practice and guidance outlined in the Framework and Principles for the Protection of the Archaeological Heritage (1999) and Policy and Guidelines on Archaeological Excavation (1999) Mitigation in the form of avoidance (which may be enacted by the implementation of an AEZ) shall be prioritised for all material of archaeological potential within the intertidal area.	

5.4 Seascape Landscape and Visual

164. The assessment of Seascape, Landscape and Visual receptors for the CWP Project is set out within **Chapter 15 Seascape, Landscape and Visual Impact Assessment (SLVIA)**. The SLVIA focused on the potential effects of the offshore components of the CWP Project seaward of the low water mark (LWM), including the WTGs, OSSs, IACs, inter connector cables and offshore export cables. Onshore components of the CWP Project above the LWM were assessed within **Chapter 23 Landscape and Visual Impact Assessment (LVIA).** A summary of the assessment undertaken, the environmental sensitivities identified and topic specific mitigation and management measures proposed is provided below.

165. A 50 km study area from the outermost WTGs within the array site was identified as being appropriate to cover all potentially significant seascape, landscape and townscape character, national designated landscapes and visual receptors arising from the CWP Project. The extent of the study area was informed by bare earth and obstructed Zone of Theoretical Visibility (ZTV) studies and site surveys and was agreed between the CWP Project and Dublin Array Offshore Wind Farm with agreement between the Phase 1 Developments on the approach to the cumulative assessment.

166. Within the study area the seascape, landscape and townscape character, national landscape designations and visual receptors were identified and assessed. Photography was also undertaken (from selected viewpoints which were presented in the SLVIA. A selection of these were used to produce wireframes and photomontage visualisations to illustrate the appearance of the CWP Project from several locations along the coast.

167. The closest seascape, landscape and townscape character receptors to the CWP Project include Regional Seascape Character Area (RSCA) 14 Irish Sea; Seabank and Broad Bays, Landscape Area (LA) 1c The Bray Mountain Group AONB, LA 2a The Northern Area; and LA 2b The Southern Coastal Area. The closest designated landscape to the CWP Project was the Bray Head Special Amenity Area. Visual receptors included at Bray located on the coast and the Wicklow Mountains; the settlements of Greystones Kilcoole and Wicklow and users of the Bray to Greystones Coastal Walk and Greystones to Wicklow Trail as well as users of the DART Line and Dublin to Rosslaire Main Line (from Greystones to Wicklow).

168. Potential impacts to seascape, landscape and visual receptors from the CWP Project were identified and include both temporary and longer-term impacts during construction and decommissioning, and operation and maintenance respectively. Impacts include direct and indirect temporary impacts on views, seascape, landscape and designated landscapes during the day and at night during the construction and

decommissioning phase, and longer term direct and indirect (though reversible) impacts on views, seascape, landscape and designated landscapes during the day and at night during the operation and maintenance phase of the CWP Project.

169. **Table 5-4** below sets out the management principles to be adhered to by contractors and their subcontractors in relation to seascape, landscape and visual receptors. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 5-4 Environmental Management Commitments – Seascape, Landscape and Visual

Topic	Environmental Management Commitments	Commitment Reference
Seascape Landscape and Visual	An Ecological Vessel Management Plan (EVMP) has been prepared to determine vessel routing to and from construction sites and ports and to include a code of conduct for vessel operators – see Ornithology.	C18
	To reduce the potential effects on seascape, landscape and visual receptors, a minimum distance of 5 km from the HWM was defined for the initial identification of potential array sites. The key advantages of Codling Bank in relation to potential impacts on seascape, landscape and visual receptors are listed below: • Firstly, the distance of the site from the coastline (13 – 22 km) presents the advantage of reducing the magnitude of visual impact when viewed from the shoreline when compared to other potential sites located closer to the shoreline; and • Secondly, as the Codling Bank is significantly larger than the other banks in the area, it allows the design of the array site to be in a layout extending away from the coastline, rather than confined to a long strip of turbines running parallel to the coastline, reducing the degree and magnitude of visual impact from the coastline.	C40
	The number of WTGs has been reduced as far as possible. This is evident in the proposed reduction in the number of WTGs from up to 140 (at EIA Scoping) to 75 (Option A) or 60 (Option B).	C41
	The number of OSS has been reduced as far as practicable. This is evident in the proposed reduction in the total number of OSSs from up to five (at EIA Scoping) to 3 (for Option A and B).	C43
	A visually balanced and coherent layout of WTGs has been defined when seen from key viewpoints, demonstrating a consistent rhythm and spacing. For both Option A and Option B a grid layout is proposed with Search and Rescue (SAR) lanes in two lines of orientation. Furthermore, for both options, whilst outliers are present, there are no outlying WTGs that appear significantly detached from the rest of the array. Variation in WTG spacing arising from optimising output and foundation requirements have introduced a degree of irregularity, creating a more organic appearance that helps to reduce the clustering and stacking of WTGs, albeit from some locations the array will appear less coherent. It is inevitable, given the effect of perspective, the balance and coherence of the turbines in views will vary from one viewpoint to another, these differences are considered in the assessment.	C42
	To ensure compliance with SAR requirements and to reduce the potential effects on seascape, landscape and visual receptors, the	C44

Topic	Environmental Management Commitments	Commitment Reference
	Developer has sought to align the OSSs as closely as possible with the rows of WTGs, with a consistent spacing.	
	The extent of lighting associated with the array is reduced to reduce night-time effects. Aviation lighting was initially proposed for all WTGs; however, it was agreed that such lighting would only be introduced on each WTG around the edge of the array site. Lighting associated with WTG numbers will be hooded to reduce light spill. To minimise light pollution further, OSSs will be unlit whilst they are unmanned.	C45

5.5 Other Marine Users

170. The construction of the CWP Project has the potential to disturb other marine users who operate in the vicinity of the offshore development area. An assessment of potential impacts to other marine users is provided within the EIAR for the CWP Project. This includes:

- **Chapter 12 Commercial Fisheries**;
- **Chapter 16 Shipping and Navigation**;
- **Chapter 17 Aviation Military and Radar**; and
- **Chapter 18 Material Assets - Marine Infrastructure**.

171. A summary of the assessments undertaken, the environmental sensitivities identified and topic specific mitigation and management measures proposed are provided in the following sections.

5.5.1 Commercial Fisheries

172. The characterisation of the commercial fisheries baseline has been defined with reference to the ICES rectangles, to provide both regional and local study areas, alongside a wider study area defined as the Irish Sea. Analysis of VMS data shows that the principal fishing activity that takes place across the Irish Sea, including the regional and local study areas, is demersal trawling, followed by dredging and seine netting. Fishing effort by Irish and non-Irish vessels, use a variety of different types of gear, including trawls (beam trawls, bottom otter trawls and pelagic trawls), dredges, pots, nets and seine lines and long lines. In the wider study area beam trawls, pelagic trawls and bottom otter trawls show the highest levels of activity, while in the local study area beam trawling and potting show the highest levels of activity.

173. Ports with the highest annual average value of landings in the vicinity of the CWP Project are Wicklow, Dun Laoghaire and Arklow. Pots (whelks) and beam trawls (for rays, sharks and plaice) account for the greatest proportion of landings in the local study area, with whelks accounting for the highest landings in the area, both for vessels over 10 m in length and vessels under 10 m in length. Consultation with fishers and stakeholders indicates that within the array site fishing activity (mainly targeting whelks) is concentrated in the west and south parts of the site while activity within the OECC is at lower frequency, targeting mainly crabs and lobsters. Further details of fishing effort and fisheries landings statistics are provided in **Chapter 12 Commercial Fisheries** of the CWP Project EIAR.

174. Recreational angling occurs within the offshore development area and surrounding waters and targets a variety of species with tope, smooth-hound, and more rarely black bream, being of special interest. Aquaculture activity is also present in the wider regional study area, notably near Arklow port and further to the southwest near the ports of Wexford, Duncannon and Helvick. Aquaculture activity is exclusively for shellfish (mussels and oysters) and does not take place in the vicinity of the CWP project. Further details

of fishing activity including angling, fisheries and aquaculture are provided in **Chapter 12 Commercial Fisheries** of the CWP Project EIAR**.**

175. Potential impacts to commercial fisheries from the CWP Project have been identified and include both temporary and longer-term impacts during construction and decommissioning, and operation and maintenance respectively. Temporary and longer-term impacts include loss or restricted access to fishing grounds, displacement of fishing activity into other areas, potential damage to fishing gear by project vessels or obstacles on the seabed and potential increases in steaming times and navigational safety issues for fishing vessels.

176. **Table 5-5** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to Commercial Fisheries.

5.5.2 Shipping and Navigation

177. A study area for the shipping and navigation assessment was defined to review and characterise the existing environment with respect to shipping and navigation and to identify potential relevant shipping and navigation users. The study area was defined as a 10 nm radius buffer of the array site. This is an industry standard study area for similar shipping and navigation assessments.

178. The shipping and navigation baseline in the study area was characterised by numerous data sources, primarily including Admiralty charts (which provided the navigational features of the area), maritime incident data (which provided an indication of offshore incident rates) and vessel traffic data (which captured local vessel traffic patterns).

179. Admiralty charts indicate multiple shallow banks are present, which are a primary influence of vessel routeing in the area. This aligns with the vessel traffic data which shows that the vast majority of vessels avoid these shallow banks. These banks are marked via buoyage to highlight the potential hazard to passing mariners. Key ports include Wicklow Harbour and Dublin, with the vessel traffic data indicating that the majority of the commercial traffic is associated with Dublin. The vessel traffic is regulated via Traffic Separation Schemes (TSSs), of which there are three that the traffic within the study area transit to/from.

180. A review of incident data over a 10 year period indicates an average of 27 incidents per year within the study area, with machinery failure and person in danger being the most common incident types. The majority of incidents occurred close to the coast, noting that five occurred within the array site over the course of the 10 year period.

181. Further details of the existing environment with respect to shipping and navigation is provided in **Chapter 16 Shipping and Navigation** of the CWP EIAR.

182. Potential impacts to shipping and navigation from the CWP Project have been identified throughout construction, decommissioning and operation and maintenance and include vessel displacement and increased collision risk, vessel to structure allision risk and reduction in emergency response capability. Potential reduction in under keel clearance and anchor interaction with subsea cables are also identified during operation and maintenance.

183. **Table 5-5** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to Shipping and Navigation.

5.5.3 Aviation Military and Radar

184. The study area for the assessment of Aviation, Military and Radar includes the array site and OECC, as well as all areas within the ZoI of the CWP Project that are of relevance. This includes, airspace area designations, including military exercise areas, helicopter airspace areas, radars on the east coast of Ireland and the 9 nm consultation zone for offshore oil and gas platforms.

185. Following review of the existing environment and operators in the area, a number of potential impacts on aviation, military and radar were identified during construction, operation and maintenance and decommissioning phases of the CWP Project. This includes potential impact on Dublin Airport instrument flight procedures (IFPs) due to presence of WTGs, potential impacts on Irish Coastguard (IRCG) SAR helicopter operations due to the presence of obstacles, including WTGs, cranes and OSSs, throughout construction and decommissioning, and potential impacts on Dublin Airport air traffic control (ATC) radar due to the operation of WTGs. Further details of aviation, military and radar receptors and potential impacts are provided in **Chapter 17 Aviation, Military and Radar** of the CWP Project EIAR.

186. **Table 5-5** sets out the mitigation measures to be adhered to by contractors and their subcontractors in relation to other Aviation, Military and Radar operators.

5.5.4 Marine Infrastructure

187. Material assets are defined as built services and infrastructure that have an economic or otherwise material value. These include those that may be operational or out of service.

188. A study area for the assessment of marine infrastructure was defined to characterise the existing environment with respect to material assets and marine infrastructure and to identify potential receptors against which effects from the CWP Project can be assessed.

189. A summary of material assets and marine infrastructure receptors identified in the study area for the CWP is provided below. Further details are provided in **Chapter 18 Material Assets - Marine Infrastructure** of the CWP Project EIAR.

- **Subsea utilities (cables and pipelines)** - a number of subsea utilities (cables and pipelines) have been identified in the study area, including pipelines for gas and sewer systems and four operational telephone / power cables located within the OECC and two out of service cables that are potentially located within the array site;
- **Oil and gas licensed exploration areas** - one authorised area for oil and gas exploration are located within the study area;
- **Marine aggregates and disposal sites (including dredging)** - significant marine aggregate deposits have been identified in the Irish Sea, some of which overlap the OECC. A number of marine disposal sites have been identified within the study area; however no marine disposal sites occur within the offshore development area;
- **Renewable energy (wind, wave and tidal)** - no existing renewable energy infrastructure is located within the study area. Arklow Bank Phase 1 (operational OWF) is located 18 km south of the CWP Project. The development of proposed OWFs have been discussed under predicted further baseline conditions and considered in **Appendix 18.1 Cumulative Effects Assessment** (CEA);
- **Power plants discharge channel** - two power plants discharge to the river Liffey within the onshore substation site; and
- **TV and radio reception** – two transmitters are serving the urban areas closest to the array site.

190. Potential impacts to marine infrastructure have been identified and include both direct and indirect impacts during construction, operation and maintenance and decommissioning phases. Direct impacts include damage to existing infrastructure through construction/decommissioning or operational maintenance and repair, while indirect impacts include disturbance of assets, for example, through increased suspended sediment concentrations and associated deposition, resulting in the reduction or restriction of marine asset use. Interference of TV and radio reception can also occur through interference to existing transmitters.

191. **Table 5-5** sets out the management principles to be adhered to by contractors and their subcontractors in relation to Marine Infrastructure.

5.5.5 Summary – Other Marine Users

192. **Table 5-5** sets out the management principles to be adhered to by contractors and their subcontractors in relation to Other Marine Users. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 5-5 Environmental Management Commitments – Other Marine Users

Topic	Environmental Management Commitments	Commitment Reference
Commercial Fisheries (See also Shipping and Navigation)	The Developer will, where practicable, bury all cables within the offshore development area – see Marine Geology, Sediments and Coastal Processes.	C03
	A Navigational Safety Plan (NSP) has been prepared for shipping and navigation purposes, including the safe navigation of fishing vessels. The NSP includes details of: • Advisory safe passing distances around structures and works; • Marine coordination and communication to manage the movements of project vessels; • Marking of all infrastructure associated with the project (including subsea cables) on appropriately scaled Admiralty Charts; • Procedures in relation to Local Notices to Mariners, to be updated and re-issued during construction and prior to planned maintenance works; • Consultation with the relevant harbour authorities; • Compliance of all project vessels with international marine regulations as adopted by the Flag State, notably the COLREGs and International Convention for the Safety of Life at Sea (SOLAS); and • Use of a guard vessel(s) as deemed appropriate by risk assessment. The NSP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	C19
	A FMMS has been prepared to provide an overview of the Developer's approach to fisheries liaison and mitigation with regards to the CWP Project. This includes measures proposed to facilitate co-existence with the commercial fishing industry with the aim of minimising potential impacts to fisheries stakeholders as far as possible. The FMMS includes details of: • The roles and responsibilities of the FLO and other relevant fisheries personnel; • Approach to disseminating information and communicating with fisheries stakeholders; • Procedures to facilitate coexistence; and • Code of good practice for all vessels The FMMS will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated prior to the start of construction.	C20
Shipping and Navigation (See also Commercial Fisheries)	The Developer will, where practicable, bury all cables within the offshore development area – see Marine Geology, Sediments and Coastal Processes.	C03
	All WTGs for both layout options will feature a minimum blade tip clearance of 36 m above Mean Sean Level (MSL) (+37.72m LAT). This is beyond the minimum 22 m clearance required for safety of navigation and has been set to reduce the potential collision risk for offshore ornithology receptors.	C12

Topic	Environmental Management Commitments	Commitment Reference
	A NSP has been prepared for shipping and navigation purposes, including the safe navigation of fishing vessels – see Commercial Fisheries.	C19
	A Lighting and Marking Plan (LMP) has been prepared to capture construction and O&M phase lighting requirements for the offshore infrastructure and demarcation of the offshore development area such as construction buoy requirements. The LMP includes details of: • Marking and lighting of the array site in agreement with Irish Lights and in line with IALA G1162 (IALA, 2021a); • Buoyed construction area around the array in agreement with Irish Lights; and • Specific requirements in terms of aviation lighting to be installed on the turbines. The LMP will be prepared in consultation with the IAA, DoD and IRCG. It will take into account DoD's requirement for WTGs to be observable to night vision equipment. The LMP will ensure appropriate lighting is in place to facilitate aeronautical safety. The LMP will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	C28
	An ERCoP will be in place for the CWP Project. The ERCoP will detail liaison with SAR resources including the IRCG to ensure suitable emergency response plans and procedures are in place. The ERCoP will refer to the marking and lighting of the WTGs and will consider helicopters undertaking SAR operations when rendering assistance to vessels and persons in the vicinity of the offshore development area. This will ensure appropriate lighting is in place to facilitate aeronautical safety during SAR operations.	C29
	MSO and Irish Lights will be consulted on the final cable alignments to inform any areas where there is a reduction in water depth >5%	C51
	IRCG will be consulted on the final WTG / OSS layout to inform IRCG where LoD has been implemented.	C52
	The Developer and appointed contractor(s) will ensure regular liaison with Dún Laoghaire Harbour and Dublin Port Company during construction and maintenance phases, in particular during cable installation and maintenance works.	C113
	All CWP vessels will broadcast Automatic Identification System (AIS).	C114
	In the approaches to Dún Laoghaire Harbour all CWP cable infrastructure will be buried.	C115
Aviation Military and Radar	A LMP has been prepared to capture construction and operation and maintenance phase lighting requirements for the offshore infrastructure and demarcation of the offshore development area – see Shipping and Navigation.	C28
	An ERCoP will be in place for the CWP Project – see Shipping and Navigation.	C29
	The IAA will be informed of the locations, heights and lighting status of the wind turbines, including estimated and actual dates of construction and the maximum heights of any construction equipment to be used, prior to the start of construction, to allow inclusion on aviation charts and in the IAA IAIP. This will comply with OREDP (DCCAE, 2014) which requires the IAA to be notified of the construction and location of wind turbines.	C30
	All structures > 90 m amsl in height will be charted on aeronautical charts and reported to the IAA at least three months prior to construction, for input into the	C31

Topic	Environmental Management Commitments	Commitment Reference
	IAA's database of tall structures in Ireland. An object which is higher than 90 m in height is considered to have significance for the en-route operation of aircraft in Irish airspace.	
Marine Infrastructure	The Developer will, where practicable, bury all cables within the offshore development area – see Marine Geology, Sediments and Coastal Processes.	C03
	For the consideration of potential array sites on the east coast of Ireland, a thorough site selection process was developed that considered all aspects of the site that would have a bearing on the economic viability and the technical and environmental acceptability of an eventual OWF development in that area. This included an analysis of existing underwater pipelines and cables. As a result of this constraints analysis the array site boundary has been selected to avoid active utility assets such as underwater pipelines and cables. Likewise, the route selection for the OECC has been informed by the location of existing seabed infrastructure. The OECC has sought to take into account known subsea obstructions including cables and pipelines by enabling perpendicular crossings where possible.	C33
	A pre-construction geophysical survey will be undertaken to verify the location of existing subsea infrastructure.	C34
	Consultation and liaison will be undertaken with asset owners and other energy infrastructure operators, as required. This is proposed to promote and maximise cooperation between parties and minimise spatial and temporal interactions between simultaneous activities.	C35
	The CWP Project offshore export cables will cross a number of existing assets. Where the existing assets depth of burial is sufficiently deep, the offshore export cable will be laid directly on the seabed. However, where the existing asset is too shallow, additional protection will be required to protect both the existing asset and the CWP Project offshore export cables. It is likely that concrete mattress will be placed over the existing asset, which is known as a separation layer. The offshore export cable will then be laid across this at an angle as close to 90 degrees as possible. The export cable will then be covered by a second mattress to secure the cables in place and ensure that they remain protected. The design and methodology of these crossings will be confirmed in agreement with the asset owners. Furthermore, the cable protection at cable crossings will be inspected during the life of the project and may need to be replenished with additional protection, depending on their condition.	C36

193. The CEMP will be updated prior to construction and in accordance with any planning consent received, to communicate awareness of required mitigation measures to the project team, including contractors and their subcontractors and to set out the procedures to be followed to minimise potential disturbance impacts to other marine users.

5.6 Offshore Biosecurity and INNS Management

194. The development of the CWP Project creates the potential for the introduction or spread of INNS. To prevent the introduction of INNS a biosecurity risk assessment will be undertaken by contractors that will consider all operations and activities associated with the CWP Project. The risk assessment will include consideration of all site activities and all vessels and equipment to be used, as well as how risks will be minimised through appropriate mitigation and adherence to relevant legislation and guidance.

195. In managing the risk of INNS all contractors, and their sub-contractors, will be required to adopt the relevant and most current legislative requirements and guidelines at the time of carrying out their works, and method statements produced, will set out the procedures to prevent the introduction of INNS during construction activities.

196. Legislation and guidance relevant to the management and control of marine INNS, are set out in **Table 5-6**. Legislation and guidance relevant to the management of invasive species onshore are set out **Section 6.2**.

197. **Appendix A** of this CEMP provides an Offshore Biosecurity Plan to address the legislative requirements set out above and below.

Table 5-6 Legislation and guidance relating to the management and control of marine INNS

Legislation	Summary	Contractor Requirements
International Convention for the Control and Management of Ships' Ballast Water and Sediments – adopted 2004	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this Convention, all ships of 400 gross tonnes (Gt) and above will be required to have on board an approved Ballast Water Management Plan and a Ballast Water Record Book, and to be surveyed and issued with an International Ballast Water Management Certificate.	Ballast Water and Sediments Management Plan Ballast Water Record Book International Ballast Water Certificate
S.I. No. 82/2008 – Sea Pollution (Control of Anti-fouling Systems on Ships) Regulations 2008	Prohibits the use of harmful organotins in anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. Requires an International Anti-fouling System Certificate to be held by ships of 400 gross tonnage or above and every ship which is certified to carry 15 or more persons.	International Anti-fouling System Certificate
Marine Environment Protection Committee.207(62) 2011 Guidelines for the Control and Management of Ships Biofouling to Minimise the Transfer of Invasive Aquatic Species	The Guidelines are intended to provide useful recommendations on general measures to minimise the risks associated with biofouling for all types of ships.	General guidance on minimising biofouling risks

5.7 Offshore Chemicals, Oils and Fuels Management

198. It is the responsibility of each contractor to ensure adequate controls are in place for the management of chemicals, oils and fuels for the CWP Project to prevent spillages into the environment. This includes transport, storage and use of fuels, oils and chemicals, and other materials, including on vessels, as required and in line with best practice. Mitigation and management measures in relation to pollution control and protection of the marine environment are also set out in **Section 5** of this CEMP.

199. Each contractor will set out procedures for the transportation, storage and handling of any hazardous materials and in particular chemicals, oils and fuels, taking into account the legal requirements and good practice guidelines and with consideration of sensitive receptors and pathways identified. This may include the following measures;

- During construction, O&M and decommissioning phases contractors and subcontractors will provide an inventory of chemicals detailing chemical types and how and when chemicals are to be used. Checks will also be made to ensure that chemicals to be used offshore comply with relevant regulations including the MARPOL convention, Annex I (fuel oil management and machinery space discharges) and Annex VI (fuel efficiency and air pollution control measures). This includes lists of chemicals which through their mode of use, are expected in some proportion to be discharged to sea and those chemicals that will be included within closed systems in equipment operated in and/or over the marine environment. Notifiable chemicals will be subject to Regulatory requirements at the time of construction but tend to be a product of the Offshore Chemical Notification Scheme (OCNS). These chemicals would not be used until the CWP Project has approved them and notified the Regulatory Authority of their intended use. No other notifiable chemicals must be used. The list may be periodically updated and reported to the Regulatory Authority.
- All chemicals, oils and fuels will be stored on vessels and infrastructure (e.g. WTGs and OSSs) within suitable bunding (e.g. bunding that can store 110% of the maximum volume of chemicals, oils and fuels).
- Infrastructure that contains chemicals, oils or lubricants, such as cooling fluid in the transformers at the base of the WTG towers, shall be installed with the fluids in situ wherever possible. This supports handling of potential pollutants in ports and marshalling facilities, and thus avoiding offshore transfer of potential pollutants.

200. Where a spillage takes place offshore, contractors are required to follow specific spill, prevention and response measures as set out within the Marine Pollution Prevention and Contingency Plan (MPCP) (see **Section 5.7.1**).

201. The CEMP will be updated prior to construction, following the appointment of contractors and in accordance with any planning consent received.

5.7.1 Marine Pollution Prevention and Contingency Planning

202. Ireland is signatory to the International Convention on Oil Pollution Preparedness response and Cooperation (1990) which requires the production of a National Contingency Plan (NPC) for oil pollution. This is extended under Irish legislation to address marine pollution due to hazardous and noxious substances (HNS).

203. In line with relevant legislation, it is anticipated that any consent granted will include a requirement for a MPCP to be developed for the CWP Project prior to construction. This will set out the procedures to be followed in the event of a marine pollution incident originating from the offshore operations of the CWP Project. These procedures should be in line with the requirements of the CWP Incident Reporting and Investigation procedures (CWP-CWP-HSE-01-04-POL-0004).

204. The Developer will require that any spill into the marine environment is responded to as soon as possible, and in the event of a spill, the contractor must ensure the safety of personnel and the offshore installations and vessels and must work immediately to prevent escalation of the incident. Contractors shall provide a 24-hour pollution and emergency response team which will be available throughout construction. All contractor personnel will be briefed on the MPCP as part of project inductions and toolbox talks, as required, and periodic training will take place by means of drills and exercises.

205. For general pollution/spill response procedures, it is common to divide levels of response into three tiers, according to the severity of the spill and the resources required to contain the spill. The three tiers are commonly defined as set out in **Table 5-7**.

Table 5-7 Spill Response Definition (Adapted from National Maritime Oil/HNS Spill Contingency Plan (2020))

Tier Response	Response
Tier 1 – Minor environmental event	Response is for the most frequently anticipated type of spill and can be dealt with using resources immediately available locally / on site. Responded to and resolved by local authority, harbour authority or operator of the offshore unit.
Tier 2 – Moderate environmental event	Response is for less frequently anticipated spills of larger size and for which external resources on a regional level will be required to assist in monitoring and clean-up. Response is led by harbour or local authority and may involve joint marine and coastal operations.
Tier 3 -Major environmental event	Response is in place for the very rarely anticipated spill of major proportions and which may require national and potentially international resources to assist in protecting vulnerable areas and in monitoring and clean-up. Response is nationally led and will involve a range of Government departments.

206. It should be noted that Tier 3 incidents typically involve levels of oils or chemicals that are associated with oil and gas developments and are not expected to occur during the construction of the CWP Project. However, the tiering presented is typical of offshore works and in line with guidance and therefore Tier 3 is included for completeness.

Risk assessment

207. Prior to construction the contractor will undertake a risk assessment of potential incident/spill scenarios, recognising the risk of pollution from construction activities and present proactive management and mitigation measures to be employed through the development of a comprehensive MPCP. This will ensure that any incident that does occur is minimised, controlled, reported to the relevant parties and remediated.

208. Each vessel utilised on the CWP Project will have an effective spill response process in place, i.e., a Ship Oil Pollution Emergency Plan ('SOPEP'), or equivalent. All vessels will carry spill kits and individuals will be trained in the use of spill kits and procedures to ensure any response is carried out immediately and efficiently.

209. The key elements of the risk assessment may include;

- A detailed table of potential spill scenarios and control measures. For each notifiable chemical, fuel or oil, this table will detail the spill scenario (e.g. vessel to structure allision), control measures in place to prevent the incident, the likelihood of a spill with control measures in place and the likely Tier response required.
- Incorporation of control measures within each vessel's SOPEP where relevant.
- Assessment of Port and Harbour Oil Spill Contingency Plans (OSCPs) and the need for any bridging documents between the CWP project CEMP and MPCP, SOPEPs and OSCPs.
- Review of the location of sensitive habitats and populations in the vicinity of construction, O&M and decommissioning activities, including the location of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) to inform lines of communication and appropriate responses in the Pollution Incident Response Procedures.

5.7.2 Marine Pollution Incident Response

210. The Department of Transport is identified as the Lead Government Department for marine and coastal pollution under the strategic emergency management National structures and framework. Responsibility

for this function is delegated to the IRCG which is responsible for response to pollution by oil and HNS within the Irish Exclusive Economic Zone (EEZ).

211. In the event of a pollution incident, the vessel master or the wind farm operator is required to immediately report all oil/HNS spills, or the observation of such pollution, to either the IRCG or the harbour master, if inside harbour limits. The harbour master will subsequently inform the IRCG in the latter case.

212. The wind farm operator is also required to inform, the Commission for Regulation of Utilities (CRU) using the Petroleum Incident Notification (PIN) Form.

213. The IRCG maintains a 24/7 operational communications capability through the Marine Rescue and Coordination Centre (MRCC) which is part of the Maritime Assistance Service (MAS) for Ireland. Pollution reports received by the MRCC will be assessed by the Station Officer to verify the details of the reported incident, to assess the response level required and, if necessary, mobilise national support resources.

214. The stages anticipated in relation to reporting a potential marine pollution incident are set out in **Plate 5-1.**

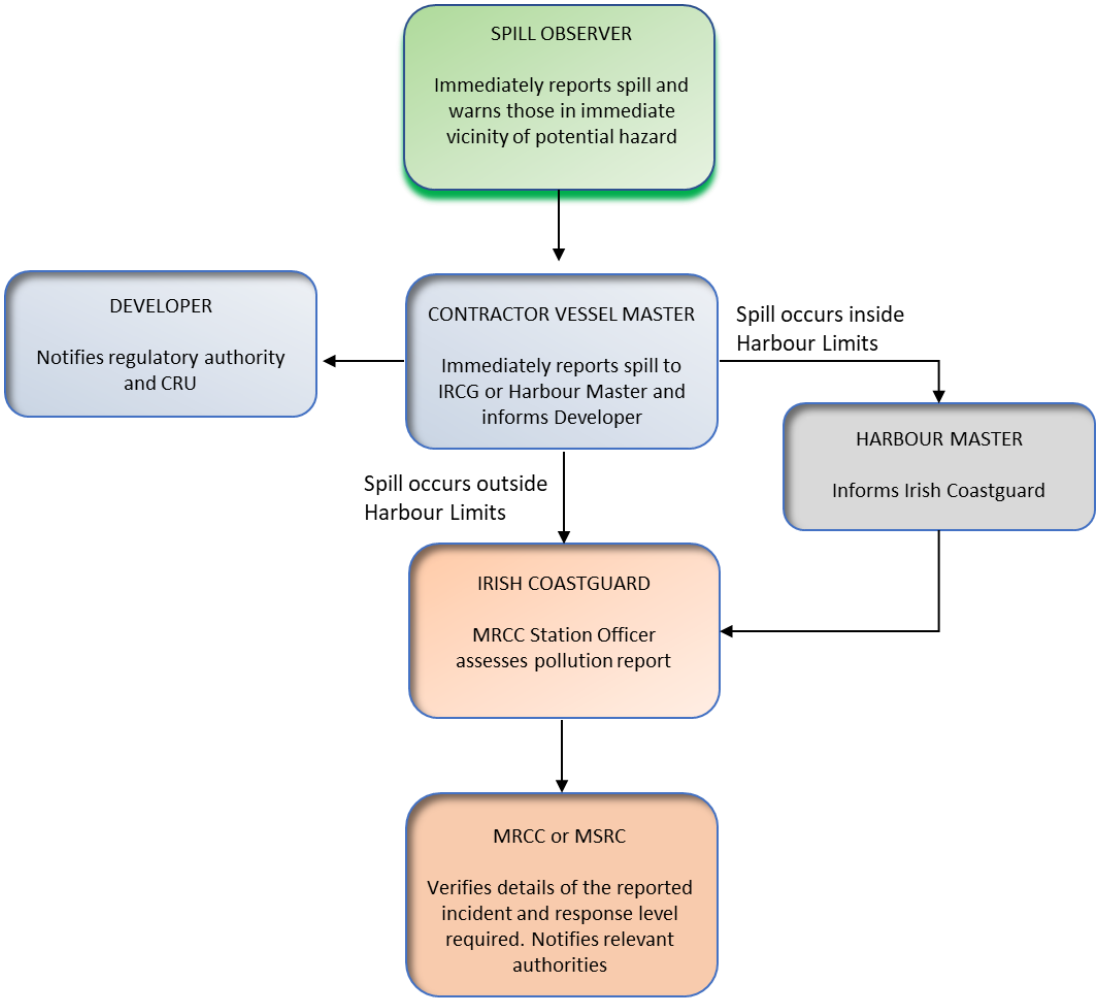


Plate 5-1 Marine Pollution Incident Reporting Approach (Source Codling Wind Park Ltd)

215. The Developer will develop a MPCP that all CWP Project and contractor personnel will be required to comply with. This will set out minimum requirements for pollution incident responses. However, the principal contractors will also complete more detailed MPCPs that comply with the CWP Project MPCP, and any other requirements specific to their works and SOPEPs etc. These MPCPs will need to be approved by the

CWP Project prior to the commencement of any offshore construction activities or mobilisation of any vessels. The Applicant's MPCP and contractor MPCPs will include the following information as a minimum;

- Detailed flow charts and tables establishing lines of communication and order of events in the event of a spill. This may include different response requirements and communications depending on whether the spill is from a structure (e.g. a partially installed WTG) or from a vessel where a vessel master will be present.
- A detailed response action plan for every role identified in the flow charts, with action check lists and timings within which actions must be completed by from the time the spill is identified and first reported. The response plan should be divided into categories, such as initial actions, resource mobilisation, assess and quantify, company and regulatory reporting, tracking and sampling, determine response, ongoing response and stand down.
- Several forms and guides to be completed and/ or followed during and after a spill response, including;
    - Incident Data Collection Sheet which will be retained and stored for any investigative purposes.
    - Petroleum Incident Notification (PIN) Form and other forms required by relevant Regulatory Authorities.
    - Release size estimation guides providing details on Manual Calculation of Surface Release Trajectory, used in conjunction with the BONN Agreement Oil Appearance Code to support the estimation of volumes released (if unknown), and the likely spread and trajectory of oils and fuels on the sea surface.
    - Sampling guidelines. It is advisable to take a sample of the spilt oil if it is safe and possible. The Contractor should request a sample of the spill, collected using the oil spill sampling kit available on vessels (and as detailed in vessel SOPEPs).
    - A high-level summary of potential environmental sensitivities (e.g. location of closest SPAs or SACs), used to inform response strategies. This may also include a calendar of the most sensitive months for environmental receptors, such as spawning times for fish species.
    - Forms setting out the information required if seeking advice or prior approval on dispersant use. Dispersants are chemicals that help remove oil from the sea surface by breaking oil slicks into small droplets. Their use often requires prior approval by the relevant Regulatory Authority, and the MPCP will therefore include an overview of the information required to seek such approval with contact details.

216. Detailed lists of contacts of all personnel involved in a response, particularly those included in organisational charts and response action plans will be provided to all parties including the CWP Project, all contractors working on site at any one time, and the relevant Regulatory Authorities. Contact details for relevant Regulatory Authorities will also be included.

217. A key element of pollution prevention and incident response is feedback and implementation of lessons learned after an incident has occurred. This includes a review of the causes that lead to the incident occurring and the response, and consequential adjustments to pollution management and response strategies to minimise the risk of similar incidents recurring.

5.8 Offshore Waste Management

218. The Developer will require that all contractors and their subcontractors are responsible for the collection, storage and disposal of any offshore waste produced as part of the CWP Project.

219. In line with the revised 2011 EU (Waste Directive) Regulations 2011 [S.I. No. 126/2011], the Developer requires that waste will be managed in accordance with the waste hierarchy as defined by the EU Directive 2008/98/EC on Waste. This means that all waste will be reduced, reused, recovered, and recycled as far as reasonably practicable to reduce waste to landfill.

220. A duty of care shall be maintained at all times to ensure that any offshore waste generated during the construction of the CWP Project is handled in accordance with the relevant legislation governing its storage, transfer, treatment and disposal. It is anticipated that waste management measures will include waste

stream management that include protocols for the correct handling, segregation, and disposal of waste, to ensure that it causes the least practicable damage or disturbance.

221. The Developer will require all contractors to obtain relevant permits and authorisations prior to the removal of any offshore waste and maintain a register of this information. Contractors will also maintain a register of all waste loads leaving the offshore development area and/or excavated material destined for reuse, to facilitate monitoring and reporting of waste and material types, quantities, and management methods. Any hazardous wastes generated will be segregated, based on classification as (potentially) hazardous or non-hazardous.

222. All vessels will manage on-board waste streams including wastewater and sewage in line with international agreements, including the MARPOL convention, with Annex IV relating specifically to sewage management and Annex V relating to solid waste streams. All waste produced offshore will be stored in designated containers and returned to port to be transported by licenced waste carriers to an appropriate disposal facility. Vessel operators will be required to liaise with port operators to facilitate appropriate storage, transfer, segregation and disposal of waste offshore.

223. It is anticipated that contractors will produce waste management plans that set out all waste management procedures for construction activities, including expected waste arisings and proposed procedures for waste management. This will be provided to the Developer for approval prior to the commencement of any offshore construction activities.

5.9 Unexploded Ordnance

224. Prior to commencement of construction Unexploded Ordnance (UXO) specific surveys will be undertaken by or on behalf of the Developer to understand the potential for UXO being found within the offshore development areas. These will be used to specify safe working requirements which may include advance magnetometer surveys at identified locations and appropriate training for site operatives. This information will be included within as low as reasonably practicable (ALARP) certificates that will be issued to contractors by the Developer ahead of construction.

225. An ERCoP will be prepared by contractors and this will be adhered to in the event of discovering unexploded ordnance. This will include notifications to the relevant authorities, emergency services, and stakeholders as required.

5.10 Dropped Objects

226. Dropped objects can present a hazard to the marine environment and other sea users. It is anticipated that any consent granted will include a requirement to record, notify and potentially recover any object lost or accidentally deposited on to the seabed during the construction of the CWP Project. Notification will be made using a dropped object form that will be agreed with the relevant authority prior to construction.

227. Where objects are dropped, it is anticipated that the following procedures will be followed:

- Prevention: Prior to any construction activity contractors will consider minimising the potential for objects to be dropped or accidentally deposited into the marine environment. Each contractor, and its sub-contractors will have its own process for ensuring equipment and materials are adequately stored and personnel are adequately trained and briefed on avoiding dropped objects or accidental deposits;
- Identification: If any contractor or their sub-contractors become aware of any object/equipment that is missing, or any dropped object is observed to have occurred, (for example by personnel observing or reporting that an object has been lost), the responsible contractor, or sub-contractor, will record the loss as soon as becoming aware of the incident and will notify the Developer. It should be noted that every reasonable measure should be taken to immediately retrieve dropped objects where this is considered practical and safe to do so;

- Notification: The contractor, or their sub-contractors will complete the agreed Dropped Object form and will submit this to the Developer who will notify the relevant authorities. The relevant authority should also be notified of any activities undertaken or in planning to recover dropped objects;
- Recovery: The contractor will continue to attempt to recover the dropped object in line with dropped object form provided. Should recovery be successful the Developer will notify the relevant authority. Should recovery be unsuccessful the Developer will contact the relevant authority and await further advice with regards to remedial action to be undertaken.

228. The dropped object procedure will be updated prior to construction, following the appointment of contractors and in accordance with any planning consent received.

6 ONSHORE ENVIRONMENTAL RISK MANAGEMENT AND COMPLIANCE

229. The following sections provide an overview of the approach to onshore management of environmental sensitivities during construction of the CWP Project, as identified within the EIAR, NIS and supporting documentation. A summary of mitigation is also provided in support of the consent application which provides a detailed summary of all mitigation measures and commitments made within the EIAR, NIS and supporting documentation for the CWP Project.

230. The siting, design and ongoing refinement of the onshore components of the CWP Project has taken account of physical constraints, as well as environmental, technical, social and commercial considerations to identify onshore sites and onshore cable routes that are both environmentally acceptable and technically deliverable. Full details of the site selection process for the CWP Project are set out in **Chapter 3 Site Selection and Consideration of Alternatives** of the CWP EIAR and details of the final project design parameters are provided in **Chapter 4 Project Description**.

231. A summary of mitigation (EIAR **Chapter 33 Summary of Mitigation and Monitoring**) is also provided in support of the consent application which sets out a detailed summary of all mitigation measures and commitments made within the EIAR, NIS and supporting documentation for the CWP Project. Mitigation measures and commitments relevant to the construction of the onshore components of the CWP Project that will be adhered to by contractors and their subcontractors are detailed in the following sections and summarised in the following tables:

- **Table 6-1**: Environmental Management Commitments – Onshore Biodiversity / Ecology;
- **Table 6-2**: Environmental Management Commitments – Onshore Archaeology and Cultural Heritage;
- **Table 6-3**: Environmental Management Commitments – Flood Risk, Drainage and Groundwater;
- **Table 6-4**: Environmental Management Commitments – Onshore Waste and Excavated Materials Management;
- **Table 6-5**: Environmental Management Commitments – Onshore Traffic Management;
- **Table 6-6**: Environmental Management Commitments – Air Quality and Dust Controls;
- **Table 6-7**: Environmental Management Commitments – Airborne Noise and Vibration Control; and
- **Table 6-8**: Environmental Management Commitments – Utilities.

6.1 Onshore Biodiversity Management

232. A range of ecological field surveys were undertaken within the onshore biodiversity study area between 2021-2024, in order to inform the impact assessment. Surveys undertaken included habitat and botanical surveys, a supratidal habitat survey, protected mammal surveys and habitat assessment surveys for protected amphibian, reptile and invertebrate species. Further details on the methodologies used and the extent of the surveys is provided in EIAR **Chapter 21 Onshore Biodiversity**.

233. Following the habitat and botanical surveys it was established that the onshore development area predominantly comprises areas of manmade features such as existing roads, areas of gravel, rock armour or areas of disturbed or low ecological value habitat such as recolonising bare ground, amenity grassland, spoil and bare ground and areas of refuse and waste. An area of dense scrub was recorded at the landfall site and within the proposed onshore substation site. Immature treelines were also recorded sporadically within the site.

234. Three invasive non-native species (INNS), listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, namely, Japanese knotweed, bohemian knotweed (*Fallopia x bohemica*), three cornered leek (*Allium triquetrum*) and sea buckthorn (*Hippophae rhamnoides*).

235. During the mammal surveys, evidence of badger (*Meles meles*) was recorded frequently within the onshore substation site and at the landfall site. An artificial badger sett was identified at the north-west corner of the

Irishtown Nature Park (53.3367582, -6.1998886), approximately 40 m east of the onshore development area.

236. Otter (*Lutra lutra*) were only recorded on two occasions on the shoreline at low tide along the north side of the onshore substation site.. It was noted to be foraging/searching on exposed mud and in rock armour. An otter was also recorded outside of the onshore development area, near the ESB Dolphin used by a breeding tern colony within Dublin Port. This is located c. 250 m from the eastern boundary of the onshore substation site..

237. During the bat surveys, low levels of activity of three bat species [soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*) and Leisler's bat (*Nyctalus leisleri*)] were recorded. The three bat species were recorded foraging and commuting primarily in the southern section of the onshore CWP Project site boundary. No bat roosts were recorded within the ZoI of the OTI.

238. No other protected terrestrial species were recorded during the surveys.

239. The onshore development area overlaps with the European site, South Dublin Bay SAC (000210). The SAC is designated for four costal habitats, namely, Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Salicornia and other annuals colonising mud and sand [1310] and Embryonic shifting dunes [2110]. During the supratidal habitat survey, it was confirmed that none of the Annex I habitats are present within the onshore development area, including within the area of the SAC which overlaps within the Application site boundary. The construction of the OTI will not result in the loss of any Annex I habitat.

240. No source-pathway-receptor link was identified between the onshore development area and any other European site. European sites designated for protected bird species or located below the HWM are assessed separately in **Chapter 10 Ornithology** and **Chapter 8 Subtidal and Intertidal Ecology** of the CWP Project EIAR respectively.

6.1.1 Summary – Onshore Biodiversity / Ecology

241. **Table 6-1** sets out the management principles to be adhered to by contractors and their subcontractors in relation to onshore ecology. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

242. A suitably qualified and experienced onshore ECoW will be appointed by the Contractor. The onshore ECoW will oversee all construction works and monitor any possible sources of impacts for the duration of the construction programme. The onshore ECoW will ensure the construction phase of the OTI will be undertaken in strict agreement with mitigation measures detailed in the onshore biodiversity chapter and NIS and will have the power to stop works in case any activities/works are not compliant.

Table 6-1 Environmental Management Commitments – Onshore Biodiversity / Ecology

Topic	Environmental Management Commitments	Commitment Reference
Measures specific to the protection of bats	The berm will be reinstated once the construction works are completed. A mix of native tree species will be planted at the landfall location. The mix of native trees species will include bat-friendly scented species such as dog rose (Rosa canina), guilder rose (Viburnum opulus) and hazel (Corylus avellana), which will attract and benefit bat species (refer to Figure 23.7 in Chapter 23 Landscape and Visual Impact Assessment). Four bat boxes (Schwegler Woodcrete 1FF bat box or equivalent) will be erected on mature trees or poles at the landfall site. The bat boxes will be erected prior to the construction works commencing and the exact siting of the bat boxes will be undertaken in consultation with a bat specialist.	C66

Topic	Environmental Management Commitments	Commitment Reference
	The bat boxes will be installed in line with the following guidelines: • Straight limb trees (or telegraph pole) with no crowding branches or other obstructions for at least 1 m above and below position of bat box. The diameter of tree should be wide and strong enough to hold the required number of boxes. • The bat boxes will be installed in areas where bats are known to forage or adjacent to suitable foraging habitats. • The bat boxes must be installed in locations sheltered from prevailing winds. • The bat boxes will be erected at a height of 4–5 m, to avoid predation and vandalism.	
	Measures to avoid or otherwise minimise disturbance to ecological receptors are included in the Construction Environmental Management Plan (CEMP). With regards to the protection of bats, to reduce disturbance, all temporary lighting associated with the onshore construction works will be placed strategically by the appointed contractor following consultation with the appointed ECoW to ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay. No light will be directed toward the vegetated berm at the landfall site.	C67
	All new lighting for the onshore substation site will be designed following regard of the Bat Conservation Trust Guidelines (2018) and will include the following: • All luminaires used will lack UV/IR elements; • LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability; • A warm white spectrum (<2700 Kelvins, i.e. 2200 Kelvins) will be used to reduce the blue light component of the LED spectrum); • Luminaires will feature peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats; • Column heights will be carefully considered to minimise light spill and the shortest column height allowed should be used where possible; • Only luminaires with an upward light ratio of 0% and with good optical control will be used; • Luminaires will be mounted on the horizontal, i.e. no upward tilt; • Any external security lighting will be set on motion-sensors and short (1 min) timers; • As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.	C70
Measures specific to the protection of badger	In the event that the construction phase of the CWP Project is delayed more than 12 months after the initial baseline surveys, pre-construction badger surveys will be undertaken prior to the construction works commencing to establish whether there has been any change to the receiving environment, particularly in relation to the establishment of new badger setts. The pre-construction surveys will be undertaken by an experienced and qualified Ecologist and will take place no more than 10 to 12 months in advance of construction works commencing as per the NRA (2005) guidelines. The pre-construction survey will assess the status of the existing artificial badger sett and identify any newly established setts in advance of the construction works commencing. In the event a new badger sett is identified during the pre-construction surveys, within the ZoI of the OTI and landfall, the appointed contractor(s) will follow the guidelines outlined within the NRA (2005) document, and ensure appropriate measures are implemented.	C64

Topic	Environmental Management Commitments	Commitment Reference
	In the event a new badger sett is identified within the ZoI of the OTI, the appointed Contractor will implement the following measures, as outlined within the NRA (2005) guidance: • Camera traps will be installed at the sett to establish the level of activity. • If required, a one-way badger gate will be fitted over each entrance. • Gates will be closed after three days and will be monitored every three days for 21 • days in total before the sett is then deemed inactive. • Monthly monitoring of the closed sett will be undertaken to ensure there has been no interference with the closure and no mammals have attempted to dig back into the sett. • Once the sett has been confirmed to be inactive, the sett will be destroyed. • Sett exclusion / sett closure works will be undertaken prior to the commencement of the badger breeding season (December to June). • No sett interference will therefore occur between December and June inclusive when dependant young could be present. Replanting of the berm at the landfall will increase plant diversity in that area and likely provide new foraging habitat for the local badger population.	
	To minimise the potential for disturbance to the artificial badger sett located within the Irishtown Nature Park, construction phase activities along the eastern boundary of Compound A will be limited and will predominantly include the laydown / storage of material and the movement and parking of vehicles.	C118

	Measures to avoid or otherwise minimise disturbance to ecological receptors are described in the Construction Environmental Management Plan (CEMP). Measures included in the CEMP that are specific to the protection of badger are detailed below:
	• No construction works will occur outside the CWP Project planning application boundary.
	• All construction site personnel will be made aware of the location of the artificial sett to ensure there is no accidental damage to the sett during the construction phase.
	• To further reduce the potential for disturbance to the artificial sett, the following will be undertaken:
	  ○ 2.6 m localised screening will be erected around noisy plant sources associated with the open cut excavation including piling works at the temporary cofferdam, tunnel excavation works (within the Compound A) and the HDD installation of the ESBN networks cables; and
	  ○ 2.6 m hoarding will be erected around the perimeter of the temporary tunnel compound, located in Compound A and the temporary HDD compound located in Compound C.
	  ○ These screening proposals will reduce predicted construction noise levels at the sett, to within 39–58 db. These levels are below and within existing baseline levels of the surrounding area.
	• It is noted that 2.6 m high perimeter hoarding will also be erected around the boundaries of Compound A and Compound C.
		C63

	Large excavations, particularly those associated with the tunnel works, HDD works and cable duct installation will either be covered (with plywood), fenced	

Topic	Environmental Management Commitments	Commitment Reference
	or have an escape ramp installed overnight to prevent badgers, or other wildlife, from falling into them and becoming trapped.	
	All temporary lighting used during the construction works will be cowled and directed away from the existing artificial sett and away from foraging sites (areas of scrub, grasslands and woodlands).	
	The artificial sett will be monitored by the ECoW when constructions works are being undertaken at the landfall and for tunnelling works at the southern section of the onshore export cable, to ensure the sett is not being disturbed. The sett will be monitored using trail cameras (under licence) and visual inspections. In the event the badger sett is being disturbed by the construction works, all works will be temporarily halted until alternative, sufficient protective measures are put in place.	
Otter pre-construction survey	In the event that the construction phase of the development CWP Project is delayed more than 12 months after the initial baseline surveys a pre-construction otter survey is to be undertaken within suitable habitat within the ZoI of the CWP Project onshore development area. The pre-construction survey will be conducted no more than 10 to 12 months in advance of the construction works as per the NRA (2006) guidelines. In the event that a new holt is identified within the ZoI of the proposed works, a derogation license will be sought from NPWS and appropriate measures will be implemented.	C65
Other mammal species – lighting Inc Otter	Measures to avoid or otherwise minimise disturbance to ecological receptors are included in the Construction Environmental Management Plan (CEMP). With regards to the protection of other mammal species, to reduce disturbance, all temporary lighting associated with the onshore construction works will be placed strategically by the appointed contractor following consultation with the appointed ECoW to ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay. No light will be directed toward the vegetated berm at the landfall site.	C68
Noise controls	Measures to avoid or otherwise minimise disturbance, associated with noise and vibration, to both human and ecological receptors are included in **Section 6.9** of this CEMP.	-
General construction lighting	To reduce the level of artificial lighting, all temporary lighting associated with the construction works will be placed strategically by the appointed Contractor following consultation with the appointed onshore ECoW. This will ensure that illumination beyond the works area is controlled. Lighting will be cowled and directional to reduce significant light splay.	C15
Vegetation clearance	Where possible, vegetation clearance will be kept to a minimum. The proposed construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Construction vehicles will be restricted to designated areas and access tracks to avoid impacting adjacent habitats and to ensure that soil compaction is restricted to these areas. All disturbed ground will be fully reinstated following the completion of the works.	C38
	The replanting of vegetation (ca. 7,856 m2) will be undertaken within the onshore development area following the completion of the works. The replanting will include the planting of native woodland (ca. 4098 m2), native shrub (ca. 2,708 m2) and wildflower beds (ca. 1,050 m2) at the landfall site, along Shellybanks Road and Pigeon House Road (refer to Figures 23.7, 23.8 and 23.9 in Chapter 23 Landscape and Visual Impact). All planted species will be certified native stock and from an approved supplier of the Green, Low-Carbon Agri-Environmental Scheme (GLAS). Further details are provided in the Landfall Landscape Reinstatement Plan contained in Figure	C50

Topic	Environmental Management Commitments	Commitment Reference
	23.7, 23.8 and 23.9 of Chapter 23 Landscape and Visual Impact. The replanting will include a variety of plant species which will increase the species diversity, particularly at the landfall site, which currently comprises dense bramble and invasive plant species.	
Onshore Invasive Species Management Plan	To avoid significant effects and to comply with Regulations 49 and 50 of the European Communities (Birds and Natural Habitat) Regulations (2011), the INNS located within the onshore development area, which will be directly impacted, will be removed prior to the construction works commencing. An Onshore Invasive Species Management Plan (Onshore ISMP) has been prepared and is included within the Planning Application. The ISMP outlines control measures which will be put in place in order to control and manage the INNS. The Onshore ISMP includes details of: • Survey observations and photographs illustrating invasive species infestation; • Control, treatment and management options for each type of invasive species identified; and • Biosecurity standard operating procedures for personnel and equipment. The Onshore ISMP be implemented by the Applicant and its appointed contractor(s) and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.	C62
Dust control & mitigation	Measures to avoid or otherwise minimise disturbance to both human and ecological receptors in terms of dust are included in **Section 6.8** of this CEMP.	-
Protection of water quality	More detail on the protection of water quality, including measures related to spill control are outlined in **Table 5-1** of **Section 5.1** of this CEMP.	-
Bee and pyramidal orchids	Although they are not protected, the bee and pyramidal orchids which were recorded at the onshore substation site and in Compound B will be carefully dug out and transplanted to a designated translocation site within the CWP Project site boundary, prior to the construction works commencing. The orchids will be translocated in June or July (as they are easily identified then) and a deep soil profile is excavated with the orchids to ensure that enough soil, containing mycorrhizal soil fungi, essential to orchid survival, is transferred along with the plants themselves. The orchids will then be replanted within the designated translocation area in either autumn or early spring.	C61

6.2 Onshore Biosecurity and Invasive Species Management

243. To prevent the introduction of INNS onshore a biosecurity risk assessment will be undertaken by contractors that will consider all operations and activities associated with the CWP Project. The risk assessment will include consideration of all site activities and equipment to be used, as well as how risks will be minimised through appropriate mitigation and adherence to relevant legislation and guidance.

244. In managing the risk of invasive species all contractors, and their sub-contractors, are required to adopt the relevant and most current legislative requirements and guidelines at the time of carrying out their works, and that method statements produced, set out the procedures to prevent the introduction of invasive species during construction activities.

6.2.1 Onshore Invasive Non-Native Species:

245. A total of seven INNS were recorded within the onshore development area during field surveys. Of the seven INNS recorded, three species, Japanese knotweed, bohemian knotweed (*Fallopia x bohemica*), three cornered leek (*Allium triquetrum*) and sea buckthorn (*Hippophae rhamnoides*), are high risk species and are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011.

246. An **Onshore Invasive Species Management Plan** has been prepared to outline control and management options for INNS identified within the onshore development area. The **Onshore Invasive Species Management Plan** outlines control measures which will be put in place in order to control and treat the INNS including:

- Survey observations and photographs illustrating INNS infestation;
- Control, treatment and management options for each type of INNS identified; and
- Biosecurity standard operating procedures for personnel and equipment.

247. The **Onshore Invasive Species Management Plan** will be implemented by the appointed contractor and will be secured through conditions of the development consent. It will be a live document which will be updated and submitted to the relevant authority, prior to the start of construction.

6.3 Onshore Archaeology and Cultural Heritage

248. Three recorded monuments were identified within the onshore development area:

- The site of a blockhouse (RMP DU019-027), which predates the Pigeon House Fort and is recorded within the boundary of the onshore development area (and potentially beneath the existing Pigeon House Hotel).
- The Pigeon House Fort, which is located within the zone of archaeological potential (RMP DU019-027), which incorporates part of the onshore development area;
- The Ballast Wall (RMP DU018-066/ 019-029) which is partially located within the onshore development area;
- The later Great South Wall, located to the east of the onshore development area (RMP DU019-029002). Whilst the RMP map cites DU019-029 as the zone of archaeological potential for both walls, the Ballast Wall is an earlier phase of construction and should be considered as a separate monument to the Great South Wall.

249. There are six protected structures located within the study area, none of which are listed in the NIAH Survey. These are the:

- Ballast Wall (RPS 6797) (partially located within the onshore development area);
- Upstanding remains of the Pigeon House Fort (RPS 6794) (immediately adjacent to the onshore development area);
- Great South Wall (RPS 6798) (east of the onshore development area);
- Pigeon House Power Station (RPS 6796) (immediate northeast of the onshore development area);
- The former Pigeon House Hotel (RPS 6795) (immediately adjacent to the onshore development area);
- The former hospital (RPS 6793) (approximately 73m to the west of the onshore development area).

250. The Pigeon House Harbour is not included in the RPS within the Dublin CDP. However, it is contemporary with the Ballast Wall (RPS 6797) and directly associated with that structure. It has therefore been assessed as forming part of the Ballast Wall.

251. The onshore development area is not located within an Architectural Conservation Area (ACA). The surviving section of the Pigeon House Harbour and derelict power station are located within a Conservation Area, as designated in the Dublin CDP. Further to the east, the Great South Wall is also defined as a Conservation Area.

252. A review of the Dublin City Industrial Heritage Record (DCIHR) showed five features included within the record within c. 500 m of the onshore development area, including the site of a lifeboat house within the onshore development area and early 20th century outfall works.

253. A review of Excavations Bulletin (1970-2023) revealed a number of investigations have been carried out in the within the vicinity of the site. These investigations have identified post-medieval reclamation deposits and fragmentary remains of buried portions of the Ballast Wall (and associated causeway). Stones forming part of the northern side of the Ballast Wall have been identified beneath the existing footpath (within the proposed onshore development area) and these were preserved in-situ at the time of discovery in 2008.

254. This CEMP will be updated prior to construction to communicate awareness of the sensitive archaeological sites and features within the onshore development area to the project team, including contractors and their subcontractors and to set out the procedures to be followed in the event of an unanticipated find.

6.3.1 Onshore Archaeology and Cultural Heritage - Summary

255. **Table 6-2** sets out the management commitments to be adhered to by contractors and their subcontractors in relation to onshore archaeology and cultural heritage.

256. Additional environmental management measures may be required depending on the contractor work activities and these will be included within the final contractor method statements and EMPs.

Table 6-2 Environmental Management Commitments – Onshore Archaeology and Cultural Heritage

Topic	Environmental Management Commitments	Commitment Reference
Onshore Archaeology and Cultural Heritage – Former Pigeon House Hotel, block house and fort	Compound C will be established away and to the southwest of the upstanding hotel structure and adjacent stone footings identified during the field inspection (likely to represent the remains of a barrack building). The compound will be hoarded during construction works	C77
Onshore Archaeology and Cultural Heritage - Ballast Wall and Pigeon House harbour wall.	The tunnel invert level for the onshore export cable (-25.3 m OD) has been designed to avoid direct impacts to the Ballast Wall (under the Pigeon House Road) and Pigeon House harbour wall.	C78
Onshore Archaeology and Cultural Heritage - Pigeon House harbour wall	Prior to reclamation at the onshore substation site, the exposed portions of the harbour wall will be covered in a geotextile membrane to create a visual barrier between the reclamation works and the harbour wall. This is in addition to the concrete render that already seals the masonry of the harbour wall. There will be no direct foundations or structures placed on the harbour wall during works as the sheet piling required will be set back from the harbour wall by approximately 200mm and buffered with approved fabric seal	C129
Onshore Archaeology and Cultural Heritage - identified RMPs	All ground works within the zone of archaeological potential associated with the block house and fort (RMP DU019-027) will be subject to archaeological monitoring under licence from the National Monuments Service of the DoHLGH. This involves an archaeologist being present for the entirety of ground excavations. A licence for the works will take 3–4 weeks to process and the methodology will also require approval from the Dublin City Archaeologist. If archaeological remains are identified during the course of works, further mitigation will be required, such as preservation in-situ or by record. Preservation in-situ means that the identified remains will be avoided by any further works and retained within their original contexts. Preservation	C79

	by record will require the archaeological excavation of the identified remains. Further mitigation will require additional methodologies to be agreed by the DoHLGH and Dublin City Archaeologist.	
	All ground works within the zone of archaeological potential associated with the ballast wall and at Pigeon House Harbour (RMP DU018-066/DU019-029, RPS 6797) (will be subject to archaeological monitoring under licence from the National Monuments Service of the DoHLGH. Monitoring involves an archaeologist being present for the entirety of ground excavations. A licence for the works will take 3–4 weeks to process and the methodology will also require approval from the Dublin City Archaeologist. If archaeological remains are identified during the course of works, further mitigation will be required, such as preservation in-situ or by record. Preservation in-situ means that the identified remains will be avoided by any further works and retained within their original contexts, Preservation by record will require the archaeological excavation of the identified remains. Further mitigation will require additional methodologies to be agreed by the DoHLGH and Dublin City Archaeologist.	C80
	As detailed in **Chapter 24 Noise and Vibration** of the EIAR, potential vibration impacts on the Pigeon House Harbour wall will be mitigated with an initial pre-construction survey, followed by monitoring during piling works.	
Onshore Archaeology and Cultural Heritage – features or deposits that may survive outside the Zone of Archaeological Potential	All ground excavation works will be subject to archaeological monitoring under licence from the National Monuments Service of the DoHLGH. Monitoring involves an archaeologist being present for the entirety of ground excavations. A licence for the works will take 3–4 weeks to process and the methodology will also require approval from the Dublin City Archaeologist. If archaeological remains are identified during the course of works, further mitigation will be required, such as preservation in-situ or by record. Preservation in-situ means that the identified remains will be avoided by any further works and retained within their original contexts, Preservation by record will require the archaeological excavation of the identified remains. Further mitigation will require additional methodologies to be agreed by the DoHLGH and Dublin City Archaeologist.	C81

6.4 Flood Risk, Drainage and Groundwater

257. The assessment of hydrological and hydrogeological receptors for the CWP Project is set out within **Chapter 20 Hydrology and Hydrogeology** of the CWP Project EIAR**.** A Site Specific Flood Risk Assessment (SSFRA) has been completed and is set out in **Appendix 20.2** of the EIAR. A summary of the key mitigation measures that have been identified in relation to flood risk and drainage are presented in **Table 6-3**.

258. Contractors will adopt specific measures relevant to the prevention of contaminant supply to groundwater bodies and will avoid indirect effects by preventing immediate discharge of contaminated water and sediment from the onshore construction works into adjacent water bodies and / or the surface drainage network (see marine water quality protection measures in **Table 5-1**). The measures specific to groundwater protection are outlined in **Table 6-3**.

Table 6-3 Environmental Management Commitments – Flood Risk, Drainage and Groundwater

Topic	Environmental Management Commitments	Commitment Reference
Flood risk	As part of the Flood Risk Assessment (FRA) for the onshore substation site it has been determined that the 0.1% annual exceedance probability (AEP) (1:1,000-year return period) high-end future scenario (HEFS) flood level is +4.34m ordnance datum (OD). Therefore, in order to protect the site from fluvial flood risk, a minimum freeboard of 300 mm is to be provided resulting in a minimum site level of +4.64 mOD. The minimum site level will grade upwards from +4.64 mOD to a typical site platform level of +5.00 mOD to allow for local drainage gradients on site. Furthermore, to protect the site against overtopping due to wave surge, the perimeter levels of the site shall be locally raised to +5.24mOD.	C82
Onshore substation site drainage	An Onshore Substation Site Drainage and Water Supply Design Report has been prepared to summarise the storm water and foul water drainage proposals for the CWP Project during the O&M phase, as well as the proposed potable water supply proposals. The Onshore Substation Site Drainage and Water Supply Design Report includes details of: • Storm water network design; • Storm water collection and disposal systems; • Foul water collection and disposal systems; • Estimated potable water demand. The Onshore Substation Site Drainage and Water Supply Design Report will be implemented by the Developer and its appointed contractor(s) and will be secured through conditions of the development consent.	C57
Protection of groundwater	For installation of the onshore export cables a flooded or wet caisson will be utilised during the excavation of the three tunnel shafts, to limit the generation of brackish groundwater. The objective of the wet caisson is to excavate in permeable ground while limiting the generation of groundwater requiring treatment and disposal. Groundwater levels in the caisson will be maintained at the existing groundwater levels. The wet caisson will progress through the sand and gravels and be completed within the underlying low permeability clay. A concrete plug will provide a sealed working base for each tunnel drive to allow safe pipe jacking operations.	C56
	Dewatering may be required from excavations where groundwater is encountered. The groundwater will be pumped and tankered off-site for discharge under licence, at a licensed facility. Dewatering will be undertaken in accordance with CIRIA C750 'Groundwater control – design and practice' 2nd Ed (CIRIA, 2016).	C101

6.5 Onshore Chemicals, Oils and Fuels Management

259. It is the responsibility of each contractor to ensure adequate controls are in place for the management of chemicals, oils and fuels for the CWP Project to prevent spillages into the environment. This includes transport, storage and use of fuels / refuelling, oils and chemicals, and other materials, as required and in line with best practice. Mitigation and management measures in relation to pollution control and the protection of water quality are also set out in **Table 5-1** of this CEMP.

260. All contractors and subcontractors will provide an inventory of chemicals detailing chemical types and how and when chemicals are to be used. Checks will also be made to ensure that chemicals to be used offshore comply with relevant regulations.

261. Where a spillage takes place, contractors are required to follow specific spill, prevention and response measures as set out within this CEMP.

262. Within the method statements developed, each contractor will set out procedures for the transportation, storage and handling of any hazardous materials and in particular chemicals, oils and fuels, taking into account the legal requirements and good practice guidelines and with consideration of sensitive receptors and pathways identified.

263. The CEMP will be updated prior to construction, following the appointment of contractors and in accordance with any planning consent received.

6.5.1 Onshore Refuelling Protocol

264. A detailed procedure for onshore refuelling will be developed and finalised in the Contractor's CEMP at construction stage, outlining the steps that will be followed in the event of an oil / fuel spill occurring.

265. Mitigation and management measures in relation to refuelling and protection of the environment are also set out in **Table 5-1** of this CEMP.

6.5.2 Onshore Pollution Incident Response

266. A detailed procedure for pollution incidents will be developed and finalised in the Contractor's CEMP at construction stage, outlining the steps that will be followed in the event of an oil / fuel spill occurring.

267. More detail on protection of water quality, including measures related to spill control are outlined in **Table 5-1** of this CEMP.

6.5.3 HDD for ESBN Network Cables

268. Drilling fluid required for the HDD process of installing the ESBN Network Cables will be used sparingly and only as required to avoid any excess and will be appropriately stored when not in use.

269. The fluid used during the process is inert, natural and biodegradable (e.g. Clear Bore™). Should any excess drilling fluid occur, it will be contained and removed for disposal at a licensed waste facility. The duct will be positioned, and the launch and reception pits will be refilled.

270. Further details of this method and associated construction methodologies are provided in **Chapter 4 Project Description** of the CWP Project EIAR.

271. Further details on control of drilling fluids (i.e., bentonite) from HDD or other similar trenchless techniques (including tunnelling) are outlined in **Table 5-1** of this CEMP.

6.6 Onshore Waste and Materials Management

272. The Developer will require that all contractors and their subcontractors are responsible for the collection, storage and disposal of any onshore waste produced as part of the CWP Project.

273. In line with the revised 2011 EU (Waste Directive) Regulations 2011, the Developer requires that waste will be managed in accordance with the waste hierarchy as defined by the EU Directive 2008/98/EC on Waste.

This means that all waste will be reduced, reused, recovered, and recycled as far as reasonably practicable to reduce waste to landfill.

274. Waste and excavated material management measures will be implemented in accordance with those included in **Chapter 19 Land, Soils and Geology** and **Chapter 31 Waste and Resource Management** of the CWP Project EIAR, and in the supporting **Construction Demolition Waste Management Plan (CDWMP)**, which sets out waste and material management procedures for construction activities, including expected waste arisings and proposed procedures for waste management. The CDWMP also includes an excavated materials management plan.

6.6.1 Summary – Waste and excavated materials management

275. Measures relating to the management of waste and excavated materials during the construction phase are outlined in **Table 6-4.**

Table 6-4 Environmental Management Commitments – Onshore Waste and Excavated Materials Management

Topic	Environmental Management Commitments	Commitment Reference
Onshore Waste Management – Reuse	It is currently assumed that the excavated material at the landfall and onshore substation site will not be suitable for re-use and will therefore be taken off-site for disposal. However, during the detailed design stage, maximising beneficial re-use of the excavated material on site will be prioritised over off-site disposal. The re-use of material will be subject to testing to confirm suitability in terms of composition and characteristics for heat dissipation. Additionally, where feasible, classification for reuse as a by-product, on other construction site(s), under Article 27 will be considered	C54
Onshore Waste Management - Construction Demolition Waste Management Plan (CDWMP)	A Construction Demolition Waste Management Plan (CDWMP) has been prepared in accordance with the Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects, published by the EPA in November 2021. The CDWMP outlines the approach for on-site and offsite waste management during the construction phase of the CWP Project. The scope of the CDWMP includes principles of waste management that can be applied to most wastes that would be created during the construction phase. These are: • Where waste generation cannot be avoided, waste disposal will be minimised; • Opportunities for reuse of materials and wastes will be sought throughout the construction phase; • Adhere to waste legislation for storage and handling on-site; and ensure that the relevant regulatory controls have been applied to the reuse, recycling, or recovery of waste on-site; • No waste from the CWP project shall be deposited outside the planning application boundary unless it is at a facility that holds a valid environmental permit or suitable authorised exemption. Offsite waste management facilities are legally obliged to operate under an environmental permit (or an authorised exemption), which is in place to ensure that the site is operated in a manner to prevent emissions causing harm to human health or the environment; • Ensure that excavated material proposed for recovery/disposal offsite will be subject to contamination testing, to confirm it meets the acceptance criteria for an appropriate waste management facility; • Ensure that those who remove waste from site have the appropriate authorisation (i.e. are registered waste carriers); and those facilities that	C55

Topic	Environmental Management Commitments	Commitment Reference
	receive waste from the site hold a valid environmental permit or authorised exemption; • Allocate space on site for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there. Paved areas/impermeable surfaces may be required, as deemed necessary, to prevent direct contact with the ground; • Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination; • Provide separate containers for dry recyclables, such as paper and cardboard, plastic, glass, wood, and metal at welfare facilities within temporary works areas. This would encourage recycling and increase the potential value of the recyclable items by avoiding contamination; • Monitor the actual quantities of wastes produced during construction and update the CDWMP to allow comparison with waste arisings estimated prior to construction. Record the proposed waste management option (e.g. reuse on site, recycle offsite, or dispose offsite) for each waste produced; • Avoid oversupply of incoming construction materials which have the potential to become waste; • All wastes that are removed off site would be described on a waste transfer note or hazardous waste consignment note (as appropriate) that tracks the movement of the waste to the specified disposal or recovery facility; • Should any asbestos containing materials be encountered, these will be removed by a specialist asbestos removal contractor and disposed of as asbestos waste. All asbestos removal work must be carried out in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations, 2006 (S.I. No. 386 of 2006) and Safety, Health and Welfare at Work (Exposure to Asbestos) (Amendment) Regulations 2010 (S.I. No. 589/2010); • The appointed contractors should identify appropriate staff that are responsible for waste management; and ensure that all contractor staff are aware of the appropriate reuse, recovery, or disposal routes for each waste. These measures would promote sustainable waste management practices by maximising waste prevention, re-use, recycling, and recovery opportunities for material destined for offsite waste management. The target set for C&D waste management for the CWP Project is to exceed the national target of preparing for reuse, recovery and recycling of 70% of non-hazardous C&D waste (excluding soil and stone). The main contractor will be made aware of this project target and will be required to engage suitably permitted/licenced waste contractors that will be able to provide a commitment to achieving, or exceeding, this target.	
	Prior to construction, the Appendix 19.5 CRA and any subsequent information from SI's and ground gas/groundwater monitoring will be used to inform detailed risk assessments and the selection of appropriate construction procedures for the OTI. These risk assessments will also be used to inform the materials management strategy for the OTI (refer to the CDWMP provided with this planning application) During excavation works, a watching brief will be implemented to identify the potential presence of previously unidentified contamination. Personnel appointed by the appointed contractor will be appropriately trained for these activities. Any instances of previously unidentified contamination will be recorded, and appropriate measures developed to manage the identified risks as appropriate.	C98

Topic	Environmental Management Commitments	Commitment Reference
	The risk to construction workers from asbestos fibres is considered low. The appropriate use of personal protection equipment (PPE) and the during earthworks dust suppression measures will mitigate this risk to construction workers. Refer to Chapter 25 Air Quality for dust suppression mitigation measures.	

6.7 Traffic Management

276. The main road network is the M50, national motorway and the Dublin Tunnel to the R131, regional road. **Chapter 27 Traffic and Transport** of the CWP Project EIAR sets out the local road network assessed as the following:

- The R131 includes the East Wall Road to Junction 1. South of Junction 1 is the Tom Clarke Bridge over the River Liffey along the East Link Bridge via the toll plaza to the South Bank Road at Junction 2 (Sean Moore Road Roundabout);
- Junction 3 is located on South Bank Road, with a priority T- junction to Pigeon House Road;
- Junction 4 is located on Pigeon House Road, with a priority T-junction to Shellybanks Road to the to Compound A and the landfall site;
- Junction 5 is located on Pigeon House Road, with a crossroad to private access to Dublin Waste to Energy facility and to Ecocem Ireland;
- Junction 6 is located on Pigeon House Road, with a priority T-junction to a private access. The new temporary access road entrance into the onshore substation is located here. This access will be used for the duration of the construction phase. Vehicles will access from the temporary access road onto the existing access road on the eastern boundary and into the onshore substation site. The new temporary access road is located approximately 30 metres east of Junction 6.

277. Onshore traffic management measures will be implemented in accordance with those included in **Chapter 27 Traffic and Transport** of the CWP Project EIAR and a construction phase Traffic Management Plan (TMP) (**Appendix 27.2** of the EIAR) will be agreed with Dublin City Council.

278. The TMP contains the control measures and monitoring procedures for managing the potential traffic and transport impacts of constructing the CWP Project. It is also includes the following measures that seek to minimise the CWP Project's impact on climate due to GHG emissions from construction phase traffic:

- Implement a policy which prevents idling of vehicles both on and off-site including HGV holding sites;
- Construction phase traffic shall be monitored to ensure construction vehicles are using the designated haul routes;
- All plant and machinery will be maintained and serviced regularly;
- Efficient scheduling of deliveries will be undertaken to minimise emissions; and
- Construction vehicles shall conform to the latest EU emissions standards and where reasonably practicable, their emissions should meet upcoming standards prior to the legal requirement date for the new standard. This will ensure emissions on haul routes are minimised

279. AILs will be transported to the onshore development area via Dublin Tunnel where the height restriction allows. Any plans to transport AILs into the onshore development area during the construction phase will be undertaken in liaison with DCC as part of the implementation of the TMP for the project

280. **Table 6-5** sets out the additional, project specific management commitments to be adhered to by contractors and their subcontractors in relation to onshore traffic management, as set out in **Chapter 27 Traffic and Transport**.

Table 6-5 Environmental Management Commitments – Onshore Traffic Management

Topic	Environmental Management Commitments	Commitment Reference
Dublin City Council 5x Axle Cordon / Heavy Goods Vehicle Management Strategy	The CWP Project will comply with the five-axle cordon and Heavy Goods Vehicle Management Strategy which is implemented by DCC in the vicinity of the onshore development area. On this basis, the assessed haul routes for the construction HV movements will be from M50 and Dublin Tunnel to the onshore development area.	C96
Onshore Traffic Management – road closure	The installation method for the onshore export cables between the landfall and the onshore substation site (i.e. underground tunnelling) ensures that open cut trenching is not required across Pigeon House Road. There is no requirement to close the Pigeon House Road during the onshore export cable installation works and will maintain access for the local population to the Great South Wall and the Poolbeg Lighthouse during the construction phase.	C75
Potential for reduction in construction HV movements: excavated material management within the onshore development area	It is currently assumed that the excavated material at the landfall and onshore substation site will not be suitable for re-use and will therefore be taken off-site for disposal. However, during the detailed design stage, maximising beneficial re-use of the excavated material on site will be prioritised over off-site disposal. The re-use of material will be subject to testing to confirm suitability in terms of composition and characteristics for heat dissipation. Additionally, where feasible, classification for reuse as a by-product, on other construction site(s), under Article 27 will be considered.	C54

6.8 Dust Suppression and Ground Gas

281. The greatest potential impact on air quality during the construction phase of the OTI is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m.

282. Sensitive receptors associated with the onshore development area include the Coastguard Cottages, the wider Ringsend residential area, the planned residential development at the former Irish Glass Bottle Site, the South Dublin Bay Special Area of Conservation (SAC) and proposed Natural Heritage Area (pNHA), the South Dublin Bay and River Tolka Estuary Special Area of Protection (SPA), and the Dolphin, Dublin Docks pNHA.

283. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction.

284. Temporary dust or exhaust emissions generated during construction activities typically arise from:

- Movement of construction vehicles;
- Laying hardstanding areas and access tracks (i.e., roads);
- Transportation of construction materials to and within the site;
- Excavation and crushing of rock;
- Excavation, movement and placement of soil stockpiles (excavated soils / fill materials); and
- Wind generated dust from stockpiles, exposed unconsolidated soils and roads.

285. The implementation of additional dust control mitigation measures is recommended within the onshore development area as best practice and to reduce the potential for construction dust impacts as far as possible at nearby sensitive receptors.

286. In order to ensure that no dust nuisance occurs a series of measures will be implemented, drawing on best practice guidance from the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2024). The proposed dust control measures are described in **Table 6-6**.

Table 6-6 Environmental Management Commitments – Air Quality and Dust Controls

Topic	Environmental Management Commitments	Commitment Reference
Site management (dust control)	The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies. Good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or quickly implementing effective control measures before the potential for nuisance occurs. When rainfall is greater than 0.2 mm/day, dust generation is generally suppressed (IAQM, 2023; UK ODPM, 2002). The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s (19.4 knots) (at 7m above ground) to release loose material from storage piles and other exposed materials (USEPA, 1997). Particular care should be taken during periods of high winds (gales) as these are periods where the potential for significant dust emissions are highest. The prevailing meteorological conditions (wind speed and rainfall, as described in **Chapter 25 Air Quality**) in the vicinity of the site are favourable in general for the suppression of dust for a significant period of the year. Nevertheless, there will be infrequent periods where care will be needed to ensure that dust nuisance does not occur. The dust minimisation measures shall be reviewed during the works, in tandem with the daily site inspections (recommended below), to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are described below. • The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details. • It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses. • A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. • It is recommended that regular liaison meetings with other high risk construction sites within 500 m of the site boundary be held, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes. • The Principal Contractor or equivalent will monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised. It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein.	C88

Topic	Environmental Management Commitments	Commitment Reference
Monitoring (dust control mitigation)	At all times, the procedures put in place will be strictly monitored and assessed.	C95
	During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions.	
	Undertake weekly on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results and make the log available to the local authority when asked. This should include regular dust-soiling checks of surfaces such as any street furniture, cars and windowsills within 100 m of site boundary. If any issues are identified, additional mitigation measures will be developed in consultation with stakeholders.	
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	
	Any additional monitoring requirements will be determined prior to construction, in consultation with DCC.	
Operating vehicles / machinery	Ensure all vehicles switch off engines when stationary - no idling vehicles, where most practicable and efficient.	C90
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	
	Impose and signpost a maximum-speed-limit of 30 kph on surfaced and 20 kph on un-surfaced haul roads and work areas.	
	Produce a TMP (**Appendix 27.2** of the CWP Project EIAR) to manage the sustainable delivery of goods and materials.	
	A Travel Plan for construction workers will be implemented as part of the final TMP (**Appendix 27.2** of the CWP Project EIAR) and will supports and encourage sustainable travel (public transport, cycling, walking, and car-sharing).	
Operations (dust control mitigation)	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	C91
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	
	Use enclosed chutes and conveyors and covered skips.	
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	
	Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	
Earthworks (dust control mitigation)	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	C92
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	

Topic	Environmental Management Commitments	Commitment Reference
	Only remove the cover in small areas during work and not all at once, where practicable to do so.	
Construction (dust control mitigation)	Avoid scabbling (roughening of concrete surfaces) where practicable.	C93
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	
	Ensure bulk cement and other fine powder materials, if used,are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	
Preparing and maintaining site (dust control mitigation)	Plan site layout so that machinery and dust-causing activities are located away from receptors, as identified in **Chapter 25 Air Quality,** as far as is possible.	C89
	Erect screens or barriers (i.e. hoarding) around the site boundary or dusty activities (these include but are not limited to, large excavations of dry material and movement of dusty material such as dry sand or cement from stockpiles) or that are at least as high as any stockpiles on site. Plan site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible.	
	Avoid site runoff of water or mud.	
	Keep site fencing, barriers and scaffolding clean using wet methods.	
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover materials.	
	Cover, seed or fence stockpiles to prevent wind whipping, where practicable.	
Trackout measures	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	C94
	Avoid dry sweeping of large areas.	
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	
	Record all inspections of haul routes and any subsequent action in a site log book.	
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	
	Access gates to be located at least 10 m from receptors where possible.	
Ground gas	The appointed contractor for the tunnel installation works will produce risk assessments to address ground gas during construction, for approval with the Applicant. The appointed contractor will also ensure that any necessary PPE is in place to avoid the exposure of construction workers to ground gases in the tunnel shafts. This may	C97

Topic	Environmental Management Commitments	Commitment Reference
	include monitoring of gas levels within tunnel shafts and the use of portable gas analysers	

6.9 Airborne Noise and Vibration Control

287. The potential source of airborne noise from the construction phase will predominately relate to above ground construction plant and construction traffic. The assessment of airborne noise and vibration receptors for the CWP Project is set out within **Chapter 24 Noise and Vibration** of the CWP Project EIAR.

288. The appointed contractor will put in place the most appropriate noise control measures to ensure that the works in each area comply with the limits detailed in **Chapter 24 Noise and Vibration** of the CWP Project EIAR and so that minimisation of noise is achieved by best means practicable.

289. Measures to control noise from construction activities are described in **Chapter 24 Noise and Vibration** of the CWP Project EIAR and in **Table 6-7**.

Table 6-7 Environmental Management Commitments – Airborne Noise and Vibration Control

Topic	Environmental Management Commitments	Commitment Reference
Noise control & mitigation	The appointed contractor will be required to take specific noise abatement measures to the extent required and comply with the recommendations of BS 5228–1 (BSI 2009 +A1 2014a) and European Communities Noise Emissions by Equipment for Use Outdoors (Amendment) Regulations 2006 (S.I. No 241/2006). The mitigation measures outlined below for the construction phase are also recorded within the Construction and Environmental Management Plan. BS 5228–1 (BSI 2014a) includes guidance on several aspects of construction site practices, which include, but are not limited to: • Noise control at source, specifically for piling rigs during Scenario 1a and Scenario 1b; • Site compound hoarding; • Localised screening; • Hours of work; • Liaison with the public; and • Monitoring.	C103
	Further detail is provided on these items in the following paragraphs. The contractor will put in place the most appropriate noise control measures depending on the level of noise reduction required at individual working areas. These measures will ensure that: • During the construction phase, the appointed contractor will be required to manage the works to comply with the limits detailed in **Chapter 24 Noise and Vibration** of the CWP Project EIAR, using methods outlined in BS 5228–1 (BSI 2009 +A1 2014a); and • Minimisation of noise is achieved by best means practicable, including proper maintenance of plant and equipment. The mitigation measures proposed are in line with the DCC GPG for high-risk sites, as presented in **Appendix 24.4** of **Chapter 24 Noise and Vibration** of the CWP Project EIAR.	
	The contractor will implement measures to control noise at source in order to remain below the threshold values for noise set out in **Table 24-3** of	C104

Topic	Environmental Management Commitments	Commitment Reference
Noise control at source – Piling	**Chapter 24 Noise and Vibration** of the CWP Project EIAR, which relates to specific vibratory piling site considerations in scenario 1a (open cut and cofferdam piling).	
	On typical piling sites the major sources of noise are essentially mobile and the noise received at any control points will therefore vary from day to day as work proceeds. The duration of piling works is usually short in relation to the length of construction work as a whole, and the amount of time spent working near to noise sensitive areas can represent only a part of the piling period.	
	Piling programmes should be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. If piling works are in progress on a site at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme should be phased so as to prevent unacceptable disturbance at any time.	
	The piling contractor should evaluate any practicable, less impactful alternatives that would, in the given ground conditions, achieve equivalent results.	
	A decision regarding the type of pile to be used on a site will normally be governed by such criteria as loads to be carried, strata to be penetrated and the economics of the system, for example the time it will take to complete the installation and other associated operations such as soil removal. It may not be possible for technical reasons to replace a noisy process by one of the 'quieter piling' alternatives. Even if it is possible, the adoption of a quieter method may prolong the piling operation; the net result being that the overall disturbance to the community will not necessarily be reduced.	
	Noise reduction can be achieved by enclosing the driving system in an acoustic shroud. For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system or utilising an acoustic canopy to replace the normal engine cover.	
	Screening by barriers and hoardings is less effective than total enclosure but can be a useful adjunct to other noise control measures. For maximum benefit, screens should be close either to the source of noise (as with stationary plant) or to the listener. Removal of a direct line of sight between source and listener can be advantageous both physically and psychologically. In certain types of piling works there will be ancillary mechanical plant and equipment that may be stationary, in which case, care should be taken in location, having due regard also for access routes. When appropriate, screens or enclosures should be provided for such equipment.	
	Contributions to the total site noise can also be anticipated from mobile ancillary equipment, such as handling cranes, dumpers, front end loaders etc. These machines may only have to work intermittently, and when safety permits, their engines should be switched off (or during short breaks from duty reduced to idling speed) when not in use.	
	All mechanical plant should be well maintained throughout the duration of the piling works.	
Site compound hoarding	The contractor will provide a site hoarding of 2.4 m height at a minimum along noise sensitive boundaries to the west of Compound A where piling, or tunnelling activities occur. The length of the screen should in practice be	C105

Topic	Environmental Management Commitments	Commitment Reference
	at least five times the height, however, if shorter sections are necessary then the ends of the screen will be wrapped around the source.	
	In most practical situations the effectiveness of the screen is limited by the sound transmission over the top of the barrier rather than the transmission through the barrier itself. In practice, screens constructed of materials with a mass per unit of surface area greater than 10kg/m^2 will give adequate sound insulation performance. The use of a standard 2.4 m high construction site hoarding will provide a sufficient level of noise screening once it is installed at a suitable position between the source and receiver.	
	In addition, careful planning of the construction site layout will also be considered. Within the construction compound, the placement of site buildings such as offices and stores between the site and NSLs can provide a good level of noise screening.	
Hours of work	Construction activity will mostly take place during daytime hours Monday to Friday and a half day on Saturdays.	C106
	Evening, night-time and Sunday working will be required during certain periods to facilitate piling works at low tide, tunnelling and HDD.. The planning of such works will take consideration of sensitive receptors, in particular any nearby residential areas.	
	Construction activities will be scheduled in a manner that reflects the location of the site and the nature of neighbouring properties. Construction activities / plant items will be considered with respect to their potential to exceed CNTs at NSLs and will be scheduled according to their noise level, proximity to NSLs and possible options for noise control. In situations where an activity with potential for exceedance of CNT is scheduled other construction activities will be scheduled to not result in significant cumulative noise levels.	
Liaison with the Public	For the CWP Project, the major sources of noise are essentially mobile and the noise received at any NSL will therefore vary from day to day as the work proceeds. The duration of piling and excavation at one location etc is usually short in relation to the length of construction work as a whole and the amount of time spent working near to sensitive areas can represent only a part of the overall period. For night-time works the residents at NSL29 should be notified of planned works in advance of the works progressing. The notification should include a description of the works, the expected duration of activities likely to generate noise that is potentially significant as set out in **Chapter 24 Noise and Vibration** of the CWP Project EIAR and details of how to contact the contractor to log complaints.	C107
Noise monitoring	During the construction phase the appointed contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and/ or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017). The selection of monitoring locations will be based on the closest NSLs to the proposed works which have the potential to exceed the CNT i.e. at NSL29 to the west of construction compound A. Any Noise Monitoring Terminal (NMT) (number and locations to be agreed post consent with Dublin City Council (DCC), to be installed with the following specifications (or similar approved): • Logging of two concurrent periods, e.g. 15-minute & hourly. • Daily automated Charge Injection Calibration (CIC). • E-mail alert on threshold exceedance.	C108

Topic	Environmental Management Commitments	Commitment Reference
	• E-mail alert on low battery and low memory. • Remote access to measured data. • Live display of noise levels. In addition, it is recommended that spot check noise measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of noise on site in order to confirm the potential extent of effects. A monthly noise monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes etc. Where remedial measures are required and identifiable, these should also be clearly stated.	
Vibration mitigation and monitoring	Vibration from construction activities will be limited to the values set out in **Chapter 24 Noise and Vibration** of the CWP Project EIAR to avoid any form of potential cosmetic damage to buildings and structures.	C109
	In the case of vibration levels giving rise to human discomfort, in order to minimise such impacts, the following measures shall be implemented during the construction period: • A clear communication programme will be established by the client to inform adjacent building occupants in advance of any potential intrusive works which may give rise to vibration levels likely to result in significant effects. The nature and duration of the works will be clearly set out in all communication circulars as necessary; • Activities capable of generating significant vibration effects with respect to human response will be restricted to daytime hours only, as far as practicable; and • Appropriate vibration isolation shall be applied to plant (such as resilient mounts to pumps and generators), where required and where feasible.	
	Where the piling works take place within 10m of the Pigeon House harbour wall or any HDD vibration works are proposed within 50m of vibration sensitive locations (VSLs), vibration monitoring shall be installed, with the number and locations to be agreed with DCC.	
	Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.	
	The mounting of the transducer to the vibrating structure will need to comply with BS ISO 5348: 2021: Mechanical vibration and shock – Mechanical mounting of accelerometers. In summary, the following ideal mounting conditions apply: • The transducer and its mountings should be as rigid as possible; • The mounting surfaces should be as clean and flat as possible; • Simple symmetric mountings are best; • The mass of the mounting should be small in comparison to that of the structure under test; • The monitoring equipment should be set to monitor vibration in 5 minute periods; • E-mail alert on threshold exceedance; • E-mail alert on low battery and low memory; • Remote access to measured data; • Live display of vibration levels.	

Topic	Environmental Management Commitments	Commitment Reference
	In addition, it is recommended that spot check vibration measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of vibration on site in order to confirm the potential extent of effects. A monthly vibration monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes etc. Where remedial measures are required and identifiable, these should also be clearly stated. The Pigeon House harbour wall heritage structure will be subject to a condition survey in advance of the commencement of construction works.	

6.10 Utilities

290. The onshore export cable installation methods (including underground tunnelling (onshore export cables) and open cut and HDD (ESBN Network Cables)) for the CWP Project have been selected / designed in order to mitigate, by avoidance, potential impacts on existing below ground infrastructure identified within the onshore development area.

291. **Chapter 26 Material Assets - Built Services** of the CWP Project EIAR outlines the existing environment in terms of utilities assets identified within the onshore development area. Information and data on the location and status of individual utility assets (electricity network, gas network, water network, telecommunications network) described was obtained through non-intrusive (ground penetrating radar (GPR)) and intrusive (such as slit trenching) site investigations (SI) undertaken as part of the overall CWP Project as well as from publicly available utility information and data obtained through liaison with the utility providers.

292. Underground utility assets are significant in the area given that the Peninsula has two power generating stations, storage sites for national oil reserves, wastewater treatment and numerous effluent/wastewater discharge channels. Some above ground utilities remain in the area; however, the majority of services are underground.

293. The proposed measures to avoid or otherwise minimise impacts to existing utility assets within the onshore development area are outlined in **Table 6-8**.

Table 6-8 Environmental Management Commitments – Utilities

Topic	Environmental Management Commitments	Commitment Reference
Utility assets	Prior to the commencement of the project and construction phase, there will be engagement with all utility asset owners / service providers	C73
	Utility assets / services (underground and overhead) will be identified and clearly marked prior to any pre-construction (site clearance) / construction / demolition activity occurring	
	Any proposed building works will require a minimum clearance distance of 1 m either side of electrical cables	
	No excavations will take place without prior consultation with relevant utility asset owners / service providers	

Topic	Environmental Management Commitments	Commitment Reference
	Prior to any mechanical excavation taking place ESBN will be consulted with and the exact locations of all underground electricity cables established and verified	
	All works undertaken in the vicinity of underground assets will be carried out in accordance with current HSA guidance, namely the HSA 'Code of Practice for Avoiding Danger from Underground Services'	
	All works will be undertaken with in accordance with the exclusion and safe operating distances around electricity infrastructure as set out in the ESB Code of Practice, as well as HSA guidance including the 'Code of Practice for Avoiding Danger from Overhead Electricity Lines'	
	Liaison with asset owners / service providers will continue / be ongoing as required throughout the construction phase	
HDD installation along the ESBN network cables	Excavation works and activities shall be monitored and engineered to take account of soil properties in order to ensure any slopes will remain stable	
	Works which may have an impact on the stability of the soils in the area will also be taken into account (e.g., removal of contaminated soil, the use of imported soils and the subsequent changes to soil properties	
	A Method Statement will detail the proposed method of construction to ensure the safety and stability of neighbouring properties/structures and land throughout the installation phase.	
	Monitoring of adjacent buildings/structures and land will be undertaken during construction.	
Open cut trenching for the ESBN network cables	The following options will be implemented where utilities are present: - Locate below the existing utility service; The ESBN network cables would be positioned below the existing utility service, keeping minimum allowed spacing between both, as determined by the utility service provider; - Located above the existing utility service: The ESBN network cables would be positioned above the existing utility service. Furthermore, the depth to the top of the cable ducts could be reduced to a minimum of 450 mm below surface level as per the Health and Safety Authority's paper entitled, 'Code of Practice for Avoiding Danger from Underground Services'. This depth would accommodate the required separation from the service being crossed and would provide sufficient mechanical protection to the cable; and/or - Diversion of the existing utility service: An existing utility could be diverted to facilitate the installation of the ESBN network cables.	C112
Tunnelling	The construction of the tunnel and shafts may lead to some settlement of the ground above the tunnel. The following measures will be implemented as part of the installation works: • Specialist tunnelling contractors with a proven track record in delivering work of the scope required by the works will be appointed. • In advance of construction, further ground investigations will take place for the length of the tunnel. This will further inform existing ground information and ground models for the area. • The appointed contractor will implement good tunnelling practice to mitigate the potential for settlement impacts. These would include continuous working once the tunnelling operations commence, management of tunnel face pressure, groundwater control, spoil volume control and monitoring of ground levels above the tunnel throughout the tunnelling operation. • Assessments to address the potential sensitivity of services in proximity to the tunnel will be undertaken in advance of the tunnel construction	C99

Topic	Environmental Management Commitments	Commitment Reference
	commencing. Any required measures to support built services during tunnelling will be consulted on and agreed with the relevant utility service providers.	
Excavations	The contractor will ensure excavations are carried out in accordance with recognised good practice guidelines, i.e. HSA – Health and Safety in Excavations and CIRIA Publication R97 – Trenching Practice.	C100

6.11 Emergency and Incident Response

294. Every effort will be made to prevent health and safety emergencies and environmental incidents during the construction and operational phase of the CWP Project.

295. The contractor will be responsible for developing a detailed ERCoP or the proposed onshore construction works, to cover health and safety emergencies as well as environmental emergencies, as part of the H&S Plan.

296. This ERCoP will be activated in the event of an emergency such as an accident, fire, spillage, collapse etc. and will provide details on who is required to be notified, first aid facilities and closest hospitals. The ERCoP will also include details of all personnel inducted and authorised to work on the site as well as next of kin contact details and relevant medical information.

297. In the event of an emergency, the HSSE Manager and Project Manager will be notified immediately and will determine the scale of the emergency and the requirement for the assistance of emergency services. Works will cease in the area of the incident and contact will be maintained with the emergency services to direct them to the scene of the incident as required.

298. As part of the ERCoP, an evacuation drill will be carried out on a regular basis to make all personnel aware of the procedure to be followed in the event of an emergency where a full site evacuation is required. Emergency muster point(s) will be identified at suitable locations in the construction compounds and the ERCoP will outline the persons responsible for checking names at the safety muster points. Records will be maintained of such drills.

299. The ERCoP must include contact names and telephone numbers for the relevant local authorities (all sections/departments) including ambulance, fire brigade, An Garda Siochána and the HSA. Reporting of environmental emergencies to the local authority will be required as well as other relevant stakeholders such as IFI, NPWS or the EPA.

6.11.1 Environmental Incidents

300. Environmental incidents are not only limited to spills. Any environmental incident must be investigated and the HSSE Manager and relevant project ECoW notified immediately. If necessary, the ECoW will inform the appropriate regulatory authority depending on the nature of the incident. Details of the incident will be recorded (e.g. cause, extent, actions and remedial measures) and recommendations will be made to avoid reoccurrence.

301. The ECoW will also liaise with the Project Ecologist or Project Archaeologist regarding any incidents as required. A record of all environmental incidents will be kept on file by the ECoW and the appointed contractor. These records will be made available to the relevant authorities if required.

7 CONTACT DETAILS

302. Contact details relevant to the implementation of this CEMP are provided below. A list of emergency contact details is presented in **Table 7-1**. Contact details for CWP Project Personnel will be provided following confirmation of key roles, prior to the start of construction.

Table 7-1 Emergency Contact Details

Contact	Telephone
Irish Coastguard	+353 1 6620922(24hr) or +353 1-6620923
Senior Marine Officer– Wicklow	0402 32466 & 0404 67455
Harbour Master – Dublin Port	During office hours 01 8876033 / 01 8876028 and out of office hours 01 8876070
Emergency Services – Ambulance, Fire, Gardaí	112 / 999
Local Garda Station – Wicklow Town	0404 60140
Local Garda Station – Dublin City (Irishtown)	01 6669600
Local Fire Station – Wicklow Town	01 211 7600
Local Fire Station – Dublin City (Tara Street)	01 6778221
Local Doctor / GP Service – Wicklow Primary Healthcare Centre	0404 30400
Local Doctor / GP Service – Irishtown and Ringsend Primary Care Centre	01 2320601
Hospital – Dublin City (St Vincent's University Hospital Emergency Department)	01 2214358
Dublin City Council	24 hour emergency: 01 6796186
Wicklow County Council	Office number 0404 20100 and out of hours emergency service 01 2916117
Environmental Protection Agency (EPA)	24 Hour Incident Notification: 0818 33 55 99
Inland Fisheries Ireland	24 hours hotline: 0818 34 74 24
National Parks and Wildlife Service (District Conservation Officer)	(076) 100 2593

8 COMPLIANCE WITH THE CONSENT APPLICATION

8.1 Project design and methods

303. The CWP Project will be required to be constructed in accordance with the design and methods assessed within the EIAR, NIS and supporting documents. These described the project design, approach and range of methods that would be applied during the construction and operation of the CWP Project.

304. To demonstrate compliance with the project design and methods assessed within the EIAR, NIS and supporting documents, the CEMP will be updated to provide a tabulated comparison of project construction parameters and methodologies as presented within the EIAR and confirmed within the final CEMP. A framework for this comparison is provided within **Appendix B**.

305. The EIAR, NIS and supporting documents for the CWP Project sets out a number of mitigation commitments specific to construction and installation activities. Full details of the commitments and mitigation measures that will be adhered to are set out within the CWP Schedule of Mitigation.

9 REFERENCES

306. Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015

307. Department of Communications, Energy and Natural Resources (2014). Offshore Renewable Energy Development Plan. Available at: https://www.dccae.gov.ie/documents/20140204%20DCENR%20-%20Offshore%20Renewable%20Energy%20Development%20Plan.pdf. Accessed 28/11/2023.

308. EPA (2022). Guidelines on the Information to be contained in Environmental Impact Assessment Reports

309. EPA (2021). Best Practice Guidelines for the preparation of resource & waste management plans for construction and demolition projects

310. EU (2011) Waste Directive Regulations [S.I. No. 126/20011]

311. Government of Ireland (2020). National Maritime Oil/HNS Spill Contigency Plan.

312. IAA (2015). Aeronautical Services Advisory Memorandum (ASAM), Guidance Material on Offshore Wind Farm, ASAM No 018. Available at: https://www.iaa.ie/docs/default-source/publications/advisory-memoranda/aeronautical-services-advisory-memoranda-(asam)/guidance-material-on-off-shore-wind-farms.pdf?sfvrsn=5aad0df3_6. Accessed 28/11/2023.

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

314. International Convention for the Prevention of Pollution from Ships (MARPOL) convention, adopted 1973, as modified by the Protocol of 1978

315. International Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention') adopted 1992

316. International Convention on Oil Pollution Preparedness response and Cooperation (OPRC 90), adopted 1990.

317. International Maritime Dangerous Goods (IMDG) Code

318. International Maritime Organisation (1972) Convention on the International Regulations for Preventing Collisions at Sea (COLREGS)

319. IMO Guidelines for the Development of Shipboard Marine Pollutions Emergency Plans, 2010 Edition

320. Maritime and Coastguard Agency (2021) Marine Guidance Note 654 (M+F), Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response

321. S.I. No. 82/2008, Sea Pollution (Control of Antifouling Systems on Ships) Regulations 2008.

322. Scottish Natural Heritage (SNH) (2019) 'Good Practice during Wind Farm Construction' (4th edition). Scottish Natural Heritage;

323. The Merchant Shipping (Anti-Fouling Systems) Regulations 2009

324. International Marine Contractors Association standards (2022), IMCA M 189/S 004, Marine Inspection Check List for Small Boats.

325. International Marine Contractors Association (2022), IMCA M 149, Common Marine Inspection Document.

APPENDIX A OFFSHORE BIOSECURITY PLAN

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1 INTRODUCTION

1.1 Purpose of this document

1. This document is drafted to provide the biosecurity management approach for the construction and operation of the Codling Wind Park (CWP) Project to manage the risks associated with marine invasive non-native species (INNS). Ireland has a plethora of both domestic and EU legislation and governance dealing with INNS, particularly Statutory Instrument 477 and the EU IAS Regulation 1143/2014. The latter requires identification of pathways of INNS introduction and spread, surveillance and monitoring of INNS incursions, with expectations of action to eradicate or manage INNS populations.

2. It is important to note that the central tenet of this **Offshore Biosecurity Plan** (OBP) is avoidance, monitoring and observation, with the measures provided at this stage an outline of the best practice measures presented within wider European waters. It is not possible, not encouraged to be prescriptive at this pre-consent stage, as it is critical that this document is maintained as a live document. In the absence of specific guidance in Ireland, a suite of best practice guidance documents have been referred to as follows:

    - Natural England. 2017. Marine biosecurity planning: guidance for specific operation/construction related activities (2017); Natural England, Marine Pathways, C2W. Marine_Best_Practice_By_Sector.pdf (nonnativespecies.org). Accessed 29 June 2024
    - Payne, R.D., Cook, E.J., and Macleod, A. 2014. Marine biosecurity planning: guidance for producing site and operation-based plans for preventing the introduction of non-native species. Marine biosecurity planning: guidance for producing site and operation-based plans for preventing the introduction of non-native species. | Scotland's Marine Assessment 2020 Accessed 29 June 2024
    - Scottish Government (2012). Code of Practice on Non-Native Species. Available at: Non-native species: code of practice - gov.scot (www.gov.scot). Accessed on: 29 June 2024.

3. In the marine environment, the complete eradication of INNS is rarely possible or affordable and control is usually only effective on a local scale. A precautionary approach, which seeks to reduce the likelihood of introducing a INNS in the first place, is more suitable to this environment. Biosecurity measures, therefore, typically focus on minimising the introduction and spread, i.e., “prevention” and do not cover the long-term control and management of INNS which are well established and widespread. This document provides the measures by which the CWP Project proposes to prevent the introduction and spread of INNS in the offshore environment and should be read in conjunction with the **Onshore Invasive Species Management Plan**.

2 BACKGROUND TO INNS

4. More than 90 marine INNS have been identified in British and Irish waters (including Republic of Ireland and Northern Ireland). Their arrival is believed to be principally due to shipping, including ballast waters and sediments, fouling of hulls and other associated hard structures, and imported consignments of cultured species. Most marine INNS in Britain and Ireland originate from parts of the world with a similar latitude and therefore sea temperature (e.g., North Pacific, North-west Atlantic).

3 ROLES AND RESPONSIBILITIES

5. **Table 1** provides a list of the roles and responsibilities in relation to this offshore biosecurity management plan (OBP):

Table 1 Roles and responsibilities

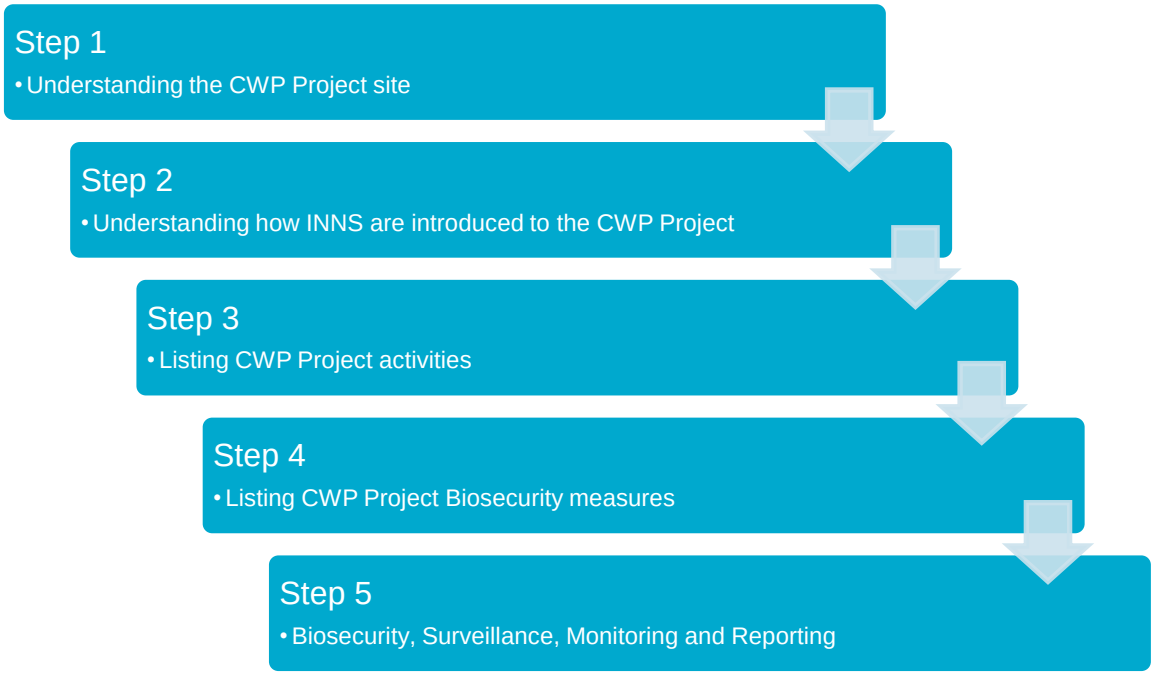
Role	Responsibility
The Developer	Requiring the implementation of the OBP and monitoring and/or clearance/disposal of INNS at the CWP Project (via its Contractors and Subcontractors)
Independent Environmental Clerk of Works (ECoW)	Quality assurance of the OBP. Monitoring Contractor/sub contractor compliance with the OBP during all phases of the CWP Project. Reporting any incidents with INNS.
Biosecurity Manager	Delegated responsibility for the practical implementation of the OBP
Contractor and Subcontractor	Implementation of and adherence to OBP and early notification of the presence of INNS to or via the biosecurity manager.

4 MARINE INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN METHODOLOGY

6. The following sections describe the process of creating the OBP following best practice guidance (e.g. Natural England 2017; Payne et al., 2014) and information provided in the Code of Practice on Non-Native Species (Scottish Government, 2020). A stepwise approach has been taken as detailed below, to accurately assess the risk of INNS in relation to the CWP Project which is presented in **Section 5**.

7. **Figure 1** illustrates the steps in the preparation of this CWP Project OBP, and those which will be maintained during the subsequent updates of this live document and which are described in the following sections.

Figure 1 CWP Project Offshore Biosecurity Plan Process Chart



4.1 Step 1 – Understanding your site

8. The following parameters should be considered when understanding the CWP Project site as part of the OBP development:

- Salinity of the site;
- Presence of any man-made structures; and
- Whether INNS are present within/on site.

9. The presence/absence of INNS is directly linked to the salinity of the site, as the majority of marine flora and fauna are unable to survive in freshwater due to osmoregulatory effects (Evans, 1980). The more freshwater enters the site, the lower the risk of INNS due to inhospitable conditions; conversely a greater risk is present for a full marine site.

10. The risk of INNS establishment is also increased by the presence of man-made structures. Information regarding any periods of slow or stationary works or climatic conditions that may increase biosecurity risk should be included.

11. If INNS have been recorded onsite, the focus of the OBP should be reducing the risk of introducing new INNS and the prevention of spreading existing INNS to other sites. In this case, a precautionary approach should be followed, even if no INNS are present at the site.

12. Based on this, a site can be categorised as either a low risk or significant risk site, depending on the risk of INNS introduction and spreading.

4.2 Step 2 – Understand how INNS can be introduced or spread to your site

13. In addition to understanding the site characteristics, the structures present on site and any INNS already present in the site, consideration must be given to how INNS can be introduced to the site.

14. This step should be iterative and revisited when the OBP is due for review.

15. **Table 2** provides an example of the type of questions to consider when creating an OBP.

Table 2 Example of Questions and Risk to consider whilst creating an OBP (taken from Payne et al., 2014)

Question	Category		
	High	Medium	Low
Has he vessel/equipment just arrived from the local area?			
Has the vessel/equipment had an antifouling coating applied to submerged structures within the last 12 months?			
Are all the visible submerged surfaces free of biofouling (a green ‘slime’ is ok)			
Do the visible submerged surfaces have more than a green ‘slime’ coating?			
Does the vessel/equipment have noticeable clumps of algae and/or animals clinging to the visible parts of the hull/rudder/propeller?			
Has the vessel/equipment just arrived from another country, region or water body with similar environmental conditions (e.g. seawater temperature)			
Has the vessel/equipment just arrived from a water body known to have INNS present?			
Does the vessel/equipment spend long periods of time stationary at sites in between anti-fouling treatments?			
Is the vessel ‘slow moving’, such as a construction barge or drilling rig?			

16. The greatest risk of introducing INNS to the site is when a vessel (particularly slow-moving vessels), equipment or stock arrives at the site from another country, region or water body, with similar environmental conditions (e.g. seawater temperature and salinity) while it is covered in biofouling (i.e. anything more than a thin, green 'slime' coating for vessel hulls) or contains additional algae or animals.

17. Another main risk is introducing INNS from the arrival of a vessel with biofouling on the hull, for example, which comes from a site known for the presence of INNS.

18. For the purposes of this assessment, any activity that falls within the 'Low' category in **Table 2** is assessed as 'Low' Risk. Any activity that falls within the 'Medium' or 'High' categories is assessed as 'Significant' Risk, as 'Significant' is considered as any risk above low on a "low, moderate, high, severe" scale.

4.3 Step 3 – Identifying activities which risk introduction of non-native species

19. The next step is to identify the main activities which take place at the site or as part of the operation/event, particularly those that could lead to the introduction and/or release of marine INNS at the site.

20. The activities which carry almost no risk at all, such as those taking place in areas which are never in contact with sea water, do not need to be covered by this plan. However, always err on the side of caution, considering all activities which take place in or around the water and include both vessels and structures.

21. A list of example activities which carry a risk of introduction and/or releasing INNS is provided in Payne *et al*. (2014). These are not directly related with offshore renewables, but applicable ones include:

- use of construction barge and slow moving vessels;
- using vessels from locations outside local water body;
- removal of old structures/equipment;
- cleaning of hull and associated structures; and
- maintenance of equipment and vessels.

22. When identifying activities, there are two possible approaches to follow, as described below, a simple approach and an in-depth approach. For the CWP Project it is recommended that the in-depth approach be taken, in advance of construction, however the simple approach is considered proportionate for this *pre-consent stage*.

4.3.1 Simple Approach

23. This approach aims to list all the activities which take place on the site, or which make up the operation/event that may carry a significant risk of introduction and/or releasing INNS. This list is then taken to Step 4 to develop control measures.

4.3.2 In-Depth Approach

24. This technique helps the Developer to better understand the risk of introducing and/or spreading INNS associated with each proposed activity. It also provides guidance on the development of biosecurity control measures as well as where and when to apply them. This approach has been developed from

the Hazard Analysis and Critical Control Point (HACCP) and is further described in Annex B of Payne et al. (2014) but not repeated here.

25. This approach consists of the following steps:

- Step 1 – List Site Activities: a list of all activities which have a reasonable risk of leading to the introduction of INNS is compiled.
- Step 2 – Describe Activities: a brief description of activities is provided based on "who, what, when, where, why and how".
- Step 3 – Split Activities into Task: activities are subdivided into tasks, which are then briefly described.
- Step 4 - Establish Critical Control Points and Control Measures: the following is included for each task identified:
    - Risk;
    - Justification;
    - Critical control point;
    - Control measure; and
    - Who will carry out the control measure.
- Step 5 – Develop an Action Plan: Based on the control measures developed in Step 4, an action plan is completed, setting out who will carry out the control measure, what they will do and when.

4.4 Step 4 – Biosecurity control measures

26. As part of this step, biosecurity control measures are identified. It is important that these measures are effective, simple, realistic and can be easily translated into instructions to others.

27. These measures must also take into account how much control the Developer has over the site and its activities. Control measures help the Developer to meet their legal requirement, to take 'reasonable steps' to prevent the introduction of INNS.

28. To make the control measures effective, the CWP Project process is:

- who will carry out the action;
- what they will be doing to reduce the risk of introducing INNS;
- where will the control measure be applied; and
- when will the control measure be applied (i.e. at what stage in a process).

29. A list of example control measures can be found within Payne et al. (2014), many of which are included in the OBP. As a general principle however, in the marine environment measures will focus on the following aspects of control and awareness raising:

- Clean all structures before they enter the water. Use fresh, hot water if possible. Wash onto hard standing, preferably into an interceptor system. Do not allow any water to return to the sea.
- Remove unneeded man-made structures from the water – in general INNS prefer these structures and removal of the preferred substrate is a useful control measures. This could include temporary removal or moving structures out of the preferred growth zone e.g. removal of mooring buoys in winter to a yard on land and putting the mooring chain to the seabed to smother fouling.
- Air dry – most, if not all, marine and aquatic INNS will be killed by being dried out – where practicable identify opportunities to dry out equipment or infrastructure as often as possible e.g. dive kit or dredgers and barges between uses.
- Expose to fresh water – most marine INNS need some degree of salinity to sustain their life cycle – where practicable exposure to fresh water by immersion or washing down will reduce the risk posed by INNS.

- Awareness – most people are unaware of what INNS look like or the threat from them. The biosecurity actions list will include opportunities for training and dissemination of information e.g. through public signage or ID guides for staff.
- Distribution of responsibility – include conditions in CWP Project terms for contractors for example:
    - The contractor must submit a Biosecurity Risk Assessment for written approval at least 6 weeks prior to commencement of the works.
    - The contractor must submit an updated Biosecurity Risk Assessment by a relevant date.
    - The contractor must ensure that all equipment, materials, machinery and Personal Protection Equipment (PPE) used are in a clean condition prior to their arrival on site to minimise risk of introducing INNS into the marine environment.

4.5 Step 5 – biosecurity surveillance, monitoring and reporting procedures

30. Early detection of INNS on the site is important as this increases the likelihood of successful containment and potential for full eradication. For this reason, all staff and other site users should be encouraged to report any unusual sightings to the biosecurity officer.

31. This step outlines those procedures to be followed in the event of discovering and positively identifying an INNS on site. As part of this process the following will be considered:

- setting out who is responsible for surveillance and monitoring of the site; and
- adding actions to encourage vessel owners who use the site to be vigilant and report any sightings of concern

4.6 Contingency Plan

32. A contingency plan should be in place to deal with potential failure of the ‘prevention’ and ‘rapid response’ method identified. This document should be short and be accessible to all staff, ensuring it provides a step by step action list.

33. The contingency plan will review the activities identified in this OBP with potential to introduce and/or spread INNS and derive actions to deal with a potential failure of the proposed control measures.

4.7 Monitoring and Review

34. Following completion of the OBP, a clear recording system (i.e. a logbook) should be put in place to accurately record the results of any checks or actions taken, and formal steps are put in place to quickly inform the biosecurity manager of potential INNS introduction.

35. A review date of site and operation plans will be in place to refine and update the OBP as required.

5 CWP PROJECT OBP

5.1 Step 1 – understanding the CWP Project site

5.1.1 Environmental conditions affecting biosecurity

36. The CWP Project is located on the East coast of Ireland and partially overlaps with a number of European designated sites, including the Rockabill to Dalkey Ireland Special Area of Conservation (SAC) and the South Dublin Bay SAC.

37. Water depths at the CWP Project range between 28 m and 6 m below Lowest Astronomical Tide (LAT). The CWP Project has an average tidal range of 3.25 m, with the tidal current flowing to the south and ebbing to the north. Tidal current speeds typically average 1.4 m/s.

38. As the CWP Project offshore development area is in offshore waters and there are no freshwater run offs in the vicinity, salinity level is expected to be similar to that found in the wider Irish Sea marine environment.

39. The subtidal benthic ecology of the CWP Project were shown to range from hard and coarse substrates, with muds and sands in the intertidal and nearshore area of the CWP Project OECC, with sandy sediments in the central section grading into more gravelly sands farther offshore and in the array area. Subtidal communities were dominated by annelids, molluscs and crustaceans.

40. In addition to this, there are limited man-made structures within the CWP Project array site beyond marker buoys, however, there are neighbouring wind farms which may increase the risk of INNS. This section is for illustrative purposes only and will be further updated post consent.

5.1.2 Information related to any slow or stationary periods or climatic condition which may increase biosecurity risk

41. Information regarding the environmental conditions at the CWP Project can be found in **Volume 2**, **Chapter 4 Project Description** of the EIAR, with further physical environment description provided in technical chapters including **Volume 3, Chapter 6 Marine Geology, Sediments and Coastal Processes**.

42. The CWP Project experiences relatively strong tidal currents, which is likely to reduce the overall biosecurity risk, as there is reduced potential for fouling organisms to easily colonise introduced substrates and structures, however full consideration of the risk is appropriate.

5.1.3 INNS at the CWP Project

43. All Water Framework Directive (WFD) water bodies within 25 km of the CWP Project are currently classified as High from freedom from INNS.

44. No INNS have been recorded during site-specific surveys of the CWP Project. If any were to be recorded in the area prior to finalising the plan, they would be included here, identifying the risk they pose to Ireland's native species.

45. Furthermore, the latest post-construction monitoring data from other offshore wind farms has found no evidence for the presence of INNS on wind turbine foundations following the presence of installation vessels from international ports, which is evidence to suggest that the introduction of structures such

as offshore wind turbine foundations into the benthic environment doesn't necessarily lead to the spread of INNS.

5.2 Step 2 – understand how INNS can be introduced or spread to your site

5.2.1 Vessel/equipment to be used in the CWP Project

46. An example of the vessels and equipment to be used at the CWP Project is provided in Table 3. This table also includes a risk indicator of the potential for INNS to be introduced to the CWP Project and surrounding areas as part of these activities. The risk indicator will be updated through professional judgment of the final project parameters, together with any INNS present in the area.

Table 3 Vessel and Foundation types to be used at the CWP Project and/or involved in the operation and maintenance and decommissioning phases

Name	Type	Details and risk factor assumptions	Risk: Low/Significant
Vessels (construction and decommissioning)	Various	Vessel types and sizes to be confirmed prior to construction, although expected to include jack-up barges/dynamic positioning vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, crew transfer vessels (CTVs), and scour/cable protection installation vessels; • the source location of the vessels for construction will be confirmed in advance of construction; • the source location of the vessels for decommissioning will be confirmed once this information becomes available; • vessels will be required to have an anti-fouling coating and inspection history; • vessels are expected to move slowly when installing or; • removing structures.	
Vessels (operation and maintenance)	Various	Vessel types and sizes to be confirmed prior to operation and maintenance phase, although expected to include jack-up barges/dynamic positioning vessels, Service Operations Vessels, cable repair/survey vessels, and CTVs;	

		• the source location of the vessels for operation and maintenance will be confirmed in advance of operation; • vessels will be required to have an anti-fouling coating and inspection history; • vessels are expected to move slowly when undertaking maintenance activities;	
Wind Turbine and OSS foundations	Monopile	• Either 60 or 75 WTG foundations • Three OSSs • Foundation to occupy all of the water column • The location and type of vessel transporting the foundation to site maintenance will be confirmed in advance of construction	

47. A detailed update of **Table 3** will be completed once the exact specifications and origins of vessels are known upon appointment of a preferred vessel Contractor during the pre-construction phase.

48. The EIAR has undertaken an assessment based on a representative scenario, based on the current available information, which includes the use of several vessels for WTGs and OSSs. As this is a 'live' document, once specific details of the WTGs and OSSs, vessels and ancillary equipment are known, this document will be updated accordingly, assigning risk categories for specific infrastructure types as per the methodology set out in section 7.

5.3 Step 3 – identifying activities which risk introducing non native species

49. **Table 4** provides an indicative list of activities in relation to the CWP Project which may have a significant risk of introducing and/or spreading INNS. This table will be updated and informed by the information available pre-construction and from Step 2.

Table 4 Site activities which have a risk of introducing and/or spreading INNS

Phase	Activity description
Installation	• Installation of WTGs and associated foundations • Installation of OSSs and associated foundations • Installation of offshore cables
Operation and maintenance	• Routine inspections • Geophysical surveys • Repairs and replacements (wind turbines, navigational equipment, J-tubes and consumables)

Phase	Activity description
	• Painting • Removal of marine growth • Cable repair and reburial
Decommissioning	• Decommissioning of WTGs and associated foundations • Decommissioning of OSSs and associated foundations • Decommissioning of offshore cables

5.4 Step 4 – Biosecurity Control Measures

50. The following sections provide information on site-specific risks and control measures in relation to the CWP Project.

5.4.1 Installation/presence of man-made structures

Risk

51. This has been identified as one of the greatest risks of INNS introduction and/or spreading, as newly available surfaces at the CWP Project (e.g. foundations) may be colonised by INNS in the first few weeks/months after installation.

Control measures

52. Any man-made structure to be used for the CWP Project should be of terrestrial origin (i.e. not coming from another marine environment where it has been submerged or exposed to the sea). If there is a requirement for the structure to come from another marine environment, it will be allowed to fully dry to kill off any organisms that have attached and will be inspected prior to placement in the marine environment. This measure will occur port-side or on transit vessels.

53. It is also expected that any man-made structures will be painted with anti-fouling paint and marine growth will be removed.

5.4.2 Using vessels from outside of the CWP Project

Risk

54. Vessels arriving from outside the east coast of Ireland pose a significant risk of introducing INNS to the area, particularly those arriving from similar marine environments.

55. Once construction contractors have been appointed, further information on the origin of vessels to be used in the CWP Project will be included in this section.

Control measures

56. All vessels to be used at the CWP Project during construction, operation and maintenance and decommissioning must follow International Management Organisation (IMO) (2012), and where applicable, to comply with IMO (2021), which includes the following standards:

- ballast water exchange to be carried out at least 200 nm from the nearest land and in water at least 200 m in depth;
- use of anti-fouling systems, which includes the use of coating systems, bio-fouling resistant materials and marine grown prevention systems; and
- in-water inspection of ships and in-water cleaning and maintenance.

57. Implementation of these measures will be ensured by a requirement for all contractors to comply with this OBP by the Developer.

5.4.3 Cleaning and disposal of biofouling from structures during operation and maintenance activities and decommissioning

Risk

58. There is potential for INNS to detach from subsea structures during routine maintenance activities such as jet washing. Where a risk that operation and maintenance activities may lead to spread of INNS has been identified, additional control measures may be required and will be included in this section.

59. INNS may remain attached to the surface of marine structures during decommissioning. If INNS were to be removed without due care and washed back into the surrounding marine environment during the decommissioning phase, there may be a risk of INNS spreading to areas where they weren't initially present.

Control measures

60. Where a risk has been identified that operation and maintenance activities may lead to the spread of INNS, control measures may be required to minimise the amount of biofouling material entering the marine environment at the CWP Project. These may include collection and disposal of biofouling as per relevant Port Authority "Waste Management Plan", use of appropriate anti-fouling coating systems and good maintenance of all equipment, including regularly assessing the need for cleaning and the condition of the anti-fouling coating system (IMO, 2012).

61. Material detached or removed from decommissioned subsea infrastructure should be taken away to be properly disposed of onshore, this is to prevent INNS entering the marine environment. Disposal of biofouling will be aligned with the relevant Port Authority 'Waste Management Plan'.

62. All equipment, materials, machinery, PPE and vessels must be in a clean condition prior to their arrival on site.

63. All contractors will be required to comply with these measures by the Developer through adherence to this OBP prior to mobilisation to site.

5.5 Step 5 – Biosecurity Surveillance, monitoring and reporting procedures

64. This section will be completed in advance of construction and will contain information about who is responsible for carrying certain INNS checks, as well and where and when these checks are to be completed by the Biosecurity Manager.

5.6 Contingency Plan

65. Table 5 lists the actions or stages of an example contingency plan and who is responsible for each of them. The below table will be updated in advance of construction to reflect the CWP Project final position with regards works proposed from within harbours and proposed marine works, and through consultation with National Parks and Wildlife Service (NPWS) as the Regulatory agency for INNS in Ireland to ensure alignment with future biosecurity plans for the marine environment.

Table 5 Contingency Plan (as presented in Payne et al., 2014)

Action	Responsibility
Stage One – suspected arrival of high alert species	
Collect samples, place in plastic bag and contact NPWS for advice on where to send the sample	To include one or more of the following: Harbour Master, Biosecurity Manager, ECoW.
Inform harbour users and place marker buoys around area	Harbour Master/Biosecurity Manager/staff
Stage Two – Presence of High Alert Species Confirmed	
Initiate immediate containment measures, including restricted vessel movements.	Biosecurity Manager
Carry out wider survey of vessels and structures using underwater camera.	NPWS or agreed alternative
Stage Three	
Seek advice from NPWS on appropriate measures and actions for long term control	Biosecurity Manager, Environmental Manager and Contractor Environmental Manager

5.7 Monitoring and Review

5.7.1 Monitoring and implementation of the plan

66. Once this OBP has been agreed, a logbook will be developed to keep a clear record of any checks or actions taken and list the formal steps to ensure the biosecurity manager is quickly informed of any potential introduction of INNS. Payne et al. (2014) provides examples of information to be recorded in the logbook. All records entered should be given a date and signed by the biosecurity manager.

5.7.2 Plan review

67. This OBP will be reviewed regularly to make sure it stays up to date and relevant. It is proposed that this plan will be reviewed, as a minimum, every 12 months during the construction phase, but maybe more frequently depending on need, and as agreed with NPWS.

68. This OBP will be updated following completion of the construction phase and at the beginning of the operation and maintenance phase to ensure the plan is appropriate for the next phase of the development and the risks/activities associated with that next phase. During the operation and maintenance phase, the OBP will be updated regularly (as a minimum every 5 years). Prior to the decommissioning phase the OBP will be reviewed and updated to ensure all measures are appropriate and that any changes in the environment and risk of INNS (e.g. records of INNS on site) are reflected in the OBP.

APPENDIX B COMPLIANCE WITH CONSENTS DOCUMENTS

326. Table B-1 and Table B-2 will provide details of the CWP Project parameters and [construction/operational] processes set out within the EIAR and supporting documents for the CWP Project, and a comparison of these against the contents of this CEMP.

Table B-1 Compliance with Consents Documents (Offshore Project Components)

Parameter	EIAR	CEMP
WTGs		
e.g., Number of WTGs	e.g., 75	e.g., 65

Table B-2 Compliance with Consents Documents (Onshore Project Components)

Parameter	EIAR	CEMP