Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 25.1: Environmental Management Plan

sse Renewables

Version	Date	Status	Author	Reviewed by	Approved by
1.0	24/05/2024	Final (External)	Sure Partners Limited / GoBe Consultants	Sure Partners Limited / GoBe Consultants	Sure Partners Limited

Statement of Authority

Experts	Qualifications	Relevant Experience
Kaj Christiansen	BEng (Hons.) in Environmental Engineering from the University of Galway MSc (Hons.) in Renewable Energy from University of Aberdeen CEng with Engineers Ireland	Kaj has over 14 years' experience within the renewable energy industry, specifically in the field of offshore wind and solar energy development. Kaj has acted in both project engineering and project management roles for a number of offshore wind projects throughout the North Sea. Within these projects Kaj was responsible for delivering foundation structures and has experience across the project lifecycle; from procurement and design to construction and commissioning. Kaj also has extensive Irish based development management experience in taking solar and offshore wind energy infrastructure through the development cycle; from early conceptual planning stages through to design, construction and operation.
Marc Walshe	BEng (Hons), MSc.	Marc Walshe is a Consents Manager with SPL/SSE Renewables and a full Member of the Institution of Environmental Sciences. Marc holds an honours degree in Environmental Engineering (BEng), a masters degree in Renewable Energy (MSc) and an Advanced Diploma in Planning and Environmental Law. Marc has over 23 years experience working in both the energy and environmental sectors on a range of projects which include large scale infrastructural developments in both Ireland and the UK. The management of consents has been

Experts	Qualifications	Relevant Experience
		key to his role whether through the consent application process or ensuring compliance with the subsequent post consent requirements during construction and/or operation.

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Glossary

Term	Meaning
Arklow Bank Wind Park 2 – Offshore Infrastructure	"The Proposed Development", Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements under the existing Maritime Area Consent.
Array Area	The Array Area is the area within which the Wind Turbine Generators (WTGs), the Offshore Substation Platforms (OSPs), and associated cables (export, inter- array and interconnector cabling) and foundations will be installed.
Cable Corridor and Working Area	The Cable Corridor and Working Area is the area within which export, inter-array and interconnector cabling will be installed. This area will also facilitate vessel jacking operations associated with installation of WTG structures and associated foundations within the Array Area.
EIA	An Environmental Impact Assessment (EIA) is a statutory process by which certain planned Projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Directive 2011/92/EU on the assessment of the effects of certain public and private Projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council (EIA Directive) and the regulations transposing the EIA Directive (EIA Regulations).
Landfall	The area in which the offshore export cables make landfall and is the transitional area between the offshore cabling and the onshore cabling.
Maritime Area Consent (MAC)	A consent to occupy a specific part of the maritime area on a non-exclusive basis for the purpose of carrying out a Permitted Maritime Usage strictly in accordance with the conditions attached to the MAC granted on 22nd December 2022 with reference number 2022-MAC-002.
Mitigation Measure	Measure which would avoid, reduce, or remediate an impact.
Non-Indigenous Species	An organism that typically causes ecological or economic harm in a new environment where it is not native.
Permitted Maritime Usage	The construction and operation of an offshore windfarm and associated infrastructure (including decommissioning and other works required on foot of any permission for such offshore windfarm).
The Application	The full set of documents that will be submitted to An Bord Pleanála in support of the consent application.
The Developer	Sure Partners Ltd.

Acronyms

Term	Meaning
ABP	An Bord Pleanála
ABWP2	Arklow Bank Wind Park 2
ADD	Acoustic Deterrent Device
AEZ	Archaeological Exclusion Zone
AFS	Anti-fouling System
AMP	Archaeological Management Plan
BWM	Ballast Water Management
BWMP	Ballast Water Management Plan
BWTS	Ballast Water Treatment Systems
CEM	Community Engagement Manager
CLM	Community Liaison Manager
CNMP	Construction Noise Management Plan
ECoW	Environmental Clerk of Works
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIRP	Environmental Incident Response Procedure
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ERCoP	Emergency Response Cooperation Plan
EU	European Union
EVMP	Environmental Vessel Management Plan
FLO	Fisheries Liaison Officer
FMMS	Fisheries Management and Mitigation Strategy
GT	Gross Tonnes
HNS	Hazardous Noxious Substance
HWM	High Water Mark
IAS	Invasive Alien Species
IEMA	Institute for Environmental Management and Assessment
IMO	International Maritime Organisation
INISMP	Invasive Non-Indigenous Species Management Plan

Term	Meaning
IRCG	Irish Coast Guard
JIP	Joint Industry Programme
MAC	Maritime Area Consent
MARA	Maritime Area Regulatory Authority
MARPOL	International Convention for the Prevention of Pollution from Ships
MC	Marine Coordinator
MCC	Marine Coordination Centre
MMMP	Marine Mammal Mitigation Plan
MMO	Marine Mammal Observer
MPCP	Marine Pollution Contingency Plan
NMI	National Museum of Ireland
NMOSCP	National Maritime Oil/HNS Spill Contingency Plan
NMS	National Monument Service
NPWS	National Parks and Wildlife Service
OFLO	Offshore Fisheries Liaison Officer
OGI	Onshore Grid Infrastructure
OMF	Operations and Maintenance Facility
OSP	Offshore Substation Platform
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAM	Passive Acoustic Monitoring
POLREP	Pollution Report
RAMS	Risk Assessment Method Statements
RWMP	Resource and Waste Management Plan
SEAR	Safety and Environmental Awareness Report
SHW	Safety, Health and Welfare
SOLAS	Safety of Life at Sea
SPL	Sure Partners Limited
TBT	Tool Box Talk
TEZ	Temporary Exclusion Zone
TII	Transport Infrastructure Ireland
UXO	Unexploded Ordnance

Term	Meaning
WTG	Wind Turbine Generators

Units

Unit	Description
km	Kilometre
km^2	Kilometre squared

1 Introduction

1.1 Purpose

1.1.1.1 This Environmental Management Plan (EMP) has been prepared by GoBe Consultants Ltd. (GoBe) to support the Environmental Impact Assessment Report (EIAR) for Arklow Bank Wind Park 2 (ABWP2) Offshore Infrastructure (the Proposed Development).

1.1.1.2 The purpose of the EMP is to provide a consolidated document which includes the various environmental commitments for the construction, operational and maintenance, and decommissioning phases of the Proposed Development, to enable efficient management and dissemination of these requirements. It provides a framework through which the potential environmental impacts associated with the Proposed Development are managed.

1.1.1.3 The EMP provides:

- A practical tool for managing the potential environmental impacts of the Proposed Development;
- Prescribes measures to prevent and/or mitigate potential environmental impacts; and
- A framework for measuring and improving environmental performance.

1.1.1.4 The EMP forms the minimum standard for all relevant Sure Partners Limited (SPL) (the Developer) personnel, Contractors and Subcontractors to comply with. Contractors and Subcontractors must take account of the requirements contained within this EMP when developing their task-specific Risk Assessment Method Statements (RAMS).

1.1.1.5 This EMP has been prepared in accordance with industry best practice guidance specifically:

- Institute for Environmental Management and Assessment (IEMA) Guidance on Environmental Management Plans (IEMA, 2008); and
- IEMA Environmental Impact Assessment Guide to Delivering Quality Development (IEMA, 2016).

1.1.1.6 The EMP and measures within are applicable to both Project Design Options.

1.2 Scope

1.2.1.1 The EIAR has been prepared for the Proposed Development. This EMP is therefore applicable to the activities taking place seaward of the High Water Mark (HWM). The HWM is the geographical delineation between the onshore and offshore components of ABWP2.

1.2.1.2 The EMP is applicable to all Developer personnel, Contractors and Subcontractors carrying out construction, operational and maintenance, and decommissioning activities associated with the Proposed Development.

1.3 Aims and objectives

1.3.1.1 The EMP will be a key construction contract document, which will ensure that all mitigation measures and commitments made within the EIAR, which are considered necessary to protect the environment, during the construction, operational and maintenance, and decommissioning phases of the Proposed Development, are implemented.

1.3.1.2 The principal objective of this document is to provide information on the Proposed Development and to detail appropriate measures for the avoidance, minimisation and control of adverse environmental impacts associated with the Proposed Development as identified in the EIAR.

1.3.1.3 The EMP will form part of the contracts for the construction, operational and maintenance, and decommissioning phases of the Proposed Development. The methods and principles contained herein will be adhered to by both the Developer and Contractor personnel in developing and refining the construction method statements and other plans relating to environmental management as required throughout construction, operational and maintenance, and decommissioning phases of the Proposed Development.

1.3.1.4 This version of the EMP presents minimum environmental management requirements to be adhered to by the Proposed Development.

1.3.1.5 This EMP will be updated prior to construction, during construction, and prior to commencement of the operational and maintenance and decommissioning phases to focus and detail key aspects of the relevant stages of the Proposed Development life cycle. Updates will incorporate details on environmental management measures to be applied during the construction, operational and maintenance, and decommissioning phases of the Proposed Development.

1.4 Document structure

1.4.1.1 The EMP is divided into three parts:

- Part I - Management, Implementation and Communication: provides information on the management and implementation of the EMP, including roles and responsibilities, and lines of communication;
- Part II - Environmental Impacts and Control Measures: provides a register of potential environmental impacts identified within the EIAR and associated control measures; and
- Part III - Annexes: provides relevant supporting information, including the Developer's Environmental Policy (Annex 1), reporting proformas and procedures (Annexes 2-5).

1.5 Consent Management Plans

1.5.1.1 The EMP is supported by a number of consent management plans which focus on key aspects of the environmental management of the Proposed Development. Some of these documents are included in the EMP as annexes, whilst other stand-alone documents are appended separately to the EIAR. The other relevant documents are listed below:

- Environmental Policy (see Annex 1);
- Marine Pollution Contingency Plan (see Annex 2);
- Environmental Incident Reporting Procedure (See Annex 3);
- Resource and Waste Management Plan (see Annex 4);
- Rehabilitation Schedule (see EIAR Volume III, Appendix 4.1);
- Marine Mammal Mitigation Plan (see EIAR, Volume III, Appendix 25.2);
- Fisheries Management and Mitigation Strategy (see EIAR, Volume III, Appendix 25.3);
- Invasive Non-Indigenous Species Management Plan (see EIAR, Volume III, Appendix 25.4);
- Emergency Response and Co-ordination Plan (see EIAR, Volume III, Appendix 25.5);
- Lighting and Marking Plan (see EIAR, Volume III, Appendix 25.6);
- Vessel Management Plan (see EIAR Volume III, Appendix 25.7)
- Construction Noise Management Plan (see EIAR, Volume III, Appendix 25.8);
- Archaeological Management Plan (see EIAR, Volume III, Appendix 25.9); and
- Environmental Vessel Management Plan (EVMP) (see EIAR Volume III, Appendix 25.10).

1.5.1.2 It is important to note that the EMP and the other relevant documents listed above will be developed further, in preparation for construction, in accordance with the conditions of any permission granted.

1.5.1.3 The documents capture the requirements of the EIAR to ensure that the associated environmental management measures are built into these plans, procedures and strategies from an early stage and brought forward into the further phases of construction, operational and maintenance, and decommissioning. These documents will continuously evolve and will be reviewed at regular intervals throughout the Proposed Development, including the operational and maintenance and decommissioning phases, in line with an agreed review schedule, or unscheduled events, for instance, major personnel or procedure change, or a major incident. However, the commitments made in the EIAR and any associated conditions of consent or requirements agreed with the relevant authorities will always form the basis of these documents.

1.6 Background and consents

1.6.1 Description of the Proposed Development

1.6.1.1 The Proposed Development is an offshore wind farm development situated on and around Arklow Bank in the Irish Sea, approximately 6 to 15 km to the east of Arklow in County Wicklow (see Figure 25.1). It will comprise 47 or 56 wind turbine generators (WTGs) and associated foundations, two offshore substation platforms (OSPs), a Cable Corridor and Working Area (the area within which export, inter-array and interconnector cabling will be installed. This area will also facilitate vessel jacking operations associated with installation of WTG structures and associated foundations within the Array Area). The Array Area (the area within which the WTGs, OSPs, and associated cables (export, inter- array and interconnector cabling) and foundations will be installed)) covers 63.4 km^2 (a rectangular block approximately 27 km long and 2.5 km wide).

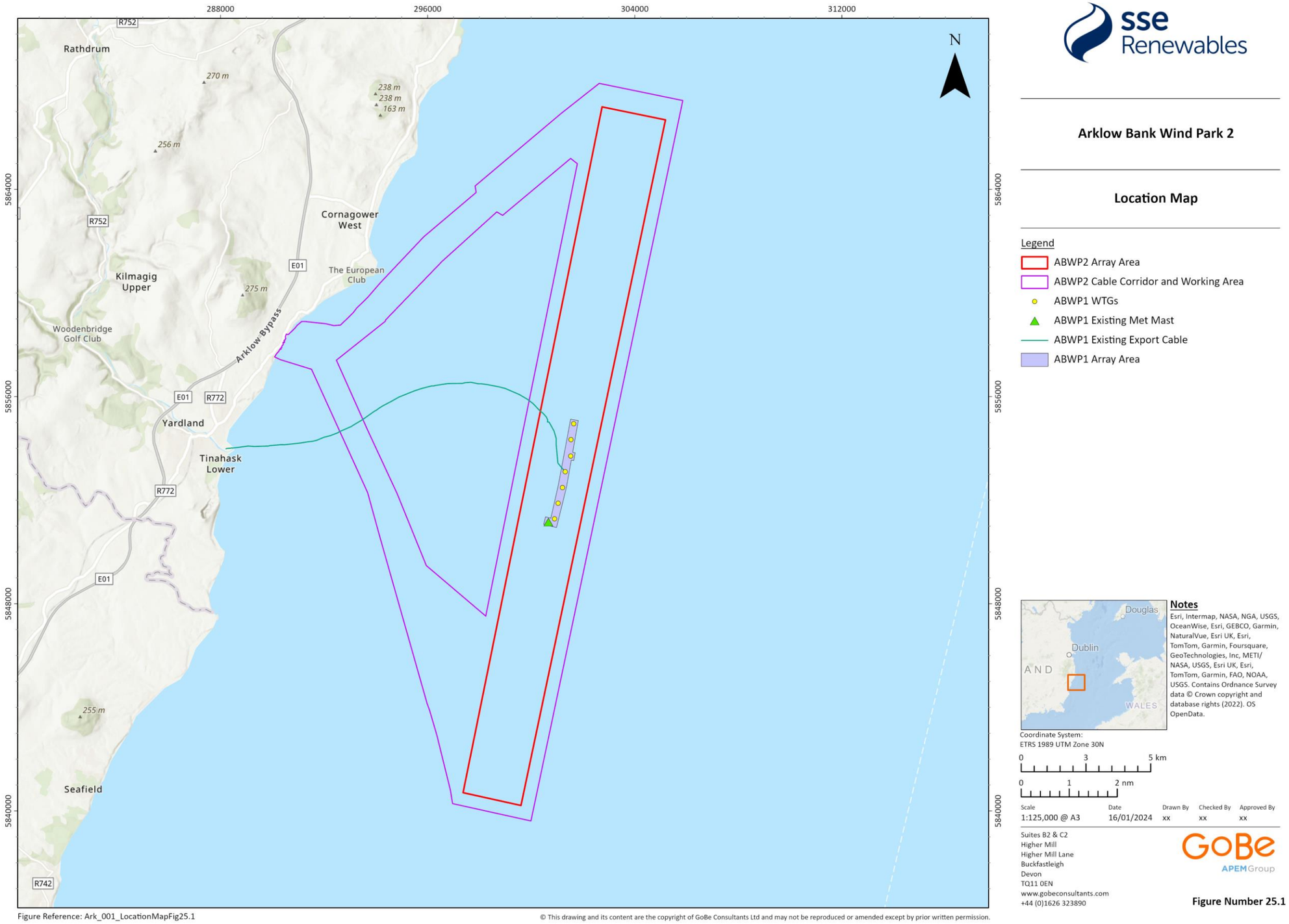

Figure Reference: Ark_001_LocationMapFig25.1

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Arklow Bank Wind Park 2

Location Map

Legend

- ABWP2 Array Area
- ABWP2 Cable Corridor and Working Area
- ABWP1 WTGs
- ABWP1 Existing Met Mast
- ABWP1 Existing Export Cable
- ABWP1 Array Area

Notes

Esri, Intermap, NASA, NGA, USGS, OceanWise, Esri, GEBCO, Garmin, NaturalVue, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/ NASA, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS. Contains Ordnance Survey data © Crown copyright and database rights (2022). OS OpenData.

Coordinate System:
ETRS 1989 UTM Zone 30N

0 3 5 km

0 1 2 nm

Scale	Date	Drawn By	Checked By	Approved By
1:125,000 @ A3	16/01/2024	xx	xx	xx

Suites B2 & C2
Higher Mill
Higher Mill Lane
Buckfastleigh
Devon
TQ11 0EN
www.gobeconsultants.com
+44 (0)1626 323890

GoBe APEM Group

Figure Number 25.1

Figure 25.1: Location Map

2 Part I: Management, Implementation and Communication

2.1 Overview

2.1.1.1 This section of the EMP outlines the roles and responsibilities of all relevant Developer personnel, Contractors and Subcontractors in relation to the EMP.

2.1.1.2 All Developer personnel, Contractors and Subcontractors will have a responsibility to comply with the requirements of the EMP and all relevant supporting documents. The key roles relevant to the delivery and implementation of the EMP are:

- The Developer's Project Manager;
- The Developer's Environmental Manager;
- The Developer's Environmental Clerk of Works (ECoW);
- The Developer's Community Engagement Manager;
- Contractors and Subcontractors (including Contractor Environmental Manager and Contractor Community Liaison Officer)); and
- Supporting Environmental Roles.

2.1.1.3 These roles are outlined in Section 2.2 and will be further developed in the EMP to be submitted for approval post-consent.

2.2 Key management roles in relation to Environmental Management – The Developer

2.2.1 The Developer's Project Manager

2.2.1.1 A Project Manager for the construction, operational and maintenance and decommissioning phases of the Proposed Development will have overall responsibility for ensuring ongoing compliance with the EMP and all supporting documents, including the EIAR and the consents management plans listed in Table 25.1.

2.2.1.2 The Project Manager for the construction phase will be supported by Package Managers who will lead and manage the delivery of engineering work packages covering marine installation, turbines and transmission systems during construction. The Package Managers have similar responsibilities to the Project Manager for the construction phase, but in relation to their specific packages of work.

2.2.1.3 Similarly, the Project Manager for the operational and maintenance phase of the Proposed Development (or Operation and Maintenance Manager) and the Project Manager for the decommissioning phase of the Proposed Development (or Decommissioning Manager) will have overall responsibility for ensuring ongoing compliance with the EMP and all supporting documents, including the EIAR and the consent management plans listed in Table 25.1.

2.2.1.4 These Project Managers will be supported by a Management and Supervisory Team who will lead and manage the tasks and activities associated with the operation and maintenance and decommissioning of the Proposed Development. This team will have similar responsibilities to the Project Manager, but in relation to their specific areas of work.

2.2.1.5 The Project Manager is responsible for the appointment of an Environmental Manager and a Community Engagement Manager to the Proposed Development.

2.2.1.6 The key responsibilities of the Project Manager relating to the environmental management of the Proposed Development are outlined below.

- Ensuring that their environmental responsibilities, as described in the EMP and supporting documents such as the consents management plans listed in Table 25.1, are fulfilled for the duration of the Proposed Development;
- Establishing contractual obligations for Contractors and/or Subcontractors in relation to EMP;
- Responsible for ensuring that sufficient resources and processes are in place to deliver and comply with the EMP and to manage potential environmental impacts;
- Ensuring that environmental management issues are dealt with as a priority in project progress meetings, project inductions and training for the Proposed Development;
- Ensuring that all project personnel and Contractors and/or Subcontractors assist and support the Developer's Environmental Manager (and supporting roles) where required;
- Ensuring that any corrective actions arising from environmental incident investigations, inspections or audits are addressed;
- Reporting to the Developer's senior management; and
- Addressing Contractor and Subcontractor non-compliance.

2.2.1.7 A more detailed breakdown of the Developer's Senior Management Team, for each phase of the Proposed Development, will be included in the EMP, when the document is refined prior to commencement of construction, operational and maintenance and decommissioning phases.

Table 25.1 The Developer's Project Manager - roles in Consent Management Plans

Consent Management Plan	Role of the Developer's Project Manager Within
Emergency Response Cooperation Plan (ERCoP)	Receives contact from vessels in the event of an incident. In case of an environmental incident or accident, all relevant authorities (including the Irish Coast Guard (IRCG), the port authorities, Environmental Protection Agency (EPA) will be informed. This is usually carried out automatically by IRCG. However, some of the mentioned bodies may request to receive a notification directly from the Project Manager.
Construction Noise Management Plan (CNMP)	The Developer's Project Manager will have day to day responsibility for ensuring ongoing compliance with the CNMP. Key responsibilities in relation to the CNMP include the following: • Communicating the requirements of the CNMP to SPL personnel, contractors and subcontractors. • Monitoring the implementation of the CNMP and ongoing compliance. • Provision of advice to SPL personnel, contractors and subcontractors on compliance with the CNMP. • Reviewing contractor and subcontractor documentation. • Engaging with local communities to inform them of the potential for audible noise and to alert residents to periods where there is a potential for noise to be audible. • Liaising with relevant stakeholders, as required. • Ensuring that noise management issues form part of progress meetings and site inductions.

Consent Management Plan	Role of the Developer's Project Manager Within
	• The establishment and implementation of a noise complaints procedure. This should include: – A dedicated complaints telephone line, available 24 hours a day. – A system to log all complaints, which can be shared with the local authority on request. – Provision for information on how formal complaints can be made by members of the public to the relevant authority. – A noise complaint investigation procedure. – Commissioning and management of consultants to conduct complaint investigations, if required.
Marine Pollution Contingency Plan (MPCP)	The Developer's Project Manager (for each phase of the Proposed Development) is responsible for the overall implementation of the MPCP. Their main duties include: • Developing and maintaining the SPL MPCP; • Ensuring the development of relevant Contractor MPCPs, which will include adequate spill response procedures, and the review and implementation of same; • Ensure the appointment of a competent Marine Coordinator and a competent, dedicated Spill Response Contractor for the Proposed Development. The contact details of those individuals will be added to the MPCPs of SPL and Contractor; • Monitoring ongoing Contractor spill response and ensuring Contractor compliance with the SPL MPCP; • Liaising with statutory bodies in the event of a spill such as IRCG and any local authorities who are likely to be affected; and • Requiring that sufficient resources and processes are in place to deliver/comply with the SPL MPCP. Following completion of construction, the Developer's Project Manager will ensure the SPL MPCP is reviewed and amended as necessary for the operational and maintenance, and decommissioning phases of the Proposed Development. The Developer's Project Manager may call upon the Developer's Environmental Manager/ Environmental Clerk of Works (ECoW) to support in the fulfilment of SPL duties relating to the SPL MPCP at any time. All incidents that occur, whether in the Proposed Development working area or not, must be notified to the Developer's Project Manager and Marine Coordinator.

2.2.2 The Developer's Environmental Manager

2.2.2.1 The Developer's Environmental Manager will appoint an appropriately qualified and competent environmentalist or ecologist as the Developer's ECoW to assist in the day-to-day environmental management and compliance, during all phases of the Proposed Development, with the EIAR, EMP and supporting environmental documentation.

2.2.2.2 The key responsibilities of the Developer's Environmental Manager in relation to the EMP include the following:

- Ensuring that their environmental responsibilities, as described in the EMP and supporting documents such as the consent management plans (Table 25.2), are fulfilled for the duration of the Proposed Development;
- Review and final approval of any revisions to the EMP and supporting documentation provided by the Contractor during construction and the continued refinement of the EMP during the operational and maintenance phase and decommissioning phase;
- Conducting environmental inspections and audits to ensure works and operations are carried out in compliance with the EIAR, EMP and supporting environmental documentation;
- Review and approval of an environmental compliance monitoring programme compiled by the Contractor prior to commencement of construction, and ensuring monitoring is taking place and environmental reports and records are generated and maintained;
- Ensure that reporting of compliance, with consent conditions, is submitted to the relevant statutory body in a timely manner, or in accordance with consent conditions.
- Ensuring the environmental compliance monitoring programme is expanded and carried through to the operational and maintenance phase and decommissioning phase of the Proposed Development. The Developer's Environmental Manager will also ensure that any environmental compliance monitoring, incident investigation and reporting requirements are fulfilled;
- Promoting a positive environmental culture and increasing environmental awareness throughout the construction, operation and maintenance, and decommissioning phases of the Proposed Development;
- Ensuring that, during construction, the Contractor is communicating statutory requirements and good environmental practices outlined in the EMP, principally via a schedule of Tool Box Talks (TBTs) informed by site activities and any recorded non-compliance with procedures. The Developer's Environmental Manager will ensure this task is also undertaken during the operational and maintenance and decommissioning phases of the Proposed Development;
- Attendance at project meetings, providing environmental input where required;
- Reviewing Contractor and Subcontractor documentation (including RAMS and reports) to ensure compliance with the EIAR, EMP and supporting environmental documentation; and
- Liaising with relevant stakeholders on matters relating to the environment, as required.

Table 25.2 The Developer's Environmental Manager - roles in Consent Management Plans

Consent Management Plan	Role of the Developer's Environmental Manager Within
ERCoP	Listed as a contact within the ERCoP.
CNMP	Ensure that the Developer's Project Manager is made aware of all relevant information in the event of any incident or noise queries.

Consent Management Plan	Role of the Developer's Environmental Manager Within
Invasive Non-Indigenous Species Management Plan (INISMP)	Periodic updates to the INISMP during the construction, operational and maintenance and decommissioning phases of the Proposed Development. Recipient of Biosecurity Risk Assessments (from contractors). Oversees the stages of the contingency plan as set out in the INISMP as required.
Marine Mammal Mitigation Plan (MMMP)	Overall responsibility for compliance with all environmental monitoring, mitigation and reporting requirements on the Proposed Development. Ensure that the Marine Mammal Observer (MMO), Passive Acoustic Monitoring (PAM)/ Acoustic Deterrent Device (ADD) operator, nominated Client Representative for construction activities and installation personnel have received all relevant information, and will consult with them before making decisions affecting the MMMP.
Fisheries Management and Mitigation Strategy (FMMS)	Monitoring of the implementation of the FMMS (this role may be delegated to the ECoW).
AMP	Responsibility for correspondence and communications to or from the Archaeological Consultant on all matters pertaining to works associated with the Proposed Development. Recipient of any new plan (based on an amendment to an Archaeological Exclusion Zone (AEZ)) which has been drawn up by the Archaeological Consultant. Notifies contractors of AEZs including any alterations or removals of same. Recipient of reports of archaeological discoveries from Contractors. The Developer's Environmental Manager will then report any observations to the Archaeological Consultant. The Archaeological Consultant will provide a pro-forma archaeological record sheet that will be completed by the Developer's Environmental Manager in the event of an object being recovered. The pro-forma record sheet will include the details listed in the Archaeological Record, and will indicate the next steps required. Where it is possible to identify the position from which the find originated, the Developer's Environmental Manager will implement a Temporary Exclusion Zone (TEZ) within which activities must temporarily cease until the advice of the Archaeological Consultant has been obtained. The Developer's Environmental Manager will record the occurrence as soon as possible in the site records, together with the time and exact vessel position.

Consent Management Plan	Role of the Developer's Environmental Manager Within
	The Developer's Environmental Manager will notify the Marine Coordination Centre (MCC) who will mark the TEZ on navigational software and inform other vessels/teams in the area where the discovery has been made. The Developer's Environmental Manager will also be responsible for compiling a Preliminary Record of the occurrence, both for discoveries on the seabed and on the deck of the vessel. The Developer's Environmental Manager will notify the Archaeological Consultant within 12 hours of the observation, and will pass all available information to them, including a copy of the Preliminary Record and copies of other relevant records. If any finds have been recovered, the Developer's Environmental Manager will arrange for them to be immersed in seawater in a suitable clean container, which will be covered. Any rust, concretion or marine growth will not be removed. Furthermore, the Developer's Environmental Manager and the Archaeological Consultant will make any finds available to the National Monuments Service (NMS) and National Museum of Ireland (NMI) as necessary.
EVMP	Recipient of details of any collision between a vessel and marine mammal, marine turtle and/or basking shark.
MPCP	Recipient of spill notifications and Initial Pollution Report (POLREP) from the Marine Coordinator. Recipient of reports on all accidents, incidents and hazards from employees, contractors, and subcontractors. May be called upon by the Developer's Project Manager to support the fulfilment of SPL duties relating to the MPCP at any time. Close communication between the Developer's Environmental Manager and the Marine Coordinator in the event of a pollution incident originating from a vessel, vessel related activity, or an offshore installation.

2.2.3 The Developer's Environmental Clerk of Works (ECoW)

2.2.3.1 The ECoW will be primarily a construction related position but will be called upon when necessary, during the operational and maintenance and decommissioning phases of the Proposed Development.

2.2.3.2 The ECoW will report to the Developer's Environmental Manager and will work closely with all project personnel, including the Contractor Environmental Manager on matters relating to the environment and will alert them of any environmental issues arising.

2.2.3.3 General responsibilities for the ECoW include, but are not limited to, the following:

- Ensuring that their environmental responsibilities, as described in the EMP and supporting documents such as the consent management plans (Table 25.3), are fulfilled for the duration of the Proposed Development;
- Maintain an environmental presence during construction to ensure the Contractor and Subcontractors are fulfilling their responsibilities relating to the EIAR, EMP and supporting environmental documentation;
- Review and Quality Assurance of the EMP (and all consent management plans and programmes) provided by the Contractor;
- Provision of advice to the Proposed Development on compliance with consent conditions, where required;
- Attendance at project meetings, providing environmental input where required;
- Provide support to the Developer's Environmental Manager when liaising with stakeholders as required;
- Reviewing Contractor documentation (for instance, RAMS) to ensure compliance with the EMP and associated Annexes;
- Carry out on-site environmental audits to monitor Contractor compliance with the requirements of the EIAR, EMP and supporting environmental documentation; and
- Deliver TBTs or workshops before the start of operations, to ensure that all relevant personnel understand the requirements for compliance with procedures that will ensure compliance with all relevant consent conditions. TBT or workshop attendance will be recorded.

Table 25.3 The Developer's Environmental Clerk of Works (ECoW) - roles in Consent Management Plans

Consent Management Plan	Role of the developer's Environmental Clerk of Works Within
ERCoP	Listed as a contact within the ERCoP.
CNMP	Ensure that the Developer's Project Manager is made aware of all relevant information in the event of any incident or noise queries
INISMP	Quality assurance of the INISMP. Monitoring Contractor/Subcontractor compliance with the INISMP during all phases of the Proposed Development. Reporting any incidents with Invasive Alien Species (IAS). Oversees the stages of the contingency plan as set out in the INISMP as required
FMMS	Monitoring of the implementation of the FMMS (this role may be delegated to the Developer's Environmental Manager)
MPCP	May be called upon by the Developer's Project Manager to support the fulfilment of SPL duties relating to the MPCP at anytime. Close communication between the ECoW and the Marine Coordinator in the event of a pollution incident originating from a vessel, vessel related activity, or an offshore installation.

2.2.4 The Developer's Community Engagement Manager

2.2.4.1 This dedicated role is in place right through the pre-construction, construction, operation and maintenance and decommissioning phases of the Proposed Development to facilitate engagement with the community, and local government stakeholders. The Community Engagement Manager (CEM) will:

- Ensure that their community engagement responsibilities, as described in the EMP and supporting documents such as the consent management plans (Table 25.4), are fulfilled for the duration of the Proposed Development;
- Explore and understand the political environment within the local area and develop and implement a strategy to maximise positive interaction with key stakeholders. This work is done in collaboration with overarching public affairs work supported by the CEM;
- Share information on project milestones and suitable sponsorships;
- Support with creation and delivery of relevant printed and digital assets to share with project stakeholder network, for example, consultation materials and quarterly newsletter;
- Represent the Developer at relevant community events;
- Engage with individuals and organisations in the area surrounding ABWP2, and its associated landfall location, O&M base, onshore cable route, and onshore substation, to understand issues and relay concerns.

2.2.4.2 The Community Engagement Manager will work closely with the Community Liaison Manager appointed by the Contractor during construction.

Table 25.4 The Developer's Community Engagement Manager - roles in Consent Management Plans

Consent Management Plan	Role of the Developer's Community Engagement Manager Within
ERCoP	Should a media representative make contact in relation to any incident, the details of the media representative should be forwarded onto the Community Engagement Manager. The Community Engagement Manager's contact details are listed in the ERCoP.
CNMP	Ensure that the Developer's Project Manager is made aware of all relevant information in the event of any incident, complaint or noise queries

2.3 Contractors and Subcontractors

2.3.1.1 The Developer's personnel will oversee all work carried out by Contractor and Subcontractor staff. The Contractor and all Subcontractors will adhere to the requirements of the EIAR, planning conditions, and EMP and ensure their work is carried out in line with good environmental practice.

2.3.1.2 The Contractor will refine the EMP as required (due to, for example, change of personnel, procedures, or incident investigation recommendations) throughout each phase of the Proposed Development.

2.3.1.3 During the construction phase of the Proposed Development, the Contractor will employ a Contractor's Environmental Manager with appropriate experience and expertise for the duration of the construction phase. The Contractor's Environmental Manager will ensure that all the environmental design, control and mitigation measures outlined in the EIAR, EMP and supporting

consent documentation are implemented on the Proposed Development. Competency of the Contractor's Environmental Manager will include a minimum of five years site experience which is demonstrated via submission of relevant information (Curriculum Vitae, training records, membership records, references) for acceptance by the Developer's Environmental Manager prior to commencement of construction works.

2.3.1.4 The Contractor will also employ a Contractor's Community Liaison Manager (CLM) (Section 2.3.3) to engage with the local community throughout the construction phase of the Proposed Development.

2.3.1.5 All Contractors to the Developer (and their Subcontractors) shall ensure that their own procedures comply with the requirements of the EIAR and EMP and related consent conditions. Key responsibilities in relation to the EMP include the following:

- Ensuring that their environmental responsibilities, as described in the EMP and supporting documents such as the consent management plans, are fulfilled for the duration of the Proposed Development;
- Ensuring that sufficient resources and processes are in place to comply with the EMP and to manage the potential environmental impacts of their activities;
- Prepare and provide RAMS, plus any associated recording and reporting templates, for all works and tasks prior to these being undertaken. These documents take into account and address all of the environmental aspects of any planned works and will include proposed mitigation measures. RAMS will be provided to the Developer's Environment Manager at least 10 working days in advance of such works starting;
- Implementing the required environmental control measures outlined in the EIAR, EMP and supporting environmental documentation;
- Read, understand and comply with any consent condition in relation to their activities;
- Maintain regular dialogue with the Developer's Environmental Manager and/or ECoW and inform them of any environmental hazard and/or risk, near miss, incident or environmental queries without delay;
- Undertake environmental monitoring, inspection and reporting, including collecting and collating all required data, as required by the Developer's Environmental Manager;
- Ensure that all personnel under their control are competent and carry out their tasks in compliance with the EMP;
- Adhere to relevant environmental legislation and carry out their duties in compliance with project environmental policies, plans, procedures and rules for the Proposed Development; and
- Ensure their staff receive suitable environmental induction and training prior to undertaking any work on the Proposed Development.

2.3.1.6 This EMP will form the minimum standard with which all Contractors and Subcontractors will comply. Additional control measures may be identified by Contractors during review of their own activities, and these must be specified in their RAMS.

2.3.2 Contractor's Environmental Manager

2.3.2.1 The Contractor's Environmental Manager will have a minimum of five years of relevant site experience and will be a full-time role from the start of contract award to ensure compliant set-up of site activities.

2.3.2.2 The Contractor's Environmental Manager will be responsible for:

- Ensuring that their environmental responsibilities, as described in the EMP and supporting documents such as the consent management plans, are fulfilled for the duration of the Proposed Development;
- Ensure the EMP and supporting environmental documentation are reviewed and refined at regular intervals throughout the construction phase of the Proposed Development. The Contractor's Environmental Manger will ensure these documents remain consistent with the EIAR and include any environmental requirements introduced through the consents process. Any revisions to the EMP and supporting environmental documentation must be circulated to the Developer's Environmental Manager for review and approval;
- Carrying out environmental audits, inspections and associated reporting to ensure works are carried out in compliance with the EIAR, EMP and any supporting environmental documentation;
- Compilation of an environmental compliance monitoring programme, conducting environmental compliance monitoring as required and compilation of relevant environmental reports and records. The environmental compliance monitoring programme and any environmental reports and records must be circulated to the Developer's Environmental Manager for review and final approval;
- Developing a positive environmental culture via training and engagement with site management and site operatives, to increase awareness and promote timely remediation and reporting;
- Communicating statutory requirements and good environmental practices outlined in the EMP, principally via a schedule of TBTs or workshops, informed by site activities and any recorded non-compliance events;
- Communicating the requirements of the EMP to Contractors and Subcontractors;
- Monitoring and tracking the implementation of the EMP and ongoing compliance;
- Provision of advice to Contractors and Subcontractors on compliance with the EMP; and
- Inducting site personnel on the site works environmental policy and procedures and the requirements of the EMP.

2.3.3 Contractors Community Liaison Manager (CLM)

2.3.3.1 The Community Liaison Manager will be appointed by the Contractor and will be responsible for managing tasks such as the following:

- Alerting neighbouring residents of the works or particular activities commencing in their area;
- Briefing neighbours on progress and issues likely to affect them, such as piling works resulting in noise, as necessary;
- Liaison with Wicklow County Council and emergency services as appropriate; and
- Liaison with local Gardaí, where necessary.

2.3.3.2 The Contractors CLM will liaise closely with the Developer's Community Engagement Manager.

2.4 Supporting environmental roles

2.4.1 Archaeological Consultant

2.4.1.1 The Archaeological Consultant will be responsible for advising on all archaeological matters relating to the Proposed Development that might impact on archaeological and cultural heritage resources. The Archaeological Consultant will be the initial point of contact for the Developer's Environmental Manager on matters relating to archaeology.

2.4.1.2 Please refer to Volume III, Appendix 25.9: Archaeological Management Plan, for full details on the role and responsibilities of the Archaeological Consultant.

2.4.2 Marine Mammal Observer (MMO)

2.4.2.1 A qualified and experienced MMO will be appointed to conduct visual monitoring for the presence of marine mammals in advance of and during certain activities.

2.4.2.2 Please refer to Volume III, Appendix 25.2: Marine Mammal Mitigation Plan, for full details on the role and responsibilities of the MMO.

2.4.3 Passive Acoustic Monitoring (PAM) Operator

2.4.3.1 A dedicated and qualified PAM Operator will be responsible for deployment, maintenance and operation of the PAM system.

2.4.3.2 Please refer to Volume III, Appendix 25.2: Marine Mammal Mitigation Plan, for full details on the role and responsibilities of the PAM Operator.

2.4.4 Acoustic Deterrent Device (ADD) Operator

2.4.4.1 The Developer will use an ADD to ensure that there are no marine mammals in the Marine Mammal Mitigation Zone, prior to the commencement of certain activities (piling and Unexploded Ordnance (UXO) clearance).

2.4.4.2 Please refer to Volume III, Appendix 25.2: Marine Mammal Mitigation Plan, for full details on the role and responsibilities of the ADD Operator.

2.4.5 Fisheries Liaison Officer (FLO)

2.4.5.1 The Fisheries Liaison Officer (FLO) is responsible for establishing and maintaining effective communications between the Developer, Contractors and the fishing industry and will provide information relating to the safe operation of fishing in the vicinity of the Proposed Development during the phases of development.

2.4.5.2 Please refer to Volume III, Appendix 25.3: Fisheries Management and Mitigation Strategy, for full details on the role and responsibilities of the FLO.

2.4.6 Offshore Fisheries Liaison Officer (OFLO)

2.4.6.1 As required, an OFLO will be employed by the Developer and/or Developer's Contractors and will be stationed on a survey/works/guard vessel to act as the point of communication with fishers at sea, directly and through consultation with the FLO. The OFLO will request fishers at sea to keep works locations and transit routes free from gear / not trawl across the area and risk themselves or the works.

2.4.6.2 Please refer to Volume III, Appendix 25.3: Fisheries Management and Mitigation Strategy for full details on the role and responsibilities of the OFLO.

2.5 Marine Coordinator

2.5.1.1 Prior to commencement of construction, a Marine Coordinator will be appointed to the Project Team. The main responsibility of the Marine Coordinator will be to coordinate the day-to-day vessel activity on the Proposed Development. In addition, the Marine Coordinator will also provide a supporting role in fulfilling the requirements of the EMP and relevant Consent Management Plans. Their key responsibilities relating to these documents include the following:

- In the event that an archaeological find is thought to have been discovered in a particular area, the Marine Coordinator shall advise and inform other vessels working in proximity to this area of the potential find; and
- In the event of a pollution incident originating from a vessel or vessel related activity, the Marine Coordinator will assist with the coordination and execution of the ongoing response maintaining close communication with the Developer (including the Developer's Project Manager and the Developer's Environmental Manager and/or ECoW) and relevant Contractors and/or Subcontractors. Where a spill is from an installation associated with the Proposed Development, the Marine Coordinator will oversee the spill response and any clean-up operations.

Table 25.5 The Marine Coordinator - roles in Consent Management Plans

Consent Management Plan	Role of the Marine Coordinator
ERCoP	Contact details of the Marine Coordinator are provided in the ERCoP. The Marine Coordinator is at the immediate disposal of IRCG to ensure effective communication of all information relevant to an incident. In the event of a fatality, the Marine Coordinator will liaise with IRCG and Garda Síochána. The Marine Coordinator or Emergency Response Team will ensure that next of kin is informed via the official channels.
FMMS	The Marine Coordinator coordinates all marine operations during construction; including monitoring and managing all construction vessel activity. The Marine Coordinator will monitor construction vessel locations and will advise vessels on use of transit routes and shelter areas. The Marine Coordinator will operate 24/7. The Marine Coordinator or FLO have the following responsibilities during all phases of the Proposed Development: • Issue of Notice to Mariners (NtMs) prior to activity mobilisation, as required during activity, and upon completion of activity. • Dropped Objects reporting as required. • Provision of information to fishing vessels at sea as required. • Notice and information will aim to be provided not less than 30 days prior for individual construction vessels mobilisations (where feasible) • Communicate weekly construction status updates.

Consent Management Plan	Role of the Marine Coordinator
	Fishing vessels should advise the coastguard or the Marine Coordinator, giving an accurate position of the vessel and/or lost gear. If the coastguard or the Marine Coordinator, confirms that the vessel is in the immediate vicinity of a cable, serious consideration will be given to the slipping of the gear and buoying and recording its position.
MPCP	The Marine Co-ordinator (MC) has a significant role to play in the prevention of pollution. The MC will operate the vessel entry permit system, with each vessel required to have satisfied the conditions of the permit system to be allowed to enter the site. In addition to coordinating day-to-day vessel activity on the Proposed Development, the Marine Coordinator will be the main point of contact in the event of emergency and pollution incidents. In the event of a pollution incident originating from a vessel, vessel related activity, or an offshore installation, the Marine Coordinator will assist with managing the coordination and execution of the ongoing response maintaining close communication with SPL (including the SPL Project Manager and SPL Environmental Manager/SPL ECoW) and relevant Contractors/subcontractors. The Marine Coordinator should notify other installations, in the event of a spill, and those in the vicinity should be kept updated. Where a spill is from a project installation, the Marine Coordinator will oversee the spill response and any clean-up operations. During construction, commissioning, operation, maintenance and decommissioning, the Marine Coordinator shall develop and keep up to date a register of all vessels involved in offshore operations, OSP, WTG structures, and any plant that may be involved in operations at the landfall. Recipient of spill reports from the Contractor Vessel Master and then notifies the Developer's Environmental Manager. Recipient of any Initial Pollution Reports (POLREP) and then submits the report to the Developer's Environmental Manager. The Marine Coordinator will provide a supporting role and assist with communication throughout an incident.

2.6 Contact details

2.6.1.1 Prior to commencement of construction, a project Contacts Sheet will be compiled which will provide a list of all Developer, Contractor and Subcontractor and relevant third-party contact details. The Contacts sheet will be made available to the Project Team and will be updated regularly throughout construction, operation and decommissioning. The Project Contacts sheet will include the following details as a minimum:

- Company and/or Organisation
- Position
- Name
- Tel and/or Mobile No.
- Email
- Office Location

2.7 Communications and reporting

2.7.1.1 Prior to and during construction, operational and maintenance and decommissioning activities, the Developer will hold regular progress meetings, involving the Developer's Environmental Manager (and ECoW where required) and relevant Contractors and Subcontractors, including the Contractor's Environmental Manager where required . The agenda for progress meetings will include a section on environmental management and consents compliance, to be presented by the Developer's Environment Manager and/or the Contractor's Environmental Manager.

2.7.1.2 Contractor RAMS will be submitted at least 10 working days prior to the start of associated works and reviewed by The Developer's Environment Manager or ECoW. Contractors and/or Subcontractors will be provided with copies of the relevant consents by the Developer's Environmental Manager and made aware of the consent obligations associated with a particular activity.

2.7.1.3 All Developer personnel, Contractors and Subcontractors will be encouraged to report any environmental concerns or issues to The Developer's Environment Manager and ECoW immediately. A Safety and Environmental Awareness Report (SEAR) will be completed by the Developer's Environmental Manager or ECoW, for all potential (near miss) or actual environmental incidents or emergencies which occur on site. In the case of an actual incident, an Incident Report will also be submitted by the Developer's Environmental Manager, to the relevant statutory body, to comply with relevant consent conditions.

2.8 External Communications

2.8.1.1 The Developer will carry out external communications, notifications and reporting in relation to Proposed Development activities in line with the commitments made in the EIAR and in compliance with the requirements of the consent conditions.

2.9 Incident reporting

2.9.1 Environmental incidents

2.9.1.1 For pollution reporting procedures, refer to the Marine Pollution Contingency Plan (MPCP) provided in Annex 2.

2.9.1.2 The procedure to be followed in the event of an environmental incident (excluding marine pollution incidents) is provided in Annex 4: Environmental Incident Reporting Procedure (excluding oil spills).

2.10 Training, auditing, and change management

2.10.1 Competence, training and change management

2.10.1.1 The Developer will ensure that Contractors and Subcontractors have appropriate environmental management resources and procedures in place. The Developer's Environmental Manager will evaluate Contractor compliance with environmental and consents requirements and will review appointed contractor documentation to ensure compliance with the EMP. RAMS will be submitted 10 working days prior to the start of works.

2.10.1.2 During construction, the Contractor's Environmental Manager is responsible for delivering environmental training and promoting awareness in relation to environmental management through various means including;

- Inductions;
- Toolbox talks; and
- Awareness materials.

2.10.1.3 The Developer's Environmental Manager will review all training documentation before it's delivered. Further details on the information to be included in these methods are shown in Table 25.6.

2.10.1.4 The Contractor's Environmental Manager will ensure that a dedicated section is included within wider contractor project inductions for the Proposed Development to cover environmental and consents issues, highlighting the key environmental sensitivities and considerations. All Developer personnel, Contractors and Subcontractors will receive a project induction.

2.10.1.5 The Contractor's Environmental Manager will also deliver specific training on the purpose, requirements and procedures of the EMP and associated Annexes, through a series of toolbox talks. Toolbox talks will be designed to convey key points to project personnel in a clear and concise manner (IEMA, 2008). Toolbox talks will also be scheduled, and delivered by specific personnel such as the ECoW/MMO/PAM operator, in advance of specific construction, operational and maintenance or decommissioning activities (for example, piling activities), identifying specific control measures and mitigation requirements.

2.10.1.6 In addition to presentations and talks, the Contractor's Environmental Manager will prepare a series of awareness materials, which may include training packs, posters, signs and newsletters. The delivery of material shall be coordinated with the Contractor's Safety Health and Welfare (SWH) representative, to ensure best use of any training opportunity.

2.10.1.7 Training will take place regularly throughout the lifetime of the Proposed Development in order that project personnel (including any new personnel) are kept up to date with any changes to requirements or procedures. A record of the training will be maintained by the Contractor's Environmental Manager and shared with the Developer's Environmental Manager.

2.10.1.8 The Developer's Environmental Manager will assume responsibility for the provision of environmental training and promoting awareness to project personnel during the operational and maintenance phase and decommissioning phase of the Proposed Development. The Developer's Environmental Manager may delegate these responsibilities to a Contractor, if appropriate, during the operational and maintenance/decommissioning phase of the Proposed Development.

Table 25.6 Methods of environmental training and promoting environmental awareness

Tools to deliver environmental training and promote environmental awareness		
1	Inductions	To ensure that the Developer's personnel and all contractor employees, sub-Contractors, suppliers, and other visitors to the site are made aware of the content of the EMP that is applicable to them. Accordingly, environmental specific induction training will be prepared and presented to all categories of personnel working and visiting the site. As a minimum, the following information will be provided to all inductees: • Identification of specific environmental risks associated with the work to be undertaken onsite by the inductee; • Summary of the main environmental aspects of concern at the site; • Species and/or habitat protection requirements; • Archaeological safeguarding measures, for example AEZs, contact details for the Archaeological Consultant; • Pollution prevention measures; • Waste management (including littering); • Plant service and repair procedures, including the disposal of waste oils and service components; and Based on survey data and verification survey data collected throughout the planning and pre-commencement phases, the Developer will provide an Environmental Constraints Map illustrating constraints by environmental sensitivities (for example AEZs). The Developer will update the map as required, prior to commencement of the Proposed Development and will provide these maps to the Contractor. Informed by the Environmental Constraints Maps, the Contractor will generate an Environmental Risk Map illustrating environmentally sensitive areas and potential sources of pollution. The Environmental Risk Map will be used during the induction and prominently displayed in the relevant areas. In consultation with The Developer's Environmental Manager, the Contractor will update the map as required. Any update will trigger a toolbox talk to clearly communicate the change and offer opportunity for any necessary clarifications.
2	Toolbox Talks	In order to provide on-going reinforcement and environmental awareness training, the above topics (see Inductions), along with any other environmental issues which arise onsite, will be discussed at regular toolbox talks. Toolbox talks and training will be delivered by specialist personnel onsite (Contractor's Environmental Manager) as required. A schedule for toolbox talks will be provided at least one week prior to commencement of works. The proposed schedule – to be considered as a live document – shall be consistent with the programme of works or operational tasks and activities. Additional toolbox talks shall be added as required based on circumstances such as unforeseen risks, repeated observation of bad practices, perceived lack of awareness, pollution event, etc. Specifically, as a minimum, the following environmental training will be provided by competent staff or Contractors: • Training on the use of spill kits (onboard vessels and in water), to be provided on a regular basis (to account for staff or subcontractor changes etc). • Other toolbox talk topics will include but are not necessarily limited to the following: • Waste management, including waste storage, waste segregation and littering;

		• Control of fuel and refuelling, and fuel handling procedures; • Ecologically and archaeologically sensitive areas. A record of all TBTs and training will be maintained by the Contractor. All records will be made available to the Developer's Environmental Manager.
3	Awareness materials	Environmental notice board(s) locations will be agreed with the vessel Masters, will be maintained and positioned to ensure that all operatives have the opportunity to review a notice board on a daily basis. As a minimum this will include one notice board in each vessel congregation area. During construction, the environmental notice boards will be maintained by the Contractor and shall be updated at least monthly. As a minimum, the notice boards will contain: • Description of the key environmental risks and intended risk mitigation measures, together with accompanying Environmental Constraints or Risk Map illustrating the location of the key risks and required exclusion zones/buffer zones and location of emergency response equipment; and • Key contact numbers and responsible personnel. • Information on marine mammal species in the area, detection records and images of marine mammal sightings, when available. Environmental labelling and signage will also be used onsite to inform project personnel of any key environmental requirements or restrictions, including information to assist good environmental practice across the site.

2.11 Monitoring and audits

2.11.1.1 The primary monitoring tool available for the Proposed Development will be the Commitments Register. The Commitments Register will provide a log of all commitments made within the EIAR, to be adhered to throughout the lifetime of the Proposed Development. The purpose of the register is to provide a tool intended for use by both the Developer's Environment Manager and any Contractors or Subcontractors working on the Proposed Development to track compliance with commitments and to provide a record and audit trail of compliance across the construction, operational and maintenance and decommissioning phases of the Proposed Development. The Contractor's Environmental Manager is responsible for compiling the Commitments Register prior to commencement of construction and will circulate to The Developer's Environmental Manager for review and approval. The Contractor's Environmental Manager will maintain the commitments register throughout the construction phase of the Proposed Development. The Developer's Environmental Manager will review and update the register prior to the operational and maintenance and decommissioning phase and is responsible for the maintenance of the register throughout this period.

2.11.1.2 Compliance with the EMP will be monitored through a series of audits carried out by the Developer's Environment Manager and Contractor's Environmental Manager (where appropriate) throughout all phases of the Proposed Development. This will include a scheduled audit following the delivery of a toolbox talk, to ensure that the requirements and procedures have been understood. This may involve site visits and conversations with project personnel to monitor awareness. The Developer's Environment Manager and Contractor's Environmental Manager (where appropriate) will develop specific checklists, informed by review of this EMP and Contractor RAMS, to facilitate the audit process.

2.11.1.3 The following environmental audits will be completed:

- The Developer may carry out audits at any time, but at least once per quarter;
- During construction, the Contractor's Environmental Manager will undertake environmental audits on a monthly basis and will maintain a record of all completed audit forms, and records of corrective action and close outs;
- The Contractor's Environmental Manager will also undertake audits of Subcontractors, on a quarterly basis and provide an audit report to the Developer's Environmental Manager within two weeks of the audit being undertaken;
- The Contractor's Environmental Manager will also undertake environmental inspections on a weekly basis during construction and provide all relevant records to the Developer when and as requested;
- Details and findings of all monitoring and audit activities will be recorded. Any observations or corrective actions arising from audits and inspections will be addressed, with procedures updated in this EMP as required.

2.12 Review and change management

2.12.1.1 This EMP will be regularly reviewed over the lifetime of the Proposed Development. The Contractor's Environmental Manager will assume responsibility for the EMP during construction. Any refinement to the EMP, made by the Contractor, must be circulated to The Developer's Environmental Manager for review and approval. The Developer's Environment Manager will assume responsibility for the refinement of the EMP during the operational and maintenance phase and decommissioning phase of the Proposed Development. The EMP will be reviewed every six months or when any significant new information, methods, procedures or good practice becomes available. The EMP will also be updated in response to any findings or lessons learned during the construction and/or operational and maintenance and decommissioning phases.

2.12.1.2 A change management procedure will be followed by the Contractor's Environmental Manager in the event of a new environmental sensitivity being identified (which may be highlighted by ongoing monitoring surveys or in the event of a new environmentally designated area being proposed) during construction. Such a procedure is recommended in the IEMA Practitioner Guide (IEMA, 2008). Following notification of a change, the Contractor's Environmental Manager will initiate a process of assessment of potential impacts and, if necessary, update the EMP. The Contractor's Environmental Manager will maintain a record of changes and the review process. The updated EMP will be submitted to the Maritime Area Regulatory Authority (MARA) for approval.

2.12.1.3 The Developer's Environmental Manager will assume these responsibilities during the operational and maintenance phase and decommissioning phase of the Proposed Development.

3 Part II: Environmental Impacts and Control Measures

3.1 Environmental impacts and control measures

3.1.1.1 This section of the EMP translates the commitments made in the EIAR into a format which can be developed into practical implementation by Contractors and Subcontractors. This is in accordance with the IEMA Practitioner Guide, which states that "the overall objective of an EMP is to provide a continuous link or 'bridge' between the design phase of a Proposed Development, conditions attached to consents, Proposed Development construction, and into the operational phase" (IEMA, 2008).

3.1.1.2 The factored-in measures, mitigation measures and monitoring commitments specified in the EIAR are set out in Volume II, Chapter 25: Summary of Factored-in Measures, Mitigation and Monitoring of the EIAR.

3.1.1.3 If the application for the Proposed Development is consented, this EMP will be updated. A Commitments Register will be prepared and included as an annex to the document, detailing all the commitments made in the EIAR and any further requirements in accordance with relevant consent conditions. Therefore, adherence to the measures described in the EMP will ensure compliance with the consent as far as environmental management is concerned (for the construction, operational and maintenance and decommissioning phases). The Commitments Register will form part of the Developer and Contractor compliance checks throughout the project phases of the Proposed Development.

3.2 Management of key environmental aspects and compliance obligations

3.2.1 Marine Species

3.2.1.1 In the unlikely event that a wildlife incident occurs, such as injury to a marine mammal, or an observed fish or bird mortality, the Contractor or responsible member of staff will notify the Developer's Environmental Manager or ECoW as soon as practicable, with details of the activity taking place, photographs, and weather conditions present as a minimum. The Developer's Environment Manager or the Developer's ECoW will follow up with the relevant regulatory authority, as required. See Annex 4 of this document, for further details on the Environmental Incident Reporting Procedure.

3.2.2 Marine Archaeology

3.2.2.1 The procedures to be followed on discovering any marine archaeology are set out in the Archaeological Management Plan (Volume III, Appendix 25.9: Archaeological Management Plan).

3.2.3 Other marine users

3.2.3.1 The approach to management and mitigation of potential impacts on other marine users are set out in Volume II, Chapter 25: Summary of Factored-in Measures, Mitigation and Monitoring of the EIAR and provided in the following plans;

- Lighting and Marking Plan (Volume III, Appendix 25.6);
- Fisheries Mitigation and Management Strategy (Volume III, Appendix 25.3); and
- Vessel Management Plan (Volume III, Appendix 25.7).

3.2.3.2 Specifically measures covered by these plans include:

- The adoption of advisory safety zones;
- Appropriate notification of activities to other marine users;
- A clear process of marine coordination of all vessels and vessel activity;
- Appropriate marking and lighting of vessels;
- Appropriate marking and lighting of the Proposed Development; and
- Vessel transit planning, commercial fisheries relations and management of commercial fisheries interactions.

3.2.4 Marine pollution and contingency planning

3.2.4.1 Measures will be adopted to ensure that the potential for release of pollutants from construction, operational and maintenance and decommissioning plant is minimised. These will include as a minimum:

- Storage of chemicals in secure designated areas in line with appropriate regulations and guidelines, specifically:
  - The Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (as amended) (Schedule 4, Part 5);
  - International Convention for the Prevention of Pollution from Ships (MARPOL) 1973 (as amended). (Annex II, and Annex III regulations);
  - International Convention for the Safety of Life at Sea (SOLAS) (Chapter VII);
  - OSPAR Annex III: On the Prevention and Elimination of Pollution from Offshore Sources.
- Double skinning and labelling (direction of flow and contents) of pipes and clearly labelled storage tanks containing hazardous substances;
- Hazardous material storage tanks will be bunded, and bunds will be able to hold at least 110% of the tank contents. Bund integrity will be checked regularly, and any potentially contaminated material removed and stored as hazardous waste. All checks and actions will be recorded.
- Working vessels will handle all wastes in accordance with the International Maritime Organisation (IMO) requirements or equivalent legislation, including The Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (as amended) (Schedule 4, Part 5); National Maritime Oil/HNS Spill Contingency Plan (NMOSCP, 2020);
- All waste and/or litter, including potential pollutants produced shall be stored and returned to shore for authorised disposal by a licensed carrier, at suitable, licensed facilities;

- Vessel refuelling to take place in port or under permit from the Irish Coast Guard. All bunkering procedures and records will be maintained by the vessel Master, and ready for inspection; and
- Vessel Sewage Treatment Plant(s), associated documentation and holding tank(s) will be available for inspection. So far as is reasonably practicable, vessel sewage will be transferred to shore for treatment, when in port, and records of those transfers will be maintained by the vessel Master. Otherwise, all discharges to sea will be compliant with IMO (MARPOL Annex IV) regulations, and recorded (location of discharge start and end, amount discharged, vessel speed).

3.2.4.2 In the event that a drilling fluid breakout occurs during trenchless construction techniques, the standard procedure for managing a breakout under water will include:

- Stop drilling immediately;
- Pump lost circulation material (mica), which will swell and plug any fissures;
- Check and monitor mud volumes and pressures as the works recommence; and
- Repeat process as necessary until the breakout has been sealed.

3.2.4.3 In the event of a pollution incident, construction personnel will refer immediately to the Marine Pollution Contingency Plan (MPCP) included in Annex 2 of the EMP for details on appropriate response procedures.

3.2.4.4 Full major emergency response drills will be conducted every quarter, to ensure that all personnel, including the Marine Coordinator, can demonstrate understanding and compliance with the MPCP's requirements. The drill will be recorded and a de-brief conducted by the Developer's Environmental Manager , Contractor Environmental Manager, Marine Coordinator and vessel Master. Any lessons learned will be added to the EIRP and/or MPCP.

3.2.5 Marine invasive non-indigenous species

3.2.5.1 The procedure to be followed for the management of marine invasive non-indigenous species is set out in the Invasive Non-Indigenous Species Management Plan (see Volume III, Appendix 25.4):

3.2.5.2 Specific measures that will be adopted by ABWP2 Contractors and Subcontractors are as follows:

- All relevant vessels (400 gross tonnes (GT) or more, and those certified to carry 15 or more persons) to carry an International Anti-fouling System (AFS) Certificate, in accordance with the Sea Pollution (Control of Harmful Anti-fouling Systems on Ships) Regulations (2008), for the purpose of giving effect to the International Convention on the Control of Harmful Anti-fouling Systems on Ships (2001);
- All vessels of 24 metres or more (but less than 400 GT) must carry a declaration on AFS, signed by the owner or authorised agent, and accompanied by appropriate documentation;
- All ship hull inspections and biofouling management measures shall be documented by the Contractors (and their sub-Contractors), and where applicable, recorded in the associated Planned Maintenance System;
- All submersible equipment, for instance, ROVs, shall be subject to documented pre-mobilisation and post-use checks, for the presence of marine growth, to ensure that equipment is free of marine growth prior to and post-use;
- All ships of 400 GT and above will be required to have onboard an approved Ballast Water Management Plan (BWMP) and Ballast Water Record Book, and must be surveyed and issued with an International Ballast Water Management (BWM) Certificate. Vessels of less than 400 GT shall meet the requirements of the BWM Convention; and

- Meet any agreed timescales for BWM Convention (2004) compliant Ballast Water Treatment Systems (BWTS) to be installed on relevant vessels (in line with vessel types and their International Oil Pollution Prevention re-certification dates).

3.2.5.3 The Developer's preference is for vessels to have BWM Convention compliant BWTSs installed. Where the Contractors and Subcontractors cannot meet this standard, their proposed alternative BWM strategy must be proposed and agreed with the MARA who may consult with NPWS. Contractors and their Subcontractors must then provide evidence of statutory body's approval to the Developer's Environmental Manager, where applicable.

3.2.6 Waste management

3.2.6.1 The Developer requires that all Contractors (and their Subcontractors) comply with the Resource and Waste Management Plan (RWMP) (Annex 4), which provides details of all waste management procedures for activities and details of expected waste arisings. The Contractor's Environmental Manager will be responsible for compliance with this document.

3.2.6.2 In addition, The Contractor (and their Subcontractors) will comply with the following requirements:

- Meet all relevant legislative and EIAR requirements and obtain any additional permits and licences that are necessary, in relation to waste management;
- Communicate the requirements of the RWMP to all personnel during their induction and ensure all operatives on site attend waste reduction toolbox talks or workshops to increase awareness of recycling or waste reduction;
- Handle waste materials and refuse so that it causes the least practicable damage and disturbance;
- Place all waste in suitably labelled secure containers;
- Check the contents of the site waste and recycling containers on a weekly basis. Non-compliance will be included in site environmental meetings and appropriate actions taken for example a toolbox talk to all site operatives;
- Reduce waste through waste elimination, reduction, re-use and recycling measures where feasible;
- Contain and bring all relevant waste back to shore and dispose of such waste in accordance with the legal waste management framework;
- Transfer of waste or refuse will only be conducted by licensed waste carriers and waste treatment and waste disposal will be conducted by licensed and permitted waste management companies, in compliance with applicable legislation;
- Be compliant with and use the current version of Transfrontier Shipment of Waste Regulations where waste is being exported by Contractors (or their Subcontractors). Export of waste will also be in line with the principles of the Basel Convention of 1989, which was agreed internationally to avoid hazardous waste being unfairly exported to developing countries;
- All qualifying vessels must demonstrate compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V (and the Sea Pollution Regulations 2012) for waste management generally and MARPOL Annex IV (and the Sea Pollutions Regulations 2006) for sewage waste specifically.

3.2.6.3 Prior to commencement of the works, the Contractor's Environmental Manager will confirm compliance with the RWMP to The Developer's Environmental Manager.

3.2.6.4 The Developer's Environmental Manager will be responsible for ensuring this document is maintained during the operational and maintenance, and decommissioning phase of the Proposed Development.

3.3 References

Department of Transport (Gov.ie) (2020), National Maritime Oil/HNS Spill Contingency Plan (NMOSCP), [Accessed September 2023].

Institute of Environmental Management and Assessment (IEMA) (2008) Environmental Management Plans, Best Practice Series, Volume 12, December 2008.

Institute of Environmental Management and Assessment (IEMA) (2016) Environmental Impact Assessment Guide to Delivering Quality Development.

International Convention for the Prevention of Pollution from Ships (MARPOL) (1973) (as amended).

International Convention for the Safety of Life at Sea (SOLAS) (1974).

National Parks and Wildlife Services (NPWS) (2014) Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters http://www.protectedspeciesobserver.com/uploads/4/8/3/6/48362305/ireland_guidance_jan_2014.pdf [Accessed August 2023].

OSPAR Convention (1992) ANNEX III; On the Prevention and Elimination of Pollution from Offshore Sources [Accessed September 2023].

The Merchant Shipping (Prevention of Pollution by Garbage from Ships) Regulations 2020.

The Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (as amended).

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

4 Part III: Annexes

Annex 1: Environmental Policy

Annex 2: Marine Pollution Contingency Plan (MPCP)

Annex 3: Environmental Incident Reporting Procedure

Annex 4: Resource and Waste Management Plan (RWMP)

Annex 1 – Environmental Policy

Group Environment Policy

Policy statement

SSE commits to protecting and enhancing the environment, preventing pollution and operating in a sustainable way.

Policy purpose

The purpose of the policy is to identify and mitigate material impacts, manage environmental risks and engage positively with key stakeholders to improve the environmental impact of SSE's business activities.

This policy is owned by the Director of Human Resources and is one of a suite of group-level policies that promote a healthy business culture, guide decisions and actions as expected by the company's stakeholders, and make SSE a responsible company that people want to invest in, buy from, work for and partner with.

John Stewart

Director of Human Resources

Alistair Phillips-Davies

Chief Executive Officer

Doc Ref: PO-GRP-007

Version: 2.00

Effective Date: April 2024

Review Date: April 2025

POLICY PRINCIPLES

The following principles highlight how we expect the policy statement to be achieved, and should be used to guide behaviours, decision making and action:

Environment Management and Governance	• In order to protect the environment and operate in a sustainable way, we design, construct, operate and decommission our assets, and conduct our operational activities in compliance with all relevant legal and regulatory obligations. We seek to go above and beyond this and meet additional relevant voluntary standards that the company subscribes to wherever possible to bring about positive environmental outcomes. • We commit to maintaining accreditation to ISO14001 across all Business Units.
Responsible Consumption and Production	• We commit to decreasing the impact of our resource consumption by: o Minimising resource use and waste production. o Minimising waste to landfill and increasing recycling. o Working with our supply chain to improve performance and innovation. o Engaging with the circular economy, by using reprocessed materials and ensuring our resources can readily be reused or recycled so far as is practical. o Selecting materials that have sustainable lifecycle impacts.
Natural Environment	• We commit to manage, protect and enhance the Natural Environment by: o Targeting no ‘net loss’ in biodiversity on all onshore Large Capital Projects consented from 2023 onwards, and ‘net gain’ in biodiversity on those consented from 2025 onwards. o Complying with relevant environmental and biodiversity net gain legislation in the jurisdictions in which we operate, as well as working to meet any new legislation. o Working to identify SSE’s nature impacts and dependencies, to better understand our nature related risks and opportunities.

	○ Monitoring the impacts on Biodiversity of operational assets located in sensitive environments, and to take measures to reduce those impacts where practical. ○ Collaborating with relevant organisations that protect and enhance biodiversity.
Materiality	• SSE and its business units identify their most material environmental impacts to ensure the company sets relevant and ambitious environmental goals and targets. To identify these material impacts, SSE, and its business units, engage constructively and continuously with key stakeholders.
Process	• To meet these environmental standards SSE shall: ○ Update our Environment Strategy on an annual basis. ○ Identify material impacts, set challenging targets to continuously improve performance and measure and report progress publicly. ○ Manage environmental risks by applying and continually improving the Safety, Health and Environment (SHE) Management System and drive towards best practice standards, supported by assurance processes. ○ Engage positively with key stakeholders on environmental issues and take responsibility within the wider community for improving the environmental impact of our business. ○ Collaborate, invest in and develop new technologies to be more environmentally sustainable. ○ Work with supply partners to improve their environmental performance. ○ Integrate environmental improvements into our everyday decision making.

ROLES AND RESPONSIBILITIES

This policy applies to all SSE employees and contingent workers and contract partners. It is relevant to people contracted to provide services to the Company through third parties. The Policy applies to Joint Venture partnerships where SSE manage and provide operational resources.

Where we operate internationally, we will utilise our Group Policies as a default, subject to legal or regulatory requirements of the relevant international domain, and relevant local policies and supporting procedures.

Managers are responsible for making sure that their teams and colleagues understand and comply with the policy and supporting procedures as well as complete any relevant training.

All employees must comply with the policy and supporting procedures and complete all relevant training.

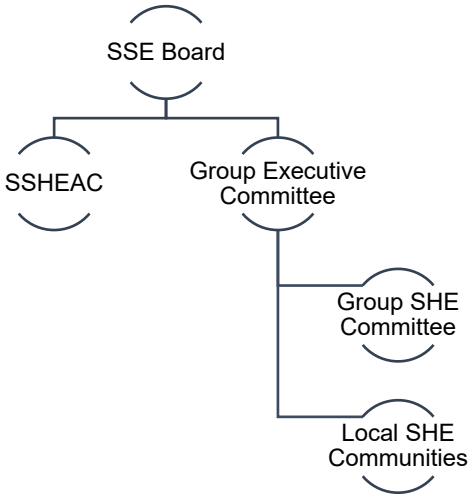
The **Safety, Health and Environment Team** is responsible for providing environmental support to SSE businesses.

The **Chief Sustainability Officer** is responsible for reporting SSE's environmental impacts to stakeholders.

GOVERNANCE

The **SSE plc Board** and **Group Executive Committee** are responsible for the oversight for this Policy including the approval of any changes to the Policy. This Policy is reviewed annually as part of an evaluation process.

The **Safety, Health and Environment Committee** (SHEC) supports the **Policy Owner** and makes sure that the policy is adhered to through awareness, training and monitoring of policy implementation. Incidents and breaches are reviewed and where appropriate opportunities for improvement are actioned.



Governance for the implementation of the Policy and for the continual improvement in performance is provided by the **Group SHE Committee** at Group-level, the **Safety, Sustainability, Health and Environment Advisory Committee (SSHEAC)** at Board level, and at local level by **Local SHE Communities** (LSC).

A further consultation forum exists at Group Level; the **Health, Safety and Environment Committee** (HeSEC) provides a forum for senior SSE managers to meet with Trade Union/Employee representatives.

TRAINING

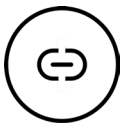
We provide general and role specific training to our employees to ensure they have the appropriate skills and knowledge and enable them to deliver our environment commitments.

SPEAKING UP

Employees can discuss anything that falls short of our expected high standards of ethical conduct and compliance, with their line or any other manager within the business. Alternatively, any concerns can be raised internally at Speakup@sse.com or externally through SafeCall using:

- Phone:
  - UK - 0800 915 1571
  - Ireland - 1800 812 740
  - All other countries +44 800 915 1571 (an independent telephone interpreter is available)
- Email: sse@safecall.co.uk
- www.safecall.co.uk/report

Any wrongdoing brought to light through the Whistleblowing Policy will result in internal disciplinary procedures, possible dismissal and criminal prosecution of individuals involved.



SUPPORTING DOCUMENTS

Additional documents available to provide further guidance and support include:

The SSE SHE Management System, further information is also available on SafetyNet

Complementary Policies include:

- PO-COR-054 Summary version of the Group Environment Policy
- PO-GRP-015 Group Safety and Health Policy
- PO-GRP-001 Group Climate Change Policy
- PO-GRP-016 Group Sustainability Policy

Please see PO-COR-054 for the summary version of the Group Environment Policy.

Comments and feedback on this policy and its application are welcome.

Please contact: environment@sse.com

Annex 2 – Environmental Incident Reporting Procedure

Contents

Acronyms

Term	Meaning
ECoW	Environmental Clerk of Works
EM	Environmental Manager
EMP	Environmental Management Plan
SPL	Sure Partners Limited

1.1 Introduction

1.1.1 Purpose

1.1.1.1 This procedure has been created to ensure that all personnel on the Proposed Development are aware of actions that must be taken in the event that SPL personnel, contractors and/or subcontractors identify an environmental incident, other than a pollution incident.

1.2 Procedure

1.2.1 Steps to be taken in the event of an environmental incident, other than a pollution incident

1.2.1.1 Notify the Sure Partners Limited (SPL) Environmental Manager (EM)/SPL Environmental Clerk of Works (ECoW) as soon as practical via telephone. See 'Contact details' sheet provided.

1.2.1.2 As per SSE's 'MS-SHE-010 Incident Reporting Management Investigation' Standard, significant or potentially significant incidents must be reported and escalated through the business management chain, within 30 minutes of identification, or as soon as it's safe to do so.

1.2.1.3 The Contractor's EM will obtain full details of the incident, assess if the incident results in a non-compliance event, and prepare an incident report for submission to the SPL EM and SPL ECoW.

1.2.1.4 The SPL EM shall inform the Minister or relevant statutory authority of any relevant incidents of non-compliance with the Environmental Management Plan (EMP), providing the incident report when available, and liaising with the Minister on actions to be taken.

1.2.1.5 The Contractor will complete a SSE Safety and Environmental Awareness Report (SEAR) for all potential (near miss) or actual environmental incidents or emergencies, which occur on site.

1.2.1.6 SPL personnel, contractors and subcontractors shall work together to review and update procedures to prevent similar incidents from reoccurring.

1.3 Informing stakeholders

1.3.1 Depending on the nature of the incident, the following stakeholders may be informed:

- Environmental Protection Agency (EPA) and EPA 24-hour emergency incident line 1890 33 55 99;
- Inland Fisheries Ireland (IFI) and IFI 24-hour pollution line 1890 34 74 24;
- Emergency Services;
- Local Authority Environmental Officer;
- An Garda Siochana;
- National Parks and Wildlife Services; and
- The Irish Coast Guard.

Annex 3 – Marine Pollution Contingency Plan

Version	Date	Status	Author	Reviewed by	Approved by
1.0	20/05/2024	Final (External)	SPL	SPL/GoBe Consultants	SPL

Statement of Authority

Name	Qualifications	Experience
Kaj Christiansen	BEng (Hons.) in Environmental Engineering from the University of Galway, MSc (Hons.) in Renewable Energy from University of Aberdeen, CEng with Engineers Ireland	Kaj has over 14 years' experience within the renewable energy industry, specifically in the field of offshore wind and solar energy development. Kaj has acted in both project engineering and project management roles for a number of offshore wind projects throughout the North Sea. Within these projects Kaj was responsible for delivering foundation structures and has experience across the project lifecycle; from procurement and design to construction and commissioning. Kaj also has extensive Irish based development management experience in taking solar and offshore wind energy infrastructure through the development cycle; from early conceptual planning stages through to design, construction and operation.
Marc Walshe	BEng (Hons), MSc.	Marc Walshe is a Consents Manager with SPL/SSE Renewables and a full Member of the Institution of Environmental Sciences. Marc holds a honours degree in Environmental Engineering (BEng), a masters degree in Renewable Energy (MSc) and an Advanced Diploma in Planning and Environmental Law. Marc has over 23 years

	experience working in both the energy and environmental sectors on a range of projects which include large scale infrastructural developments in both Ireland and the UK. The management of consents has been key to his role whether through the consent application process or ensuring compliance with the subsequent post consent requirements during construction and/or operation.

Contents

Figures

Tables

Acronyms

Term	Meaning
AA	Appropriate Assessment
ABP	An Bord Pleanála
ABWP1	Arklow Bank Wind Park 1
ABWP2	Arklow Bank Wind Park 2
COSHH	Control of Substances Hazardous to Health
DHLGH	Department of Housing, Local Government and Heritage
ECoW	Environmental Clerk of Works
EMP	Environmental management Plan
EPA	Environmental protections Agency
ERCoP	Emergency Response Cooperation Plan
HNS	Hazardous and Noxious Substances
IFO	Intermediate Fuel Oil
IMO	International Maritime Organisation
IRCG	Irish Coast Guard
LSFO	Low Sulphur Fuel Oil
LSMGO	Low Sulphur Marine Gas Oil
MGO	Marine Gas Oil
MPCP	Marine Pollution Contingency Plan
MSDS	Material Safety Data Sheet
NMOSCP	National Maritime Oil/HNS Spill Contingency Plan
OSP	Offshore Substation Platform
POB	Persons On Board

POLREP	Initial Pollution Report
SOPEP	Ship-board Oil Pollution Contingency Plan
SPL	Sure Partners Limited
WTG	Wind Turbine Generator

1 Introduction

1.1 Purpose

1.1.1.1 This Marine Pollution Contingency Plan (MPCP) provides the pollution response arrangements for the Arklow Bank Wind Park 2 Offshore Infrastructure (hereafter referred to as the 'Proposed Development') during the construction, operational and maintenance and decommissioning phases.

1.1.1.2 The overall objective of the MPCP is to outline procedures to safeguard the marine environment and respond to an accidental oil pollution event during the construction, operation and decommissioning of the Proposed Development.

1.2 Scope

1.2.1.1 This MPCP has been prepared to supplement the Environmental Management Plan and applies to relevant marine works undertaken on the Proposed Development.

1.2.1.2 The MPCP outlines procedures to protect project personnel and to safeguard the marine environment in the event of an accidental oil pollution event arising from offshore operations relating to the Proposed Development. It should be noted that all vessels greater than 400 gross tonnes (gt) who intend to operate within the Proposed Development area, must have all relevant International Convention for the Prevention of Pollution from Ships, known as MARPOL (1978, as amended) certificates in place. This requirement will also be reflected in the Proposed Development's Vessel Management Plan.

1.2.1.3 The MPCP presents the following information and guidelines to aid a response in the event that there is an accidental release of pollutants into the marine environment resulting from works related to the Proposed Development. The source of pollution may be from a vessel working on the project, activities conducted on an Offshore Substation Platform, at the landfall or in a port:

- A risk assessment of the potential sources and likelihood of a pollution incident (section 4.2); and
- Oil spill response procedures and actions (see section 5.1).

1.2.1.4 It should be noted that the information and guidelines presented will be reviewed in consultation with the Irish Coast Guard (IRCG) and resubmitted to the Department of Housing, Local Government and Heritage (DHLGH) for approval prior to commencement of the construction. Any new guidance for stakeholders, such as additional content and writing an Oil/HNS Spill Contingency Plan, will be complied with by SPL personnel and Contractors (including their Sub-Contractors).

1.2.1.5 All Sure Partners Limited (SPL) personnel and Contractors (including their Sub-Contractors) involved in the Proposed Development must comply with the SPL MPCP.

1.3 Interfacing Oil Pollution Contingency Plans

1.3.1.1 The following sections set out how the MPCP will interface with existing pollution contingency plans, in particular the National Maritime Oli/HNS Spill Contingency Plan (NMOSCP) requirements.

1.3.2 Industry plans

1.3.2.1 This MPCP interfaces with the following industry standard plans:

- Shipboard Oil Pollution Emergency Plans (SOPEPs)/equivalent vessel-specific spill plan for each vessel;
- Port and Harbour Oil Spill Contingency Plans (OSCPs); and
- Bridging / interface documents between the Proposed Development and its third-party contractors.

1.3.3 Other installations and operators must be informed in the event of a spill

1.3.3.1 Other installations must be notified in the event of a spill, and those in the vicinity of the Proposed Development will be updated.

1.3.3.2 Ports and harbours are required to have an OSCP, in accordance with the NMOSCP section 2.3 (Oil and HNS Pollution Emergency Plans), to cover incidents within the port and harbour. The Port's OSCP would take priority over the Proposed Development's MPCP in the event of a major spill in the harbour and port, in terms of response to an incident. Ports utilised during Construction, O&M, and decommissioning, will have their own OSCP to cover incidents within the port and harbour. The Port's OSCP would take priority over the Proposed Development's MPCP in the event of a major spill in the harbour and port, in terms of response to an incident. The Proposed Development may use multiple ports in Irish waters, spanning geographically from Cork to Greenore. The Proposed Development will engage with all such ports to establish the nature of their OSCP, and how they expect visiting vessels to comply with their OSCP, e.g. contact the Harbour Master in the event of a pollution incident.

1.3.3.3 In the event that pollution from an unidentifiable source is drifting towards the wind farm, SPL shall comply fully with any instructions from the IRCG or other relevant authority, in order to facilitate an appropriate pollution response. In the case of a severe pollution incident, this may include shut-down of the wind farm to allow mechanical recovery of the pollution or dispersant application.

2 National Maritime Oil/HNS Spill Contingency

2.1.1.1 In the event of an oil spill incident, which calls for a Tier 2 or Tier 3 response (see Section 4.2 for Tier definition), the IRCG may decide to implement the NMOSCP. If the IRCG decides to implement the NCP, and mobilise support from national resources, the IRCG will take control of at-sea counter pollution measures and establish a Marine Response Centre (MRC). Should there be a formal hand-over of responsibility to IRCG for dealing with the incident, the relevant Contractor's oil spill response resources and facilities will be made available to the IRCG.

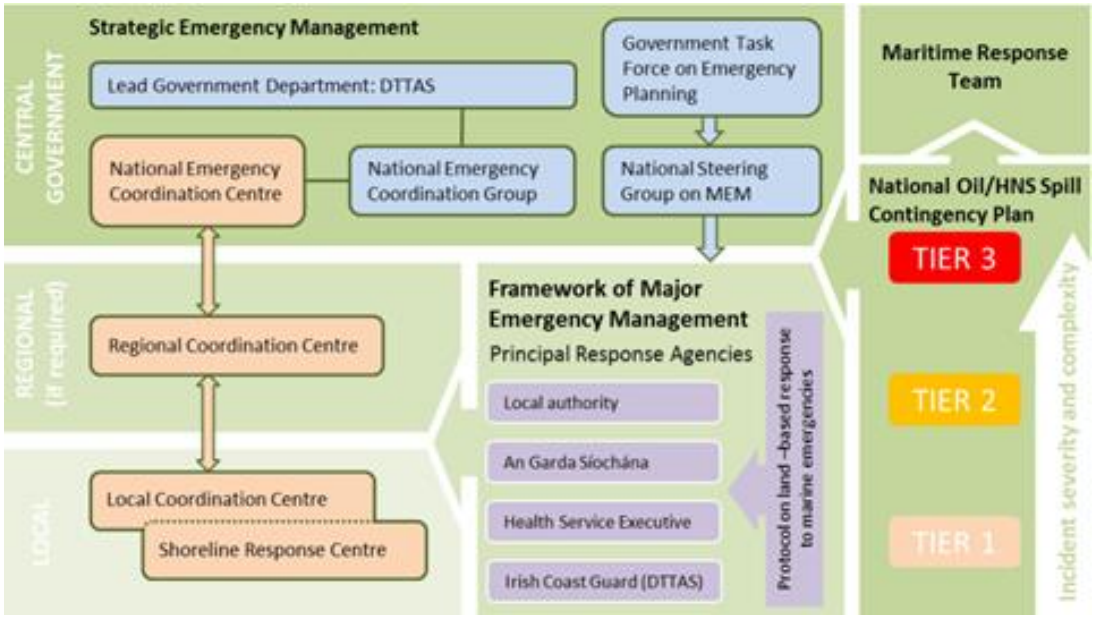


Figure 2.1: NCP's interface with the Strategic Emergency Management framework

2.1 Document revision

2.1.1.1 SPL will refine the MPCP prior to commencement of construction and review this plan on a six-monthly basis thereafter.

2.1.1.2 The SPL MPCP will be further refined in preparation for the operational and maintenance, and decommissioning phases of the Proposed Development.

3 Summary of factored in measures, mitigation and monitoring included in the EIAR

3.1.1.1 The factored-in measures identified in the EIAR relevant to the MPCP are summarised in Table 3.1.

Table 3.1: Factored in measures relevant to the MPCP

Factored in measures	Justification
An Environmental Management Plan (EMP) will be revised and implemented during the construction, operational and maintenance and decommissioning phases of the Proposed Development. The EMP will include mitigation/monitoring measures and commitments made within the EIAR and a MPCP which will include key emergency contact details (e.g. IRCG and Environmental Protection Agency (EPA)). The EMP is included in Volume III, appendix 25.1: Environmental Management Plan).	Measures will be adopted to ensure that the potential for release of pollutants from construction, operational and maintenance and decommissioning plant is minimised. These will likely include: • Storage of chemicals in secure designated areas in line with appropriate regulations and guidelines; • Double skinning of pipes and tanks containing hazardous substances; • Storage of hazardous substances in impenetrable bunds; • Project vessels of over 400 gross tonnes (gt) shall handle all wastes in accordance with International Maritime Organisation's (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) as amended (1978) requirements or equivalent Irish Passenger Boat legislation for small craft, e.g. Merchant Shipping (Passenger Boat) Regulations (2002); • All waste, e.g. sewage, oil and/or litter, including potential pollutants produced during construction, operation and maintenance and decommissioning of the Proposed Development, shall be stored and returned to shore for authorised disposal at suitable facilities; and • Vessel refuelling to take place in port or under permit from the IRCG. In this manner, accidental release of contaminants from vessels will be strictly controlled, thus providing protection for marine life across all phases of the Proposed Development. Any accidental pollution of the marine environment shall be immediately reported to the IRCG and to any other local authorities who are likely to be affected by such pollution.

4 Roles and responsibilities

4.1 The Developer

4.1.1.1 The Developer has overall operational and financial responsibility for any oil or chemical spill originating from the Proposed Development.

4.1.2 The Developer's project manager

4.1.2.1 The Developer's Project Manager (for each phase of the Proposed Development) is responsible for the overall implementation of the MPCP. Their main duties include:

- Developing and maintaining the SPL MPCP;
- Ensuring the development of relevant Contractor MPCPs, which will include adequate spill response procedures, and the review and implementation of same;
- Ensure the appointment of a competent Marine Coordinator and a competent, dedicated Spill Response Contractor for the Proposed Development. The contact details of those individuals will be added to the MPCPs of SPL and Contractor;
- Monitoring ongoing Contractor spill response and ensuring Contractor compliance with the SPL MPCP;
- Liaising with statutory bodies in the event of a spill such as the IRCG and any local authorities who are likely to be affected; and
- Requiring that sufficient resources and processes are in place to deliver/comply with the SPL MPCP.

4.1.2.2 Following completion of construction, the Developer's Project Manager will ensure the SPL MPCP is reviewed and amended as necessary for the operational and maintenance, and decommissioning phases of the Proposed Development.

4.1.2.3 The Developer's Project Manager may call upon the Developer's Environmental Manager/ Environmental Clerk of Works (ECoW) to support in the fulfilment of SPL duties relating to the SPL MPCP at any time.

4.1.2.4 The Developer will review and update the MPCP as necessary during the construction phase of the Proposed Development, e.g. to take into account any new information, as outlined in Section 1.3. In the event of any oil or chemical spill to the marine environment, no matter how small, an internal meeting will be held following the close out of the incident to review lessons learned, with the SPL MPCP and Contractor MPCP updated as required.

4.1.3 Marine coordinator

4.1.3.1 Prior to commencement of construction, a Marine Coordinator will be appointed to the Project Team. The Marine Co-ordinator (MC) has a significant role to play in the prevention of pollution. The MC will operate the vessel entry permit system, with each vessel required to have satisfied the conditions of the permit system to be allowed to enter the site. One of the conditions of the vessel entry permit will be that the vessel has all of the correct certification in place, including an Oil Record Book (MARPOL Annex I) and marine pollution prevention certificates required under MARPOL (73/78). For smaller vessels the entry permit will require the vessel to have the necessary certificates to operate in Irish waters. In addition to coordinating day-to-day vessel activity on the Proposed Development, the Marine Coordinator will be the main point of contact in the event of emergency and pollution incidents.

4.1.3.2 In the event of a pollution incident originating from a vessel, vessel related activity, or an offshore installation, the Marine Coordinator will assist with managing the coordination and execution of

the ongoing response maintaining close communication with SPL (including the SPL Project Manager and SPL Environmental Manager/SPL ECoW) and relevant Contractors/subcontractors. The Marine Coordinator should notify other installations, in the event of a spill, and those in the vicinity should be kept updated. Where a spill is from a project installation, the Marine Coordinator will oversee the spill response and any clean-up operations.

4.2 Contractor and subcontractors

4.2.1.1 Offshore construction and decommissioning will be done by Contractors/Subcontractors, operation and maintenance will be done by a mixture of SPL and Contractor personnel. SPL require that all relevant Contractors/Subcontractors are familiar with the SPL MPCP.

4.2.1.2 SPL also require that relevant Contractors/Subcontractors identified by the SPL Project Manager prepare their own Contractor MPCP prior to commencement of any activities onsite. The Contractor MPCP will be submitted to SPL for review and approval and will be reviewed on a six-monthly basis, or when processes, personnel or materials change significantly, thereafter. Any updates to the Contractor MPCP must be submitted to SPL for review and comment at least 15 working days prior to implementation onsite.

4.2.1.3 The Contractor MPCP will be maintained in line with the SPL MPCP and revised accordingly.

4.2.1.4 The Contractor MPCP will comply with the SPL MPCP (which applies within the Proposed Development site boundary) and include their own spill response arrangements.

4.2.1.5 All Contractors/Subcontractors will be required to be familiar with the SPL MPCP and the Contractor MPCP and develop their own pollution prevention and contingency plans for approval by SPL; each must be compliant with the information as set out in the SPL MPCP.

4.2.1.6 All Contractors will be responsible for ensuring relevant personnel are trained in pollution prevention and response and that appropriate pollution response equipment is available on-board vessels. Evidence of crew spill response training for different spill scenarios (spills to the deck and to sea) will be available upon request.

4.2.1.7 Relevant Contractors/Subcontractors will ensure that each vessel under their control has a Ship-board Oil Pollution Emergency Plan (SOPEP) or equivalent vessel-specific spill plan (for spills that originate from a vessel, or from operations taking place on a vessel related to the activity that they are contracted to carry out).

4.2.1.8 In the event of an incident onsite, the relevant Contractor/Subcontractor will ensure that the Marine Coordinator is made aware of all details associated with the incident and any proposed response procedures. The Contractor will also submit an initial pollution incident report to SPL's Environmental Manager.

4.3 Spill response contractor

4.3.1.1 The Developer requires that Contractors engage an oil spill response contractor prior to construction commencing.

4.3.1.2 Oil spill response contractors should be capable of providing response capabilities commensurate with the potential worst-case scenario associated with the Contractor's scope of works.

4.3.1.3 During the operational and maintenance, and decommissioning phases, an oil spill response contractor will be engaged for the offshore maintenance operations being undertaken. In the event of a Tier 2 or 3 pollution incident, the spill response contractor will liaise with the IRCG.

5 Potential spill sources and control measures

5.1 Potential spill sources

5.1.1.1 An inventory of the types of pollutants (and particularly hydrocarbons - oils and lubricants) that will be used during the construction and/or operation and decommissioning of the Proposed Development, together with relevant preventative measures will be set out in the relevant Contractors MPCP. This inventory of potential pollutants will inform the consideration of spill response strategies in the Contractor MPCP.

5.1.1.2 The Contractor MPCP will include detail on the volumes, types and sources of each of these pollutants (again with the focus on hydrocarbons) that are expected to be used based on the known requirements, as a basis for a more detailed risk assessment of potential pollution events and spill response strategies.

5.1.1.3 During construction, commissioning, operation, maintenance and decommissioning, the Marine Coordinator shall develop and keep up to date a register of all vessels involved in offshore operations, OSP, WTG structures, and any plant that may be involved in operations at the landfall. This register will document the types and quantities of hydrocarbons carried on board, as well as those in the aforementioned infrastructure or plant (i.e. bunkers, coolants lubrication oils and hydraulic oils).

5.1.1.4 Construction, operational, maintenance and decommissioning works will be conducted in such a manner as to minimise the risk of spillage and pollution. Potential risks and control measures, based on the hydrocarbon and chemical inventories on the vessels and offshore installations, will be identified through the use of planning tools such as:

- Programme review meetings (involving all relevant contractors);
- Pre-job meetings to review the final work programme(s) in detail; and
- Hazard and risk identification to test the work programme for likelihood and severity of all identified risks and to identify appropriate control measures.

5.1.1.5 The risk assessment and management measures are set out in Section 4.2 of the SPL MPCP and will include consideration of vessel refuelling at sea with due regard to industry standards and relevant legislation. Vessel refuelling will take place in port or, if it is necessary in the case of jack-up vessels supporting commissioning works for OSPs over an extended period of time, for example, this will be carried out in agreement with the relevant Authority.

5.2 Pollution sources and risk assessment

5.2.1 Oil spill tier classification

5.2.1.1 The strategy that will be adopted in the event of an oil spill will depend upon several factors:

- The size and characteristics of the spilled oil or pollutant;
- It's probable and predicted behaviour in the sea;
- Consideration of the environmental sensitivities in the path of the spill; and
- Consideration of the consequences of the different response options on the environment as a whole if they were to be adopted.

5.2.1.2 The severity of a spill depends on its size, the complexity of the response and the potential consequences for people, environment, assets, reputation, and for the economy.

5.2.1.3 By adopting a tiered approach and identifying the tier level, the appropriate resources can be mobilised to combat the pollution event.

5.2.1.4 Oil spill response, will be divided into three tiers, according to the severity of the spill and the resources required to combat it, and in accordance with the NCP. The three tiers are defined as follows (Figure 5.1):

- Tier 1 response is that which is immediately available on site, geared for the most frequently anticipated oil spill;
- Tier 2 response is for less frequently anticipated oil spills of larger size and for which external resources at a regional level will be required to assist in monitoring and clean-up; and
- Tier 3 response is in place for the very rarely anticipated oil spill of major proportions, and which will possibly require national and international resources to assist in protecting vulnerable areas and in the clean-up.

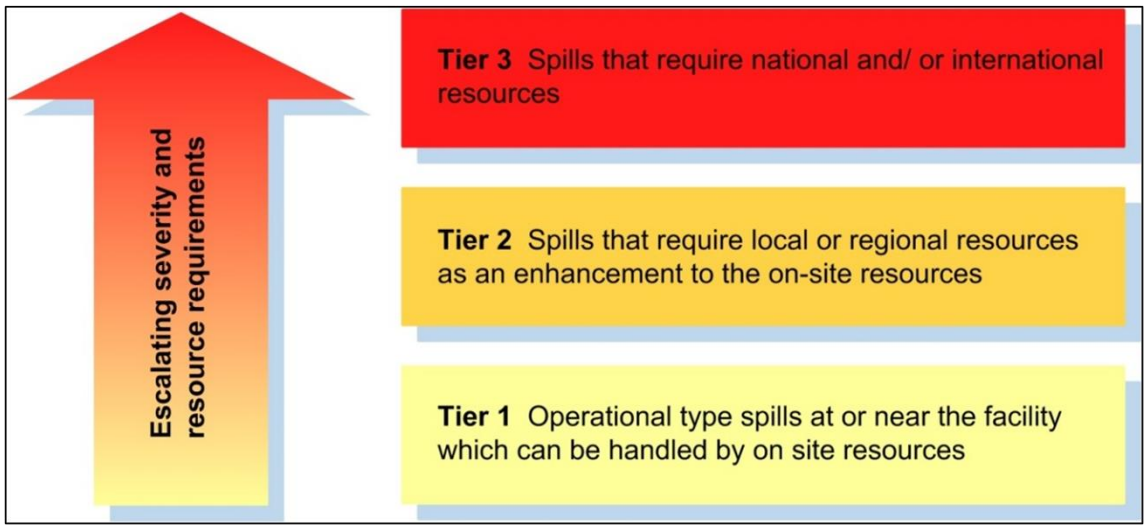


Figure 5.1: Tier definition

5.2.1.5 The Environmental Impact Classification system (SPL's 'Incident Reporting Management and Investigation Standard' - MSE-SHE-010) will be used to rank the impact, ascertain if there's been a Permit or Licence breach, quantify the environmental impact if there are no Permit/Licence related limits, and report requirements to the Regulator. The conventional view of a Tier 3 scenario is one involving an exceptionally large volume of spilled oil, for example, from a major (see MSE-SHE-010 for impact ranking) ship-sourced accident, or other such rare but highly significant event. However, a Tier 3 response may also be required for more modest volumes, perhaps where Tier 2 arrangements may be largely absent or overwhelmed, highly sensitive areas threatened, or highly-specialised strategies being required that are not available locally.

5.2.1.6 The specific risk assessment for the Proposed Development is provided in Table 5.1 and shows that small operational type spills (e.g. Tier 1 category) are the most likely. However, the risk assessment cannot predict with certainty the Tier level outcome of any spill, and under a worst-case spill scenario, it is possible (although considered highly unlikely) that a Tier 2 or Tier 3 response could be required.

5.2.1.7 The Irish Sea is not presently an Emissions Controlled Area. Therefore, vessels in the Irish Sea can combust fuel with a higher sulphur content. However, the main source of hydrocarbons associated with the Proposed Development will be Low Sulphur Marine Gas Oil (LSMGO) or Low Sulphur Fuel Oil (LSFO) used to fuel construction, operation/maintenance and decommissioning vessels. The quantities of LSMGO and LSFO will be limited to the bunkering capabilities of the

vessels. The potential worst-case spill scenario associated with the Proposed Development would be a complete loss of fuel inventory from two large vessels as a result of collision, or where a passing vessel collides with a wind farm vessel or structure. However, due to the locations and segregation of fuel tanks within vessels, this event is highly unlikely.

5.2.2 Potential spill scenarios and control measures

5.2.2.1 Table 5.1 sets out a risk assessment for potential spill scenarios and control measures to minimise or eliminate the risks for the Proposed Development (construction and operational and maintenance phase as appropriate). The table will be further refined prior to commencement of construction and adapted accordingly into the relevant Contractors MPCP. The risk assessment will also be reviewed and, if necessary, updated following completion of the construction phase, to ensure that it remains relevant for the operational, maintenance and decommissioning phase of the Proposed Development.

Table 5.1: Potential spill scenarios and control measures for the Proposed Development

Potential pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc. special oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.		
Lubricating Oil	**Incident** Loss of lubricating oil from collision between two vessels, or allision between vessel and structure, or stranding/grounding of vessel.	All vessels will comply with project specific navigational requirements to prevent vessel to vessel collision, vessel to structure allision and vessel stranding/grounding which will be set out in advance of construction and available prior to any Contractor activity onsite. Vessels and Marine Coordinators will also comply all marine coordination measures to prevent collisions which will also be set out prior to commencement of activities onsite.	**Very low**	Tier 2
	Leakage within WTGs Leakage of lubricating gear oil or grease within nacelle	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG nacelle frame typically will be designed and manufactured with a bund incorporated which can hold the full oil content of the gearbox in the event of a catastrophic failure. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Gear oil seals shall be routinely checked during planned maintenance programmes.	**Low**	Tier 1
	Leakage within OSPs Leakage of transformers.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Transformer oil seals shall be routinely checked during planned maintenance programmes. Environmental mitigation measures, such as transformer bunding to contain any oil leaks, will be fully operational prior to the OSP transportation stage.	**Low**	Tier 1

Potential pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		In some cases, where there's a risk of oil discharge, the OSP drainage system will collect waste water as well as connecting bunded areas. In that case, the drainage system will incorporate an oil separation unit which separates any contaminants from the collected water. The collected water is re-circulated through the oil separator with clean water being discharged in accordance to restricted limits and any contaminants securely contained and stored for transportation to shore and controlled processing and/or disposal . Please note that it isn't always the case that all drains lead to an interception and treatment (oil-water separator, for example), Open drains with no elevated risk (drains under switch gear, for example) of receiving an oil spill may discharge straight to sea. This will depend upon the OSP design, with open air and closed main transformers being the main alternative designs.		
	Spillage during use of equipment Small spills during equipment operation	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	**Low**	Tier 1
	Failure of plant or equipment Release of lubricating oil due to failure of plant or equipment.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel	**Low**	Tier 1
Hydraulic Oil	**Incident** Loss of hydraulic oil from collision between two vessels, or collision between vessel and	All vessels will comply with project specific navigational requirements to prevent vessel to vessel collision, vessel to structure allision and vessel stranding/grounding which will be set out in advance of construction and available prior to any Contractor activity onsite. Vessels and Marine Coordinators will also comply all marine coordination measures to prevent	**Very Low**	Tier 1

Potential pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	structure, or stranding/grounding of vessel.	collisions which will also be set out prior to commencement of activities onsite.		
	Leakage within WTGs	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Oil seals shall be routinely checked during planned maintenance programmes	**Low**	Tier 1
	Failure of plant or equipment Release of hydraulic oil due to failure of plant or equipment, e.g. hydraulic hoses.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel. All storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume.	**Low**	Tier 1
	Spillage during use of equipment Small spills during operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	**Low**	Tier 1
Chemicals	**Incident** Loss of chemical load, including grout or drilling fluid, from vessel collision/allision, or	All vessels will comply with project specific navigational requirements to prevent vessel to vessel collision, vessel to structure allision and vessel stranding/grounding which will be set out in advance of construction and available prior to any Contractor activity onsite. Chemicals will, where relevant, be selected, stored and managed in accordance with the relevant legislation.	**Very low**	Tier 1

Potential pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	stranding/grounding of vessel.			
	Leakage within WTG Leakage of coolant or transformer fluid within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Equipment including hoses, pipes and seals shall be routinely checked during planned maintenance programmes. Chemicals will, where relevant, be selected, stored and managed in accordance with the relevant regulations and legislation.	**Low**	Tier 1
	Spillage during use Spillage of paints, paint thinners, solvents, cleaning fluids etc during use.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in the correct handling and use of chemicals. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. All hazardous substances shall have a safety data sheet (SDS) which is intended to provide procedures for handling or working with that substance in a safe manner. The handling and use of chemicals and hazardous substances shall be in compliance with the information on the SDS. Control of Substances Hazardous to Health (COSHH) assessments should be conducted for development specific hazardous substances. Segregated storage facilities will be used to control the separation of hazardous substances. Chemicals will, where relevant, be selected, stored and managed in accordance with relevant regulations and legislation.	**Low**	Tier 1

6 Response procedures and checklists

6.1 Pollution incident response procedure

6.1.1 Introduction

6.1.1.1 This section sets out the procedures to be adhered to in the event of a marine pollution incident.

6.1.1.2 The Proposed Development requires that any spill (actual or probable) into the marine environment, no matter how small, and no matter whether it arises from Proposed Development activities or not, is responded to, following the procedures set out below, whilst a Contractor is working on the Proposed Development.

6.1.1.3 Priority in the event of a spill is to take measures to ensure the safety of personnel and the offshore installations and vessels, and to prevent escalation of the incident.

6.1.1.4 Where a spillage is part of a wider emergency, such as fire or explosion, reference should also be made to the Emergency Response Cooperation Plan (ERCoP) (see volume III, appendix 25.5 : ERCoP of the EIAR).

6.1.2 Pollutant discharge originating from a vessel – response and notification overview

6.1.2.1 The processes set out below should be followed in the event of a marine pollution (hydrocarbon or chemical) incident where a spill originates from a vessel, from vessel related activity, or from a Contractor owned asset prior to transfer of ownership to the Proposed Development, during construction, operation or maintenance and decommissioning of offshore installations. The following stages will be observed in managing a marine pollution incident originating from a vessel or vessel related activity, as outlined in Figure 6.1.

- When a spill is observed, it will be reported to the Contractor Vessel Master by the spill observer;
- The Contractor Vessel Master will report the spill as soon as it is safe to do so, to the IRCG via phone, and then to the Marine Coordinator (who in turn will notify the Developer's Environmental Manager) via phone. Verbal notification should be followed up when practicable with the submission by the vessel Master of an Initial Pollution Report (POLREP) via email (or fax) to the IRCG, in accordance with Standard Operating Procedure 01-2020 (IRCG, 2020a), and the Marine Coordinator (who in turn will submit to the Developer's Environmental Manager); and
- The Contractor responsible for the vessel from which the spill has originated will engage the vessel SOPEP or equivalent vessel-specific spill plan and assume primacy for the incident ensuring ongoing reporting on spill status, as necessary, and initiating response or clean-up operations as required. The relevant Contractor, as the primary responder, will request support from a specialist spill response contractor as required. The Marine Coordinator will provide a supporting role and assist with communication throughout an incident.

6.1.2.2 In the very unlikely event that a regional or national (Tier 2 or 3) response is required, the IRCG may take charge of the situation and implement the National Maritime Oil/Hazardous and Noxious Substances (HNS) Spill Contingency Plan (IRCG, 2020b).

6.1.3 Spills originating from an instillation associated with the proposed development – response and notification overview

6.1.3.1 When a spill is observed, it will be reported to the Marine Coordinator by the Contractor's vessel Master, who will have been given the spill details by the spill observer.

6.1.3.2 The Marine Coordinator will then report the spill to the IRCG via phone and the Developer's Environmental Manager by phone. Verbal notification should be followed up when practicable with the submission of a POLREP via email (or fax) to the IRCG by the Marine Coordinator.

6.1.3.3 The Marine Coordinator will engage the MPCP and assume primacy of the incident. The Marine Coordinator will be responsible for ongoing reporting on spill status and will coordinate an initial response with the spill observer who may utilise spill kits on the offshore installation. The primary responder will request support from a specialist spill response contractor as required.

6.1.3.4 As set out in Table 5.1, the type and volume of hydrocarbons and chemicals on the wind turbines and OSPs are not considered sufficient to warrant a Tier 2 or Tier 3 response. It is therefore not anticipated that the implementation of the National Maritime Oil/HNS Spill Contingency Plan (Irish Coast Guard, 2020b) or for the IRCG to take command of an incident from an offshore installation. However, the IRCG will be kept informed by verbal communications and through ongoing submission of the POLREP.

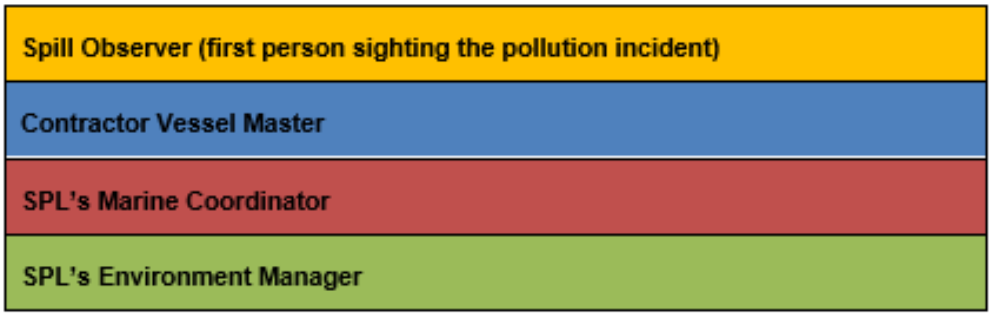


Figure 6.1: Marine pollution incident stages (assuming contractor vessel master present)

6.1.3.5 In terms of the highest risks (see risk assessment in Table 5.1) of pollutant incidents (particularly the risk of Tier 2 and Tier 3 incidents on the project), this would most likely involve Contractor Vessel(s). A construction supervisor/manager, provided by the Contractor, will be present on either the installation or supporting vessel, e.g. jack-up vessel. The pollution incident should be reported by an operative on the structure/vessel, to the construction supervisor, then the information will be relayed to the Master of the supporting vessel, or Marine Coordinator. Communications will be by marine radio or alternatively by mobile phone. Therefore, management of incidents offshore from a primacy perspective would revert to the relevant Contractor Vessel Master(s). There is still a risk, however, that Tier 1 spills could occur from offshore installations where a Contractor Vessel Master(s) is not present offshore. Where this is the case, the following process outlined in Figure 6.2 should be conducted.

6.1.3.6 In such situations, e.g. on an OSP or WTG, where there is an absence of the Contractor Vessel Master, as per 5.1.3.5, the Marine Coordinator will be contacted by the construction supervisor/manager. The Developer requires the onshore Contractor Emergency Response Team (CERT), to play an enhanced role to support its most senior offshore person located offshore, to ensure the correct notifications and updates are provided to SPL and the Coastguard, for Tier 1 pollution incidents. Whilst Tier 1 pollution incidents can generally be managed by a Contractor Vessel Master without the need of CERT assistance, if they escalate to Tier 2 and Tier 3 pollution incidents, where a Contractor Vessel Master is not present, all Tier spills 1,2 and 3

must be supported by the Marine Coordinator, construction supervisor/manager and onshore CERT if needed.

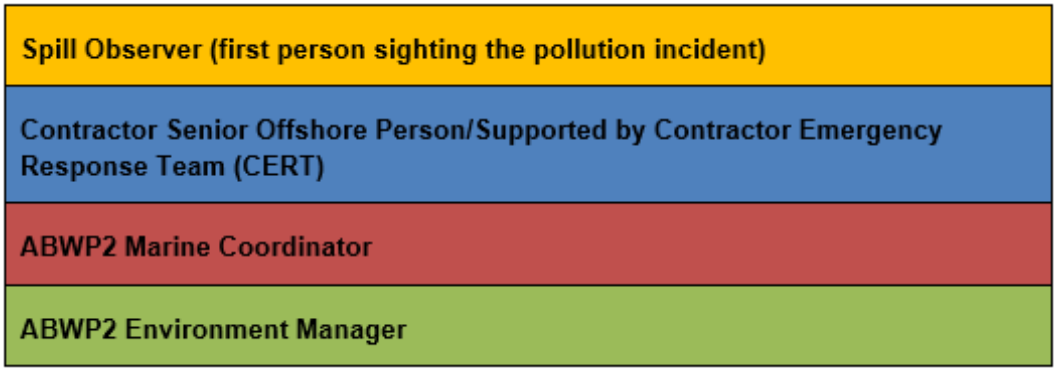


Figure 6.2: Marine pollution incident stages (assuming contractor vessel master not present)

6.1.4 Pollution incidents within port

6.1.4.1 For Port/Harbour Spills the Contractor will contact the relevant Port/Harbour Authority in the first instance and follow all port processes as advised. The Contractor MPCP will include details of all port/harbour authorities of relevance. In advance of commencement of any works onsite, the Contractor will provide details of the main port/harbour authorities anticipated to be used whilst working on the Proposed Development. All incidents that occur, whether in the Proposed Development working area or not, must be notified to the Developer's Project Manager and Marine Coordinator.

6.2 Reporting requirements

6.2.1.1 It is required that all employees, contractors and subcontractors shall report all accidents, incidents and hazards to the Developer's Environmental Manager and Marine Coordinator.

6.2.1.2 As per SSE document 'MS-SHE-010 Incident Reporting Management Investigation', significant or potentially significant incidents (including marine incidents) are required to be immediately reported and escalated through the business management chain within 30 minutes of their occurrence or when safe to do so.

6.2.1.3 The Vessel Master will record details of the incident and communications with all relevant parties. Those details will be used as a reference for notifications and when completing the POLREP. Table 5.1 provides a proposed template produced by SPL. Each Contractor MPCP must provide details for completion of notifications and the POLREP.

6.2.1.4 Details of all incidents must always be retained for potential investigative purposes.

6.2.1.5 An incident report form is included in Annex A.

7 References

Irish Coast Guard (IRCG) (2020a) Assessment and notification of a pollution incident, Standard operating procedure 01-2020, Available at: https://www.gov.ie/en/publication/79e5d-national-maritime-oilhns-spill-contingency-plan-nmoscp/ [Accessed 21/03/2021].

Irish Coast Guard (IRCG) (2020b) National Maritime Oil/HNS Spill Contingency Plan, 2020, Available at: https://www.gov.ie/en/publication/79e5d-national-maritime-oilhns-spill-contingency-plan-nmoscp/ [Accessed 21/03/2021].

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

International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC).

Sea Pollution Act (1991).

Sea Pollution (Amendment) Act (2019).

Sea Pollution (Miscellaneous Provisions) Act (2006).

S.I. No. 372/2012 - Sea Pollution (Prevention of Pollution by Garbage from Ships) Regulations (2012).

S.I. No. 492/2012 - Sea Pollution (Prevention of Pollution by Sewage from Ships) (Amendment) Regulations (2012).

The International Civil Liability for Oil Pollution (1969).

Annex A – Incident Report Form

Vessel Information						
Date / time of call			Company			
Name of caller			Position			
Contact number			Alt. contact number			
Vessel name			Field Name			
Location of release	Latitude					
	Longitude					
Date and time of incident						
What has been released to sea?	diesel	intermediate	chemical	crude	Other:	
Quantity released?			tonnes		m^3	
Is release on-going?	yes	no				
Distance and direction from nearest land (e.g. 3 kilometres east of ABWP2)	Kilometres					
Water depth	metres					

Incident Information			
Confirm date and time of incident		POB	
Incident details: what has happened what is current situation what initial actions have been taken			
Any casualties? (be aware of sensitive information)		Are any SAR activities on-going?	
Is pollution incident reporter at scene of incident? (if not, where is information sourced)			
Is there damage to vessel? (if yes provide details)			
Have / will POB be down-manned? (if so, how many)			
Have works been fully or partially shut down and / or is there an impact on other vessels/installations?			
Confirm what has been released to sea (diesel, intermediate MGO, crude oil, chemical etc)			

Confirm quantity currently released (how has this been determined)		tonnes		m^3	
Confirm if release is on-going (if yes, what is the release rate)					
Worst case spill potential (max inventory, max flow rate)					
Pollution appearance (rainbow, sheen, etc.)					
Dimensions of visible spill (length, width and coverage)					
Shoreline impact likely (if yes, where and when)					
Is pollution likely to reach median line (if yes, where and when)					
Nearest Installations (have they been notified)					
Wind speed		Wind direction			
Sea state		Wave height			
Response Information					
SOPEP been activated					
Has the Contractor appointed spill response subcontractor and onshore Contractor emergency response team been mobilised (if so where and when)					
Has/will aerial surveillance been mobilised (if yes, ETA to scene. If not, how is pollution being monitored)					
What other response resource has/will be mobilised to assist (ROV, DSV, etc.). Provide ETA where possible.					
Has POLREP been submitted					
Have samples been taken, have reference samples been taken, where are samples being sent for analysis					
Who informed	Coastguard	ABWP2 MCC	Other please list:		
Other Information					
Agreed time to receive next update and/ or any additional information					

Annex 4 – Resource and Waste Management Plan

Contents

Version	Date	Status	Author	Reviewed by	Approved by
1.0	23/05/2024	Final (External)	Safetec	Sure Partners Limited	Sure Partners Limited

Statement of Authority

Name	Qualifications	Experience
Catherine Leaf BSc (Hons), MIEMA, CEnv, MCIWM	Chartered Waste Manager, Chartered Institution of Wastes Management (MCIWM), 2017. Chartered Environmentalist (CEnv), Society for the Environment, 2009. Member of Institute of Environmental Management and Assessment (MIEMA), 2009. BSc (Hons) Environmental Pollution Science, University of Glamorgan, 2000.	Catherine Leaf is a Chartered Waste Manager and Chartered Environmentalist with more than 20 years' consultancy experience focusing on both waste management and contaminated land assessment. These are two areas that complement each other, particularly in the construction / development sector and have enabled Catherine to support a diverse range of projects and sectors in locations ranging from the North Sea to the South Atlantic. In recent years, Catherine has primarily focused on waste management, particularly in relation to the offshore energy sector. Here she brings her experience of working with client and project teams at all levels and in different locations, including corporate management teams, waste management sites, dismantling yards and offshore. For the offshore energy sector, Catherine uses her experience and technical acumen to design, develop and implement materials (waste) management strategies. These strategies focus on maximising reuse and recycling of materials, supporting the projects in applying circular economy principles and in appropriately

	executing the waste Duty of Care. Catherine's range of experience means she has a sound understanding and appreciation of differing priorities and practical implementation which benefits her contribution to project design, execution and management.

Glossary

Term	Meaning
Arklow Bank Wind Park 1 (ABWP1)	Arklow Bank Wind Park 1 consists of seven wind turbines, offshore export cable and inter-array cables. Arklow Bank Wind Park 1 has a capacity of 25.2 MW. Arklow Bank Wind Park 1 was constructed in 2003/04 and is owned and operated by Arklow Energy Limited. It remains the first and only operational offshore windfarm in Ireland.
Arklow Bank Wind Park 2 (ABWP2) (The Project)	Arklow Bank Wind Park 2 (ABWP2) (The Project) is the onshore and offshore infrastructure. This EIAR is being prepared for the Offshore Infrastructure. Consents for the Onshore Grid Infrastructure (Planning Reference 310090) and Operations Maintenance Facility (Planning Reference 211316) has been granted on 26th May 2022 and 20th July 2022, respectively. • Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements to be consented in accordance with the Maritime Area Consent. This is the subject of this EIAR and will be referred to as 'the Proposed Development' in the EIAR. • Arklow Bank Wind Park 2 Onshore Grid Infrastructure: This relates to the onshore grid infrastructure for which planning permission has been granted. • Arklow Bank Wind Park 2 Operations and Maintenance Facility (OMF): This includes the onshore and nearshore infrastructure at the OMF, for which planning permission has been granted. • Arklow Bank Wind Park 2 EirGrid Upgrade Works: any non-contestable grid upgrade works, consent to be sought and works to be completed by EirGrid.
Arklow Bank Wind Park 2 Offshore Infrastructure	"The Proposed Development", Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements under the existing Maritime Area Consent.
Array Area	The Array Area is the area within which the Wind Turbine Generators (WTGs), the Offshore Substation Platforms (OSPs), and associated cables (export, inter- array and interconnector cabling) and foundations will be installed.
Cable Corridor and Working Area	The Cable Corridor and Working Area is the area within which export, inter-array and interconnector cabling will be installed This area will also facilitate vessel jacking operations associated with installation of WTG structures and associated foundations within the Array Area.
Cable protection	External armouring applied to exposed cables or used at cable crossings, typically comprised of rock (berms or bags), ducting (polyurethane, steel, High Density Polyethylene (HDPE), cast iron or plastic) or concrete mattresses.
Concrete mattresses	A solution for providing protection to cables from dropped objects, fishing trawl boards and scour (Subsea Protection Systems, 2020). Typically, several metres wide and long, cast of articulated concrete blocks which are linked by a polypropylene rope lattice which are placed on and/or around structures to stabilise the seabed and inhibit erosion.

EirGrid	State-owned electric power transmission system operator (TSO) in Ireland and Transmission Asset Owner (TAO) for the Project's transmission assets.
European Waste Catalogue (EWC)	The EWC is a list of waste types, established by the European Commission Decision 2000/532/EC1, which categorises wastes based on a combination of what they are, and the process or activity that produces them. The EWC is divided into 20 chapters, individual waste types are assigned a six-digit code – the EWC or LoW code.
Foundation	The load carrying support structure for the wind turbine generator tower or offshore substation platform topside. The foundation is the part of the structure from the interfacing flange with the turbine tower or topside-foundation interface, down to below seabed. This includes any secondary steel items associated with the structure. For the purposes of the EIAR the term 'foundation' includes the structure from the WTG tower or topside interface down to the lower end of the monopile commonly known as the 'substructure' and encompasses monopiles and transition pieces.
Landfall	The area in which the offshore export cables make landfall and is the transitional area between the offshore cabling and the onshore cabling.
Maritime Area Consent (MAC)	A consent to occupy a specific part of the maritime area on a non-exclusive basis for the purpose of carrying out a Permitted Maritime Usage strictly in accordance with the conditions attached to the MAC granted on 22nd December 2022 with reference number 2022-MAC-002.
Major component	Major components include removable parts and equipment associated with the WTG and OSP infrastructure.
Permitted Maritime Usage	The construction and operation of an offshore windfarm and associated infrastructure (including decommissioning and other works required on foot of any permission for such offshore windfarm).
Rehabilitation Schedule	The Rehabilitation Schedule sets out how SPL will, before the expiration of the MAC, rehabilitate the consent area and any other part of the maritime area adversely affected by the Proposed Development.
Scour protection	A solution for preventing scour around subsea structures, typically comprised of rock or concrete mattresses.
The Developer	Sure Partners Ltd.
Trenchless techniques	Trenchless techniques include steerable direct pipe thrusting ("Direct Pipe") and Horizontal Directional Drilling (HDD) which allow cable ducts to be installed underground without the need to excavate trenches.
Transition Piece (TP)	Structural interface between monopile foundation and WTG tower that contains ancillary infrastructure such as boat landings, working platform and j tubes.

Acronyms

Term	Meaning
ABWP1	Arklow Bank Wind Park 1
ABWP2	Arklow Bank Wind Park 2
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EWC	European Waste Catalogue
HDPE	High Density Polyethylene
HVAC	High Voltage Alternating Current
HWM	High Water Mark – the level reached by the sea at high tide
ICCP	Impressed current cathodic protection
LAT	Lowest Astronomical Tide
LoW	List of Wastes
MAC	Maritime Area Consent
MHW	Mean High Water
MP	Monopile
OMF	Operations and Maintenance Facility
OSP	Offshore Substation Platform
SF6	Sulphur hexafluoride
RWMP	Resource and Waste Management Plan
cRWMP	Construction phase RWMP
omRWMP	Operation and maintenance phase RWMP
dRWMP	Decommissioning phase RWMP
SOV	Service Operation Vessel
TP	Transition Piece
UK	United Kingdom
UXO	Unexploded Ordnance
WMP	Waste Management Plan
WTG	Wind Turbine Generator
XLPE	Cross-Linked Polyethylene

Units

Unit	Description
kg	Kilogram
km	Kilometre
L	litres
m	Metre
T	Tonne (metric)
MW	Megawatt (power; equal to one million watts)
m2	Square meter
m3	Cubic meter

1. Introduction

This Resource and Waste Management Plan (RWMP) presents the overarching framework of controls for management of wastes to result from development of the Arklow Bank Wind Park 2 (ABWP2) offshore infrastructure (the Proposed Development) which is planned for development in the Irish Sea, east of Arklow in County Wicklow.

This document, prepared by Safetec UK Limited on behalf of Sure Partners Limited[1] (SPL) (the Developer), forms an Annex to the Environmental Management Plan (EMP) (Volume III, Appendix 25.1) prepared by GoBe Consultants Ltd (GoBe). The EMP itself forms an Annex to the Environmental Impact Assessment Report (EIAR) prepared by GoBe to inform the planning application being made to Ireland's national independent planning body, An Bord Pleanála, by the Developer for the Proposed Development.

1.1. Purpose and Evolution of the RWMP

A Resource and Waste Management Plan (RWMP) provides the information necessary to guide and support the compliant and efficient management of wastes associated with a development. That information includes estimating the types and quantities of wastes to arise and establishing the controls and procedures that will be applied in managing the wastes in compliance with the relevant regulations, policy and guidance.

Due to the differing types of wastes that arise from each phase of a development's life, preparation of a RWMP for a development project is an iterative process, starting at the design stage (i.e. pre-construction phase) and continuing through the development's lifetime to eventual decommissioning.

The purpose and evolution of the RWMP for the Proposed Development is summarised below.

Pre-Construction Phase

Development of the RWMP begins at the pre-construction phase of the Proposed Development and evolves as the development design is finalised and the Contractor(s) for the construction phase is appointed, as shown in Figure 1.1 overleaf.

The Developer is responsible for preparation of the RWMP which sets the ambition for waste management throughout the lifetime of the Proposed Development. This includes considerations as to how design and construction will influence the wastes to arise during the operation and maintenance phase and eventual decommissioning.

Therefore, the RWMP prepared during the pre-construction phase forms the overarching RWMP for the Proposed Development, establishing the framework of controls for the lifetime of the Proposed Development via which the wastes to result will be considered, minimised where possible, and managed.

The RWMP also sets the waste management targets to be adhered to during the construction phase and establishes the requirements of the Contractor(s) for waste management during construction.

[1] Sure Partners Limited is a wholly owned subsidiary of SSE plc (SSE). SSE is the parent company of SSE Renewables (SSER), the renewable development division of SSE, thus reference is made within this document to SSE and SSER and their relevant policies where appropriate.

As is shown in Figure 1.1. below, the RWMP informs the planning application for the Proposed Development and is updated to reflect any relevant planning conditions and will form part of the tender documentation issued for the procurement of the Principle Contractor(s)..

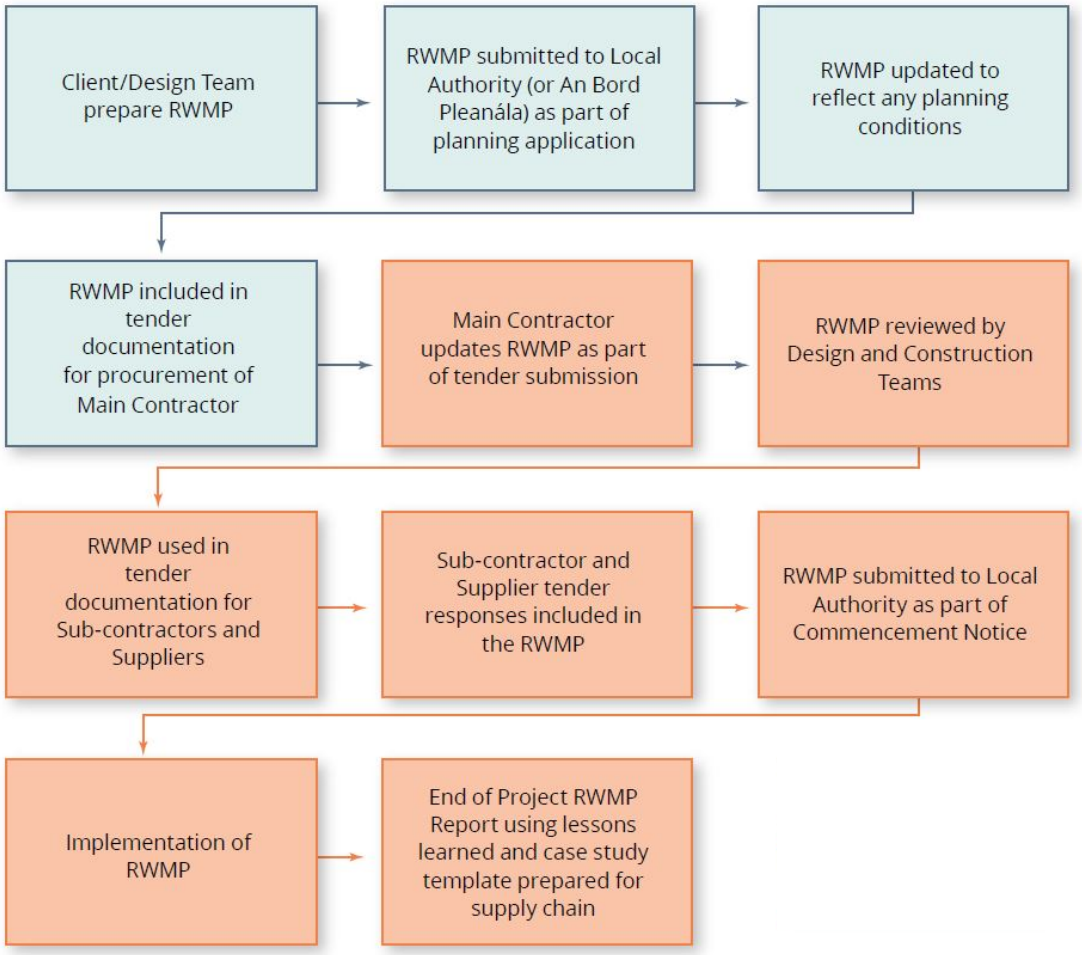


Figure 1.1 Evolution of the RWMP through the pre-construction (blue) and construction (orange) phases

Construction Phase

As is shown in Figure 1.1. above, as the Proposed Development progresses to the construction phase, ownership of the RWMP transfers to the appointed Contractor(s) who will produce the construction phase RWMP(s)[2] (cRWMPs). The cRWMP(s) will contain more detail on the types and quantities of wastes to arise during construction of the Proposed Development, expanding on the information contained in this RWMP and providing detail of the specific subcontractors etc that will be involved in the waste management.

Given the nature of the Proposed Development (see Section 2 for detail), a number of Contractors will be appointed for the construction phase, each focusing on a specific element of the Proposed

[2] Note that although the Contractor's cRWMP(s) are shown in Figure 1.1 to be an update of the RWMP prepared during the pre-construction phase, for this Proposed Development, it will be necessary for each Contractor to produce their own document in order for it to appropriately detail the wastes to result from their specific scope of works. As explained in this section, each Contractor's cRWMP will be required to comply with the framework of controls established by this RWMP.

Development's construction and commissioning. Therefore, a cRWMP will be produced by each of the Contractors appointed to best identify and manage the wastes to result from their specific scope of work.

All cRWMPs produced by the Contractors will comply with the principles and framework of controls, including the construction phase waste management targets, established by this RWMP. This will be a requirement of the construction phase contracts awarded for the Proposed Development.

Operation and Maintenance Phase

Similar to the construction phase, contract(s) will be awarded for the operation and maintenance phase requiring the appointed Contractor(s) to develop an operation and maintenance phase RWMP(s) (omRWMP) specific to the scope of works to be undertaken.

The omRWMP(s) will comply with the framework of controls established by this RWMP, including waste avoidance, reuse and recycling in preference to disposal and adhering to relevant regulations, policy and guidance throughout the operational life of the Proposed Development.

Decommissioning Phase

At end of life, a decommissioning contract(s) will be awarded and the appointed Contractor(s) will be required to develop a decommissioning phase RWMP(s) (dRWMP) focusing on the wastes to result.

The dRWMP(s) will comply with the framework of controls established by this RWMP, prioritising reuse and recycling over disposal and adhering to relevant regulations, policy and guidance current at the time.

1.2. Objectives

The overarching objective of this RWMP is to establish the framework of controls for compliant and sustainable management of wastes to result from the Proposed Development. The specific objectives are to:

- Promote sustainable development, environmental protection and optimum use of resources;
- Support a holistic and integrated approach whereby the design of the Proposed Development includes consideration of how wastes can be reduced throughout its lifetime and incorporates circular economy principles; and
- Establish a framework of controls via which the wastes to result during each phase of the Proposed Development's life (construction, operation and maintenance, and decommissioning) will be managed and documented by the appointed Contractors.

1.3. Content

The measures to deliver the stated objectives contained within this RWMP are based on the requirements of the Irish Environmental Protection Agency's (EPA's) 2021 Best Practice Guidelines for the preparation of resource and waste management plans for construction and demolition projects for a Tier 2 project (as defined in the guidelines).

The EPA's 2021 Best Practice Guidelines are designed primarily for onshore development projects, therefore the content herein has been structured to adapt the principles of the Guidelines appropriately to this specific Proposed Development which is an offshore development.

This RWMP also takes account of the requirements of:

- The Environmental Impact Assessment (EIA) Directive[3] which requires an estimate of the quantities and types of waste to be produced during the construction and operation phases of a Proposed Development; and
- The Maritime Area Consent (MAC)[4] granted for the Proposed Development which includes a need to consider, at the planning stage, the rehabilitation of the maritime area at end of life of the Proposed Development.

The content of this RWMP therefore includes:

- A summary of the Proposed Development in the context of management of the wastes anticipated to result;
- Construction phase waste management targets for the Proposed Development;
- Anticipated operation and maintenance phase, and decommissioning phase waste management targets;
- The Developer's roles and responsibilities, in regard to waste management, and future role of the Contractor(s) for the construction, operation and maintenance, and decommissioning phases;
- The design approach taken in regard to resource and waste management, including consideration of the need for rehabilitation of the maritime area at end of life of the Proposed Development (i.e. during decommissioning);
- A provisional estimate of waste types and quantities to result from the construction, operation and maintenance, and decommissioning phases;
- Site management requirements for the construction, operation and maintenance, and decommissioning phases; and
- Site infrastructure requirements for the construction, operation and maintenance, and decommissioning phases.

1.4. Exclusions from the Proposed Development's RWMPs

The following explains the resources and wastes excluded from this RWMP, and subsequent phase RWMPs.

1.4.1. Onshore Elements of the Arklow Bank Wind Park 2 Development

This RWMP, and all subsequent phase RWMPs, only applies to the wastes associated with the offshore infrastructure of the Arklow Bank Wind Park 2 development. Wastes associated with the onshore elements will be subject to the controls of separate waste management plans as per the documents prepared in support of the planning applications for both the ABWP2 Operations and Maintenance Facility (OMF) and the Onshore Grid Infrastructure (OGI), both of which are listed in Section 1.8.

1.4.2. Offshore Emissions and Deposits

Activities associated principally with the construction, operation and maintenance, and decommissioning phases of the Proposed Development will produce materials that are emitted or deposited offshore (e.g. dredged sediment). Such emissions and deposits have been subjected to assessment in the relevant

[3] Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council (the Environmental Impact Assessment (EIA) Directive)

[4] MAC No. 2022-MAC-002

chapters of the EIAR prepared for the Proposed Development) and will be made in accordance with the required consents and / or permits.

Therefore, the framework of controls established by this RWMP, applies only to the wastes arising from the Proposed Development that are brought to shore for management.

1.4.3. Vessels

As is further explained in Section 2, offshore construction vessels will be used in the construction phase of the Proposed Development. Crew Transfer Vessels (CTVs) and other maintenance vessels, such as Service Operation Vessels (SOVs) will be used during the operation and maintenance phase along with larger vessels if needed (e.g. jack up vessels). Decommissioning vessels will be used during the decommissioning phase.

Wastes generated on the vessels from activities directly associated with the Proposed Development will be subject to the framework of controls set out in this RWMP and the phase specific RWMPs that follow.

However wastes generated from routine operation of the vessels (e.g. routine operation and maintenance of the vessel) will be subject to the vessel's own waste management procedure (e.g. it's Garbage Management Plan for those vessels to which the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V and the Sea Pollution Regulations 2012 apply). Those wastes will not be subject to the framework of controls set out in this RWMP, nor the phase specific RWMPs to follow and the phase specific waste management targets will not apply to the wastes resulting from routine operation of the vessels. This is because the framework of controls established by this RWMP is specific to the Proposed Development, i.e. the entity over which the Developer has control and influence in terms of design, operation and maintenance, and decommissioning.

The wastes generated from routine operation of the vessels will however be required to be appropriately managed in compliance with the relevant regulations and must apply the principles of the waste hierarchy and circular economy (see also Sections 6, 7, 8 and 9).

1.4.4. Marshalling Port(s) and Dismantling Yard(s)

As is further explained in Section 2, during the construction phase, a marshalling port(s) and dismantling yard(s) will be used during the construction and decommissioning phases respectively.

Wastes generated at the marshalling port(s) and the dismantling yard(s) from activities directly associated with the Proposed Development (e.g. alterations to a turbine tower at a marshalling port and all management of wastes resulting from decommissioning undertaken at the dismantling yard) will be subject to the framework of controls set out in this RWMP and the phase specific RWMPs that follow.

However, as per the vessels (see Section 1.4.3), wastes generated from routine activities undertaken at the marshalling ports and the dismantling yards (e.g. canteen and office wastes) will be subject to the Waste Management Plans[5] associated with the authorisations held by the marshalling ports and dismantling yards. As per routine wastes generated by the vessels, such wastes will not be subject to the framework of controls set out in this RWMP, nor the phase specific RWMPs to follow, other than being required to be demonstrably appropriately managed in compliance with the relevant regulations (see also

[5] The term "waste management plan" is used here for ease of reference to the means by which the marshalling ports control the wastes generated from their routine operations, it is acknowledged the waste management plan may form part of a broader environmental management plan for such facilities but will still be required to comply with the environmental authorisations associated with the port's activities.

Sections 6, 7 and 8). The phase specific waste management targets will not apply to the wastes resulting from routine operation of the marshalling port(s) and dismantling yard(s).

1.5. SSE Environment & Waste Policy and Strategy

The SSE Group Environment Policy (a copy of which is presented in Annex A) includes the Group's policies and commitments for resource and waste management. The commitments include decreasing the impact of the Group's resource consumption by:

- Minimising resource use and waste production;
- Minimising waste to landfill and increasing recycling;
- Working with the Group's supply chain to improve performance and innovation;
- Engaging with the circular economy, by using reprocessed materials and ensuring the Group's resources can readily be reused or recycled so far as is practical; and
- Selecting materials that have sustainable lifecycle impacts.

SSE's Environment Vision 2023/24 document (also included in Annex A) summarises the Environment Strategy for which responsible consumption and production forms one of three pillars underpinning the strategy.

Under the Environment Strategy, the SSE Group commits to diverting 95% (by weight) of waste produced from landfill and recycling a minimum of 50% (by weight).

This RWMP is aligned to the principles and commitments for resource consumption and waste management set out in the SSE Group Environment Policy and 2023/24 Environment Strategy (see also the waste management targets, Section 1.7).

1.6. Relevant Legislation and Policy

The RWMPs to be produced as the Proposed Development progresses (i.e. the cRWMP(s), omRWMP(s) and dRWMP(s)) will provide summaries of the legislation, policy and guidance relevant to their specific phases of the Proposed Development's life and the specific waste management activities to be undertaken in each, detailing relevant permits, consents etc. Therefore, this section provides a summary of the overarching legislation and policy relevant to development of this RWMP and the overarching controlling principles that will govern waste management for the Proposed Development.

1.6.1. Relevant Legislation

The governing principle of waste management legislation in Ireland is to manage wastes aligned to the waste hierarchy (as summarised in Figure 1.2 overleaf), with an emphasis on reducing the amount of waste generated and reusing and recycling unavoidable wastes in preference to disposal.

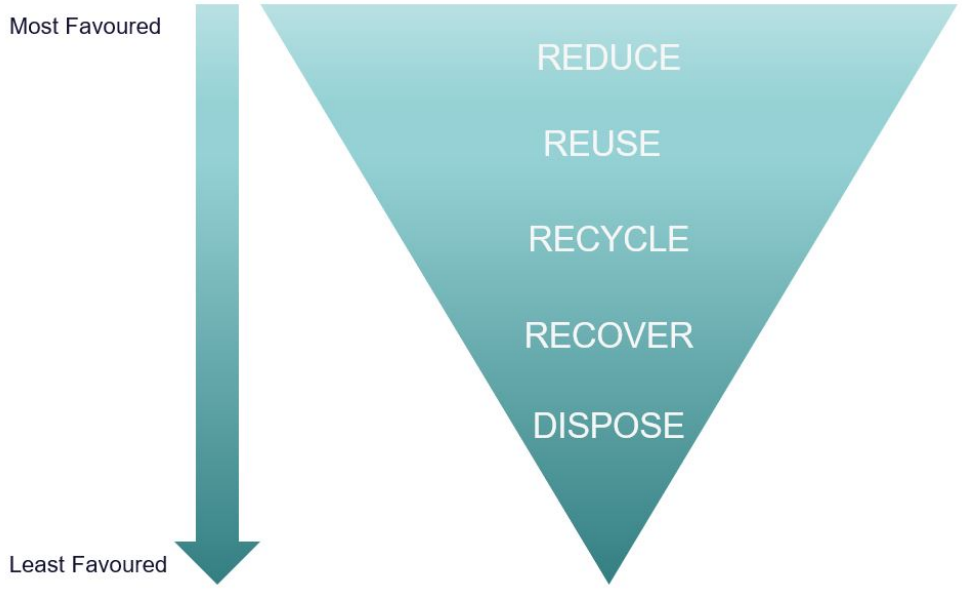


Figure 1.2: Waste Hierarchy

Irish waste management legislation, determined by European Directives, has developed around this key principle. Key elements of the legislation, relevant to management of wastes arising from the Proposed Development, are summarised in Figure 1.3 overleaf and include:

- The waste duty of care which places responsibility for compliant waste management on the client (i.e. Developer) and its contractor(s);
- The requirement for waste management plans; and
- The requirement for planning for, and management of, wastes arising from construction and demolition projects aligned to EU targets (these apply at a national level, individual projects determine their own targets to help deliver national targets, see also Sections 1.6.2 and 1.7).

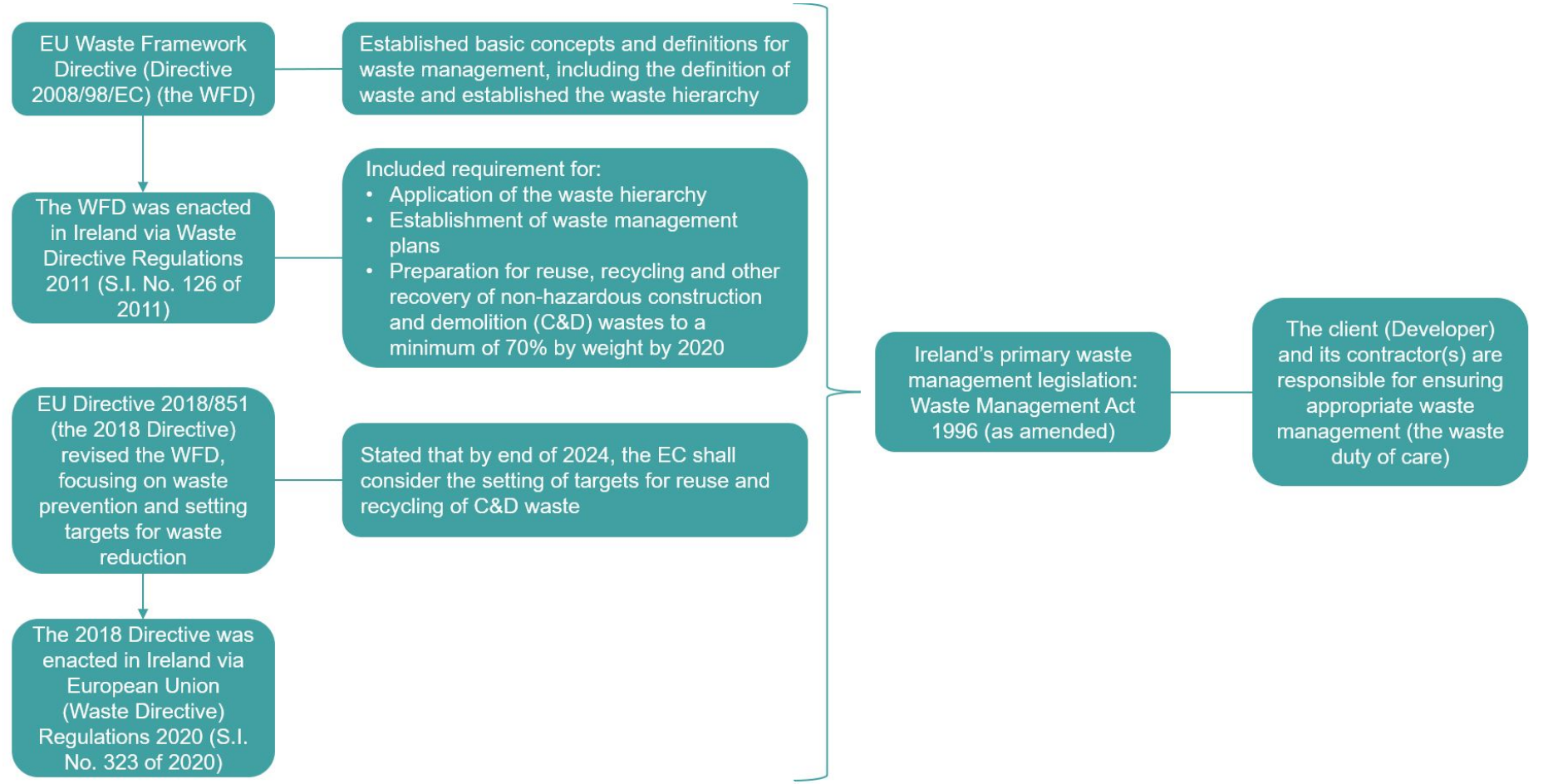


Figure 1.3: Key elements of evolution of Irish waste management legislation, relevant to the Proposed Development

1.6.2. Relevant Policy

Aligned to the European Community's vision, Ireland is striving to transition to a circular economy which is considered a key factor in tackling climate change by supporting reduction of greenhouse gas emissions.

The focus on transition to a circular economy is reflected in the recent evolution of Irish waste policy as summarised in Figure 1.4 below.

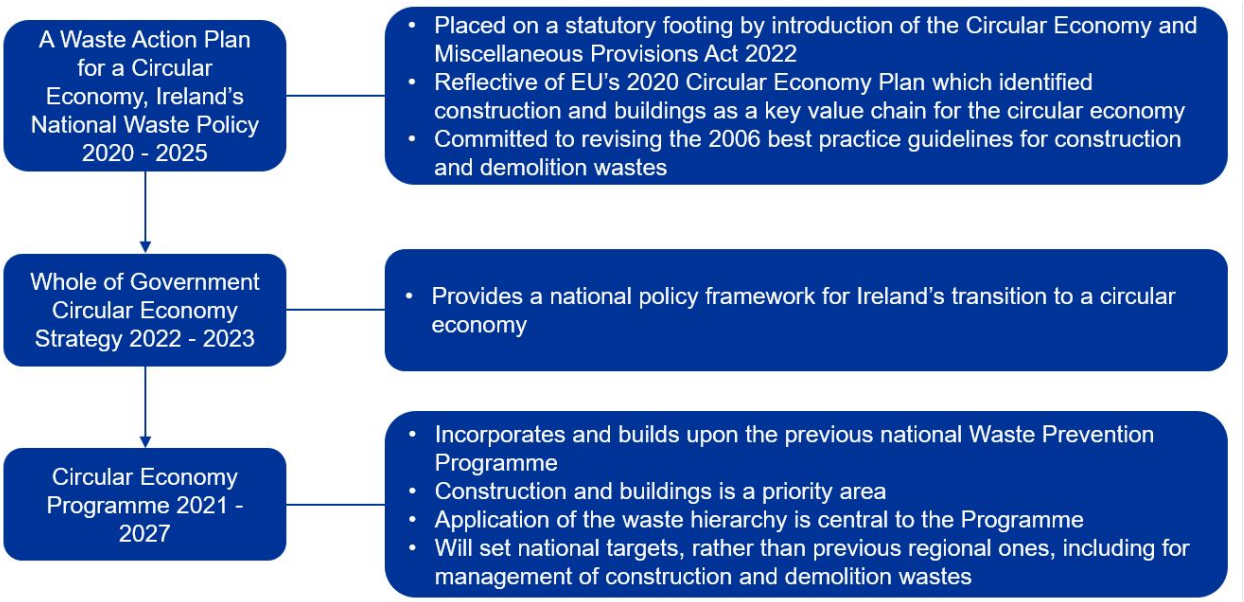


Figure 1.4: Recent evolution of waste management policy relevant to the Proposed Development

As per Figure 1.4, wastes resulting from construction and demolition projects form a key focus and there is to be a transition from regional to national targets for waste management. As per Section 1.6.1, individual projects set targets to support Ireland in achieving the national targets (see Section 1.7).

1.6.3. The Circular Economy

As per Section 1.6.2, waste management policy is focused on transitioning Ireland to a circular economy. The principles of the circular economy are centred on the waste hierarchy, focusing predominantly on the upper tiers, i.e. reducing the waste produced in the first place and then reusing and recycling the wastes that cannot be avoided.

Figure 1.5 overleaf demonstrates how the concepts of the circular economy relate to the construction and demolition sector, which although not wind farm specific is relevant to the Proposed Development.

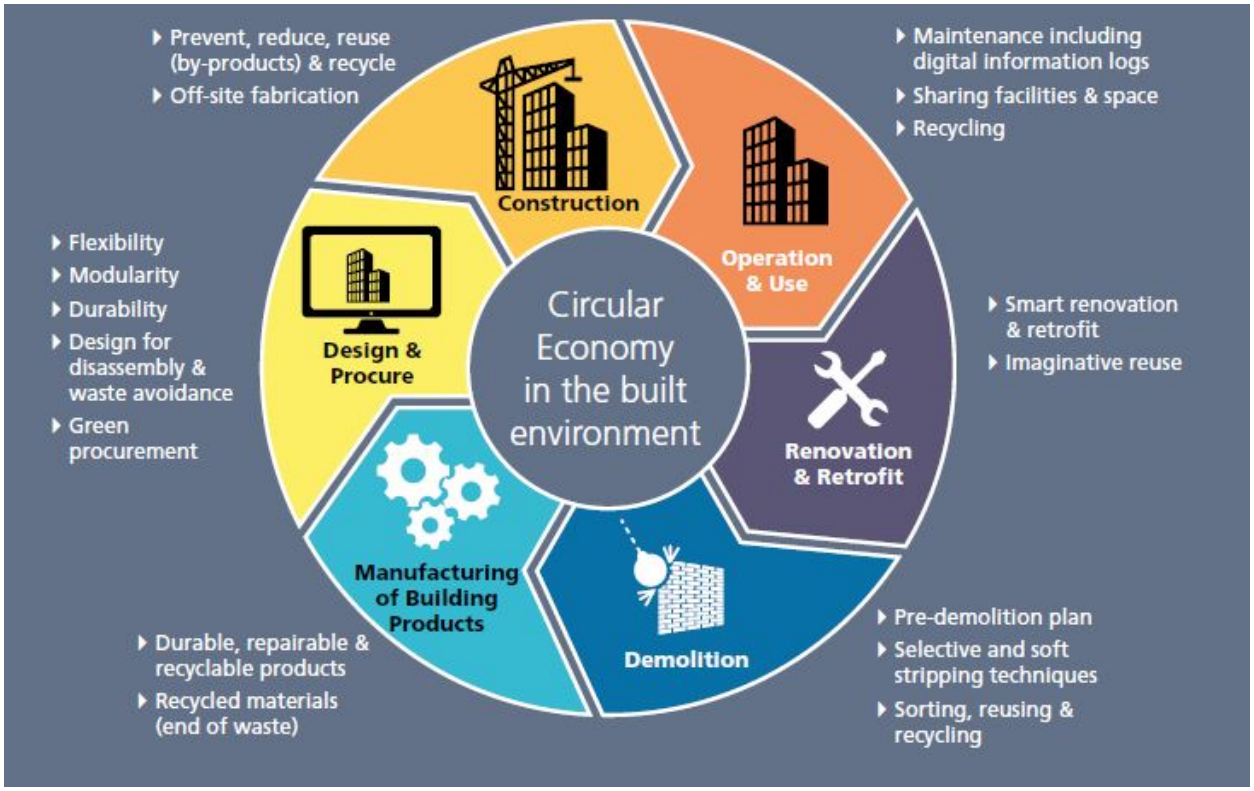


Figure 1.5: Circular economy for the construction and demolition sector[6]

A key difference to previous approaches is the need to take action to design out wastes where possible during the lifetime of the development and plan for eventual decommissioning of a development in a manner that enables maximum reuse and recycling.

This approach is enshrined in the revised best practice guidelines for construction and demolition projects (EPA's 2021 Best Practice Guidelines), the requirement for which was set out in the national Waste Action Plan (see Figure 1.4). As per Section 1.3, this RWMP has been developed referencing those revised guidelines and design considerations are summarised in Section 4.

1.7. Construction Phase Waste Management Targets

As per Section 1.5, SSE's 2023/24 Environment Strategy commits the Group to diverting 95% (by weight) of waste produced from landfill and recycling a minimum of 50% (by weight) of that diverted waste.

This is aligned to the Waste Framework Directive (WFD), enacted in Ireland via the Waste Directive Regulations 2011 (S.I. No. 126 of 2011), which required preparation for reuse, recycling and other recovery of non-hazardous construction and demolition wastes to a minimum of 70% by weight by 2020 (as shown in Figure 1.3, Section 1.6.1).

As explained in Section 1.6.2, Irish waste policy has undergone recent revision to align with the transition to a circular economy. One of the changes to be implemented is the introduction of national waste management targets.

[6] Source: Best Practice Guidelines for the preparation of resource and waste management plans for construction and demolition projects, EPA 2021

The proposed development will be expected to positively contribute to Ireland's national targets (once they are announced) and to the SSE Group targets (see Section 1.5 above) via implementation of a project specific waste management plan with clearly stated waste management targets aligned to both the national targets and the SSE Group targets.

The Proposed Development's construction phase waste management targets will be discussed with contractors tendering for the construction phase and will form a requirement of the contracts awarded to the Contractors (see also Sections 3 and 6).

All appointed Contractors will be required to regularly report on progress in achieving the construction phase waste management targets, including recording the waste management option(s) applied to the wastes generated (reuse, recycling, energy recovery and disposal) (see also Section 6).

1.8. Operation & Maintenance Phase and Decommissioning Phase Waste Management Targets

As per the preceding sections, Irish waste policy has undergone recent revision and national waste management targets are to be introduced. Projects and operations will be expected to support Ireland's achievement of the national waste management targets via implementation of their own waste management targets.

Given that the operation and maintenance phase is circa four years hence and the decommissioning phase will not be reached for circa 40 years hence, it is not appropriate to state waste management targets for these phases in this RWMP.

However, the RWMPs that will be produced for those phases are required by this RWMP to state their waste management targets which must comply with regulation, policy and guidance current at the time, which it is reasonable to expect will result in targets that will at least match, if not better, those stated herein for the construction phase.

Relevant Related Documents

As is explained in the foregoing sections, this RWMP forms an Annex to the EMP for the Proposed Development which itself forms an appendix to the EIAR prepared to support the Proposed Development's planning application. These and other relevant SPL documents referenced in the following sections are listed below:

- Arklow Bank Wind Park 2 Offshore Infrastructure Environmental Impact Assessment Report, produced by GoBe for Sure Partners Limited, dated May 2024;
- Arklow Bank Wind Park 2 Offshore Infrastructure Environmental Management Plan, produced by GoBe for Sure Partners Limited, dated May 2024;
- Arklow Bank Wind Park 2 Onshore Grid Infrastructure Construction Waste Management Plan, produced by Arup for Sure Partners Limited, dated April 2021 (Appendix 6.1C to the EIAR for the Onshore Grid Infrastructure); and
- Arlow Bank Wind Park 2 Operations and Maintenance Facility Construction and Demolition Waste Management Plan, produced by RPS for Sure Partners Limited, dated October 2021 (Appendix 5.2 to the EIAR for the Operations and Maintenance Facility).

2. Summary Description of Proposed Development

A detailed description of the Proposed Development is presented in Volume II, Chapter 4 Description of Development of the EIAR to which, via the EMP, this RWMP forms an Annex. The following provides a summary description of each phase of the Proposed Development relevant to the focus of this RWMP.

An initial summary estimate of the wastes to arise from each phase of the Proposed Development, based on the description below, is presented in Section 5.

2.1. Construction Phase

2.1.1. Construction Phase Overview

The Proposed Development to which this RWMP relates is the offshore infrastructure of the ABWP2 offshore wind farm planned for development on and around Arklow Bank in the Irish Sea, approximately 6 - 15 km east of Arklow in County Wicklow. A plan (Figure 2.1) showing the location of the Proposed Development is presented overleaf[7].

The proposed offshore infrastructure associated with ABWP2 will comprise all development seaward of the high-water mark (HWM). Some elements of the design for the Proposed Development have not yet been confirmed, therefore the consent being sought is based on two Project Design Options: one comprising 47 wind turbine generators (WTGs) and one comprising 56 WTGs. The number of WTGs will be determined by the Project Design Option selected (two are under consideration).

Both Project Design Options will include two Offshore Substation Platforms (OSPs), two offshore export cables which will go to a landfall location approximately 4.5 km north of Arklow at Johnstown North, and a network of inter-array cabling and interconnector cables together with scour and cable protection.

The Array Area (i.e. the area in which the WTGs, inter-array cables, interconnector cables and OSPs will be located) covers 63.4 km^2 (a rectangular block approximately 27 km long and 2.5 km wide).

A summary of the components of the Proposed Development relevant to this RWMP are presented on the following pages.

[7] The existing infrastructure referenced on Figure 2.1 overleaf relates to the existing Arklow Bank Wind Park 1 (ABWP1) offshore wind farm.

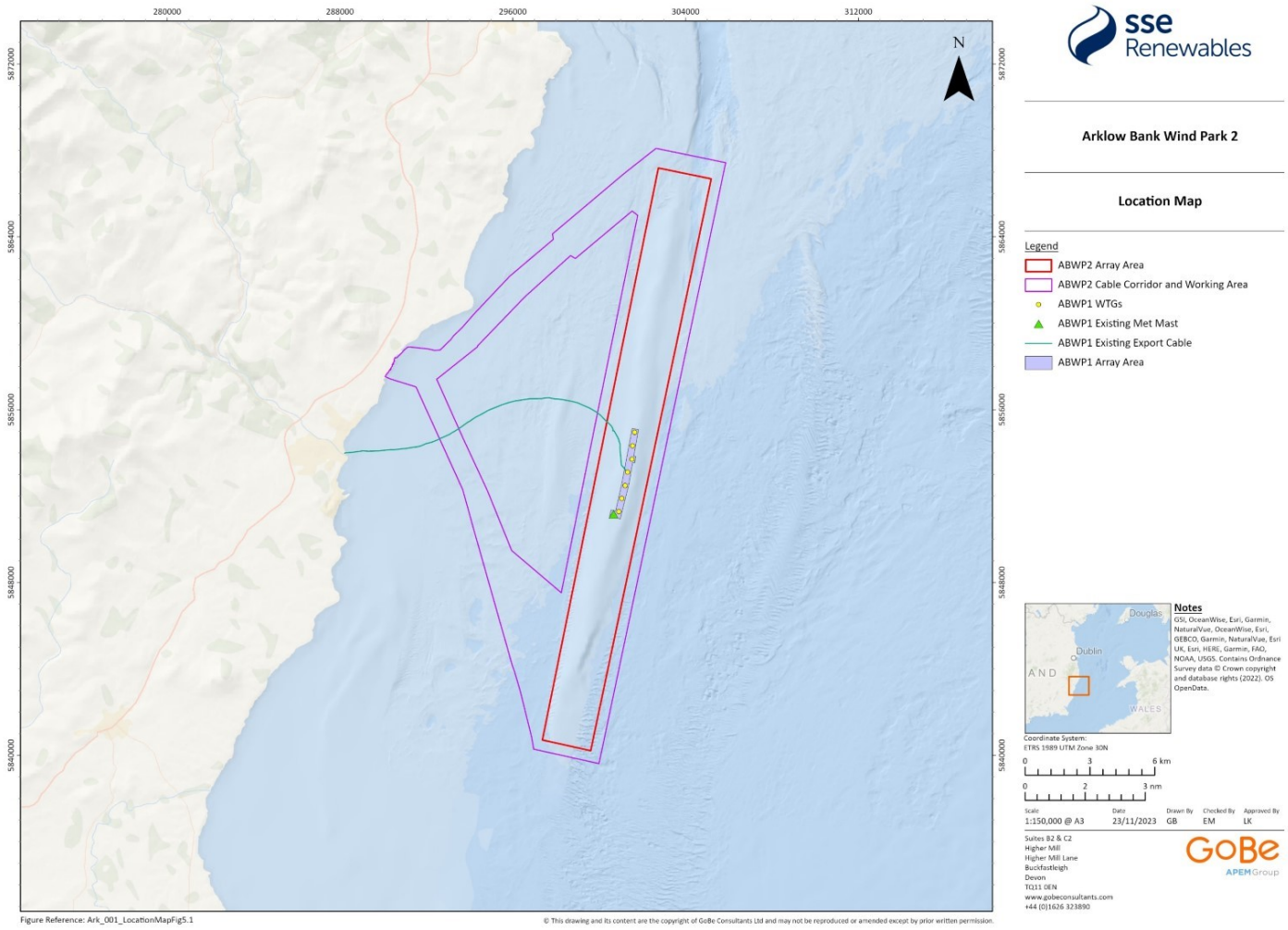


Figure 2.1: Location of the Proposed Development[8]

[8] Source: Arklow Bank Wind Park 2 Offshore Infrastructure Environmental Impact Assessment Report, produced by GoBe for Sure Partners Limited

2.1.2. Two WTG Project Design Options

As per Section 2.1, two WTG diameters are currently being considered. Irrespective of the design option selected, the WTGs will comprise three blades and a horizontal axis rotor. The blades will be connected to the hub, forming a rotor which turns a shaft connected either directly to the generator ('direct drive') or to a gearbox, which are located within the nacelle. The nacelle is supported by the tower. The WTGs predominantly comprise steel and composite blades.

Each WTG will contain quantities of oils and fluids (such as lubricating oils, hydraulic oils and coolants) to support regular operations and maintenance activities. Oils and fluids will be replaced as required during the operation and maintenance phase (see also Section 2.2). In addition, petroleum fuels may be used to fuel temporary generators providing power to equipment and marine lighting during construction and the later phases.

2.1.3. Offshore Substation Platforms

The two offshore substation platforms (OSPs) will transform the energy generated by the WTGs into a higher voltage prior to the energy being transmitted to shore.

The two OSPs will comprise steel topsides structures consisting of a platform with a number of decks and a heli-hoist area. The topsides will each house the substation infrastructure including switchgear, transformers, control equipment, auxiliary electrical equipment, cranes, batteries, generators, fire control systems and a communications mast. Both will provide access and emergency welfare provision for personnel.

Each OSP will contain quantities of oils and fluids (such as lubricating oils, hydraulic oils and coolants). The oils and fluids will be replaced as required during the operation and maintenance phase (see also Section 2.2). In addition, petroleum fuels may be used to fuel temporary generators providing power to equipment during construction and the later phases.

2.1.4. Foundations

The foundation of each WTG and OSP will comprise a steel monopile driven into the seabed. The diameter of the piles and the depths to which they will penetrate the seabed will depend on location specific water depths and seabed conditions which will be confirmed following confirmatory surveys (see Section 2.1.7).

The monopiles may also include a steel transition piece (TP) installed over the monopile acting as a structural interface between the monopile and the WTG tower or OSP topside.

The TP for the WTG foundations, if employed, will include boat landing ladders (and rest platform if applicable), an external working platform, a davit crane and other ancillary components (i.e. communication antennae, navigational aids, identification signage, lighting etc).

The TP for the OSP foundations, if employed, will include support for the topside structure, a deck to facilitate cable pulling and access to the topside, boat landing systems (including rest platforms if applicable), davit cranes and other ancillary equipment.

Alternatively for the WTGs, the monopile may be directly connected to the WTG tower, in which case the TP-less monopile would provide the same functionality as defined for the TP above, but with secondary steel components installed to the monopile offshore.

Cathodic protection will be installed on each foundation. This may consist of subsea zinc or aluminium anodes, as is typical for offshore wind farms and other subsea structures. These are also known as 'sacrificial' anodes, as the anodes gradually dissipate and are diluted into the sea water, protecting the

foundation. Alternatively, an impressed current cathodic protection (ICCP) system may be used or used in combination with sacrificial anodes. Other corrosion protection methods may also be used such as application of corrosion resistant coatings, inclusion of corrosion allowance or fabrication from non-metallic or corrosion resistant materials.

Scour protection will be installed around each foundation to prevent scour holes developing around the structures. The scour protection may include the use of:

- Concrete mattresses: typically several metres wide and long, cast of articulated concrete blocks which are linked by a polypropylene rope lattice which are placed around the structures to stabilise the seabed and inhibit erosion;
- Rock: methods such as placement of layers of graded stones on and/or around structures to inhibit erosion.
- Artificial fronds: mats typically several metres wide and long, composed of continuous lines of overlapping buoyant polypropylene fronds that create a drag barrier which prevents sediment in their vicinity being transported away. The frond lines are secured to a polyester webbing mesh base that is secured to the seabed by a weighted perimeter or anchors pre-attached to the mesh base.
- Rockbags: mesh bags comprising rope fabric which contains elements of recycled plastic. Mesh bags are currently sized up to 12 tonnes in weight per bag and are filled with a loose mix of varying sized rocks. These bags are placed in overlapping concentric rings.
- Geotextile Sand Containers: comprise geotextile fabric bags filled with sand instead of rock. The bags are positioned around the monopile structures, that acts to reduce turbulent flow and reduce scour.

The type and design of the scour protection deployed will depend on the monopile foundation and other factors e.g. seabed conditions.

Referencing Table 4.4 of Volume II, Chapter 4 Description of Development of the EIAR, the total estimated volume of scour protection for both the WTGs and OSPs is between 15,044 and 848,130 m^3.

2.1.5. Subsea Cables

The following describes the subsea cables. The Developer will seek to bury the cables to ensure they are adequately protected from activities such as anchoring and fishing. Seabed conditions such as shallow rock, boulders or stiff clays may prevent the cable installation equipment reaching adequate burial depth. In areas where adequate burial depth has not been achieved the cables will require additional protection (see Section 2.1.6).

Inter-Array Cables

Inter-array cabling will connect each WTG to an OSP and, in some cases, to other WTGs. The proposed cables will consist of cross-linked polyethylene (XLPE) insulated aluminium or copper conductor submarine cables. Each submarine cable will comprise a three-core cable (i.e. three electrical conductors within the one cable) and fibre optic cores.

The length of inter-array cables to be deployed will be dependent on site constraints and seabed conditions but is estimated to be between 110 – 122 km. Where seabed conditions permit, the cables will be buried up to 1.5 m beneath the seabed level.

Interconnector Cables

Due to the installation of two OSPs, an interconnector cable may be required to connect the two OSPs to each other. If deployed, the interconnector cable will consist of either an XLPE insulated aluminium or copper conductor submarine cable and contain fibre optic cores.

The length of the interconnector cable, if deployed will depend on site constraints and seabed conditions but is estimated to be circa 25 -28 km Where seabed conditions permit, the cable will be buried up to 2.5 m beneath the seabed level.

Offshore Export Cables

Two offshore export cable circuits will be installed to transmit the electricity generated by the WTGs from the OSPs to the landfall at Johnstown North. Each circuit will consist of three cores and fibre optic cores, together in a single subsea cable.

The length of the offshore export cables will depend on site constraints and seabed conditions but is estimated to be circa 35 – 40 km. Where seabed conditions permit, the cables will be buried 0- 2.5 m beneath the seabed level.

2.1.6. Cable Protection

As noted above, the cables will be buried. However, in certain scenarios, burial will not be possible, (e.g. difficult seabed conditions, where cable crossings occur, where the cable leaves the seabed and enters the J-tube attached to / cable entry hole on the WTG or OSP substructure). In such instances, cable protection will be installed to prevent movement or exposure of the cables.

Cable Protection is external armouring applied to exposed cables or used at cable crossings and typically comprises rock (berms or bags), ducting (polyurethane, steel, High Density Polyethylene (HDPE), cast iron or plastic) or concrete mattresses. The preferred solution for protection will depend on factors such as seabed conditions and the specific risks presented to the cables including the level of souring, seabed mobility, vessel activities, nearby infrastructure and installation methodology.

Referencing Volume II, Chapter 4 Description of Development of the EIAR, Table 4.8 the total maximum volume of cable protection to be deployed, depending on the final design and seabed conditions, is estimated to be 567,600 m^3.

2.1.7. Preparatory Works

Prior to construction commencing, confirmatory surveys will be conducted, including those designed to identify obstacles that may affect construction. Where possible the design will be modified to avoid the obstacles but where that is not possible, naturally occurring obstacles (e.g. boulders) and seabed features such as mobile sand waves will be removed / cleared and redeployed on the seabed. As per Section 1.4, materials that are emitted or deposited offshore are out with the scope of the Proposed Development's RWMPs.

2.1.8. Offshore Construction Vessels and Marshalling Ports

Construction of the Proposed Development will take place offshore using offshore construction vessels. Those vessels will form the offshore "construction sites" where wastes generated from construction of the Proposed Development and destined for onshore management will be stored pending their transfer to shore.

Prior to being transferred offshore for use in the construction phase, components of the Proposed Development will be temporarily stored at a marshalling port(s). Some activities may be undertaken at the marshalling ports that will generate wastes directly related to the Proposed Development, (e.g. cable cutting, alterations to a WTG tower etc) (see also Section 5.2).

2.1.9. Construction Project Programme and Phasing

A high-level indicative construction programme is presented in Figure 2.2 overleaf (sourced from Volume II, Chapter 4 Description of Development (Figure 4.29)) showing a total five-year construction period comprising the following phases:

- Seabed preparation activities;
- Landfall transition works;
- Foundations installation;
- OSP installation and commissioning;
- Offshore export cables installation;
- Inter array cables installation;
- WTG installation;
- Commissioning works; and
- Completions and snagging.

As per Section 1, a number of Contractors will be appointed for the construction phase to deliver the works necessary for the above individual construction phases. Prior to commencing works, each Contractor will be required to develop a construction phase RWMP detailing the wastes to be generated from their phase of the development works and complying with the framework of controls set out in this RWMP.

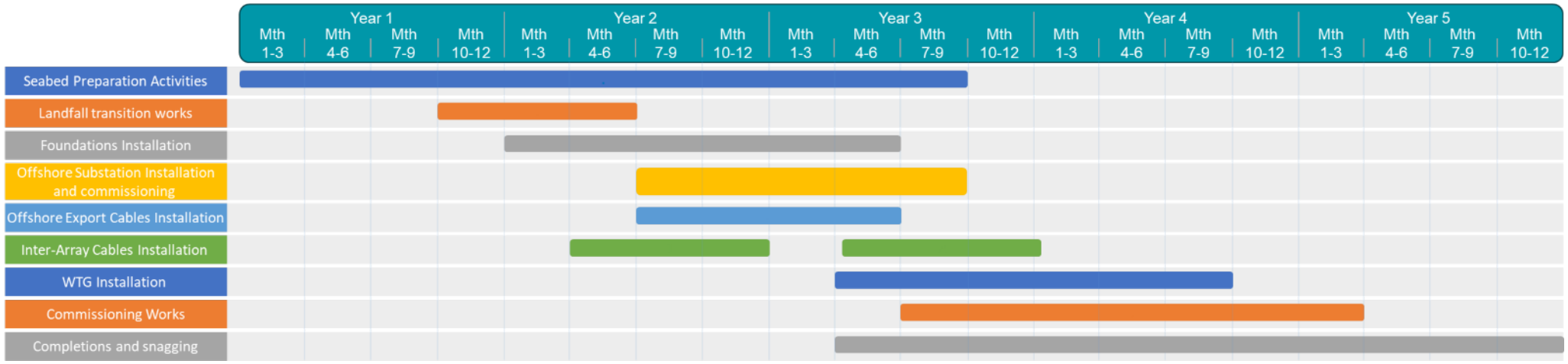


Figure 2.2: High-Level Indicative Construction Programme for the Proposed Development[9]

[9] Based on Figure 15, Chapter 4 of the EIAR

2.2. Operation and Maintenance Phase

The Proposed Development will be operational for a period of up to 36.5 years. Actual operation (i.e. wind generated electricity) of the Proposed Development will not produce waste, however maintenance of it will as summarised below.

During the operational lifetime of the Proposed Development, regular inspection and maintenance activities will be required, coordinated by a team based at the ABWP2 Operations and Maintenance Facility (OMF) at Arklow Harbour.

As per Section 1.4, the wastes associated with the OMF are subject to a separate RWMP which was prepared for inclusion with the EIAR developed in support of the planning application for the OMF (granted in June 2022), thus wastes associated with the OMF are not included herein.

Generally, inspection and day-to-day maintenance will be carried out by a team(s) of technicians transiting to and from the Array Area in the Crew Transfer Vessels (CTVs) which will be based at the OMF. Other maintenance vessels, such as Service Operation Vessels (SOVs), may also be used to support maintenance activities. Occasionally, in the event of a fault or to maintain larger components, maintenance will be carried out by external contractors and larger vessels, such as jack-up vessels. Any major component replacement activities will be undertaken by larger vessels operating from suitable port facilities.

Tables 2.2 and 2.3 provide a description of the reasonably foreseeable maintenance activities anticipated to be required over the lifetime of the Proposed Development associated with the WTGs and OSPs, and their foundations.

Table 2.4 provides a description of the reasonably foreseeable maintenance activities associated with the inter-array, interconnector and offshore export cables over the lifetime of the Proposed Development.

Note that in each of the tables, only the activities anticipated to generate wastes within the scope of this and the subsequent RWMPs to be prepared for the Proposed Development are included (see also Section 1.4).

Table 2.2: Operation and Maintenance Activities for WTG and OSP Foundations Anticipated to Generate Wastes Within the Scope of the RWMP(s)

Activity	Description	Frequency
Repairs and replacements of navigational equipment	Repairs and replacements of electrical equipment such as lighting, fog horns, navigation lights and transponders	Once every 2 years
Replacement of corrosion protection anodes	Remove and replace anodes required for corrosion protection	WTGs: Four per year across windfarm (WTGs) OSPs: Sacrificial anode system: 1 complete system replacement in the design life of the OSP Impressed Current Cathodic Protection System: 1 system repair every 5 years
Replacement or modifications of ancillary structures (if required)	Removal and replacement or modification of access ladders, boat landings, J-tubes, Davit Cranes	All assets every 5 years
Scour protection repair and maintenance	Including remedial works and replacement of scour protection, where required.	All assets every 5 years
Modifications to/replacement of J-tubes	Modifications to / replacement of J-tubes e.g. during inter-array cable repair works.	1 every 5 years
Based on Tables 4.23 and 4.24, Chapter 4 of the EIAR		

Table 2.3: Operation and Maintenance Activities for WTGs and OSPs Anticipated to Generate Wastes Within the Scope of the RWMP(s)

Activity	Description	Frequency
Replacement of consumables and minor components	Replacement of consumables within the WTG (e.g. filters, oils, lubricants) and minor components in the OSPs	WTGs: Oils / filters annually. Gearbox oil minimum 5 yearly OSPs: Replacement both on condition and on time basis
Minor repairs and replacements within the WTGs	Minor repairs and replacements within the WTG (e.g. motors, pumps, small electric equipment, circuit breakers, fuses)	As required
Major component replacement	Replacement of blades, gearboxes, transformers or generators (WTGs) Replacement of transformers, switchgear etc (OSPs)	WTGs: 14 jack-up events per annum OSPs: One to two replacements every 10 years
Based on Tables 4.25 and 4.26, Chapter 4 of the EIAR		

Table 2.4: Operation and Maintenance Activities for Inter-Array Cables, Interconnector Cable and Offshore Export Cables Anticipated to Generate Wastes Within the Scope of the RWMP(s)

Activity	Description	Frequency
Cable repair	Repair and replacement of cables	Inter-Array and Interconnector: 1 every 3 years Offshore export: 1 every 5 years

Based on Tables 4.27 to 4.29, Chapter 4 of the EIAR

2.3. Decommissioning Phase

As is explained in Chapter 4 of the EIAR and further detailed in the Rehabilitation Schedule (Volume III, Appendix 4.1), at the end of the life of the Proposed Development (circa 40 years from now), it is anticipated that all structures above the seabed will be removed, as summarised in Table 2.5 below.

Table 2.5: Summary of Anticipated Decommissioning Activities

Component	Anticipated Decommissioning Strategy
WTG components	Removed
OSP Topsides	Removed
Foundations	To be cut 2 m below seabed level
Scour protection	To be left *in situ*
Inter-array, interconnector and offshore export cables	To be left *in situ*
Cable protection	To be left *in situ*
Based on Table 4.31, Volume II, Chapter 4 of the EIAR	

As per the Rehabilitation Schedule, decommissioning of the Proposed Development will essentially be a reverse construction process, using construction vessels (referred to herein as decommissioning vessels for ease of reference) to dismantle the components of the Proposed Development identified in Table 2.5 above.

Following removal, the components will be returned to shore (the dismantling yard(s)) for onward waste management.

The final design, construction, operation and maintenance of the Proposed Development will all consider the eventual need for removal of the associated structures above the seabed at end of life.

3. Roles and Responsibilities

The following describes the roles and responsibilities of the key parties with respect to resource and waste management during each phase of the Proposed Development's life.

3.1. Developer's Team

3.1.1. Pre-Construction Phase

The Developer's Team with responsibilities relevant to resource and waste management during the pre-construction phase of the Proposed Development comprises that set out in Table 3.1 below.

Table 3.1: Developer's Pre-Construction Phase Team[10]

Role	Company
Developer	Sure Partners Limited (SSE Renewables)
Engineer	SSE Renewables
Resource and Waste Manager	Safetec UK Limited
Environmental Consultant	GoBe Consultants Ltd and Safetec UK Limited

The responsibilities of each of the above roles relative to resource and waste management during the pre-construction phase are set out in Table 3.2 overleaf.

[10] Note this table is an adaption of that expected for a Tier 2 project by the EPA's 2021 Best Practice Guidelines for the preparation of resource and waste management plans for construction and demolition projects; the version presented here contains the roles relevant to the Proposed Development.

Table 3.2: Developer's Pre-Construction Phase Team Resource and Waste Management Responsibilities

Role	Resource and Waste Management Responsibilities	
Developer (Client)	Legal obligation (the waste duty of care) to ensure compliant management of the wastes to arise from the Proposed Development. This responsibility is discharged via: • Establishing the vision and construction phase waste management targets for the Proposed Development; • Setting out the commitments and targets in relation to prevention and minimisation in the project brief, tendering documentation including pre-qualification requirements, invitation to tender etc; • Requiring the preparation and submission of an RWMP (this RWMP) as part of the design and planning submission; • Requiring the preparation and submission of an updated RWMP as part of the construction tendering process (i.e. the RWMP(s) to be produced by the Contractor(s)); • Ensuring the RWMP(s) developed by the Contractor(s) is agreed and submitted to An Bord Pleanála prior to commencement of works on site; and • Requesting the end of project construction phase RWMP(s) Implementation Review Report(s) from the Contractor(s)	Design the Proposed Development aligned to it achieving waste management throughout its lifecycle that is compliant, aligned to the project waste management targets and capable of being sustainably decommissioned
Engineer	Consider the engineering design of the Proposed Development in terms of: • Reducing the amount of waste generated during construction; • Designing for reuse and recycling of component parts during operation and maintenance where possible; and • Designing for sustainable decommissioning.	
Resource and Waste Manager	• Liaise with the rest of the Design Team to aid understanding of their resource and waste management responsibilities. • Develop the RWMP and maintain it during the planning, detailed design and procurement phases; and • Review the RWMP(s) produced by the tendering Contractor(s) to verify compliance with the RWMP.	
Environmental Consultant	• Ensure integration of the RWMP in the EIAR and supporting documents (e.g. EMP); and • Ensure integration of the RWMP in the related documents (e.g. EMP) during detailed design and procurement phases.	

3.1.2. Developer's Team: Future Phases

As the Proposed Development progresses into the construction, operation and maintenance, and eventual decommissioning phase, the Developer's team will adapt to comprise the relevant roles. However throughout, the Developer's Team will have the responsibility of ensuring the appointed Contractors at each phase of the Proposed Development's life produce and implement their respective RWMPs in compliance with this RWMP.

3.2. Future Role of the Construction Phase Contractor(s)

As per Section 1, resource and waste management roles and responsibilities will evolve as the Proposed Development progresses into the construction phase and the appointed Contractor(s) will take the lead in managing the resulting wastes.

As per Section 2.1.9, construction of the Proposed Development will be undertaken in numerous phases and several construction phase Contractors will be appointed to successfully deliver them. Each Contractor will be required to develop a construction phase RWMP (cRWMP) complying with the framework of controls established by this RWMP and appropriately aligned to the EPA's 2021 Best Practice Guidelines for preparation of RWMPs for construction and demolition projects.

Each Contractor's cRWMP will detail the specific construction team roles and their respective responsibilities for waste management which will include the following:

- Preparation, implementation and review of the cRWMP(s) throughout construction (including the management of all suppliers and sub-contractors) as per the requirements of the EPA's 2021 Best Practice Guidelines, in accordance with this RWMP and in accordance with all resource and waste management related contract conditions;
- Employment of a designated and suitably qualified Resource Manager (RM)[11] who will be responsible for implementing the cRWMP(s) (see also Section 6) and achieving management of wastes to meet the Proposed Development's construction phase waste management targets as established in this RWMP (Section 1.7);
- Assurance that all wastes brought to shore are managed compliantly including the use of appropriately permitted waste hauliers and appropriately authorised waste management facilities, this includes compliance with transfrontier shipment regulations should wastes be transferred outside Ireland for management;
- Ensuring that end-of-waste and by-product notifications are addressed with the EPA where required;
- Clarification of any other statutory waste management obligations, e.g. any on-site processing;
- Ensuring full records of all resources (both wastes and other resources) are maintained as per the requirements of this RWMP; and
- Preparation of a cRWMP Implementation Review Report at project handover (see also Section 6.6 herein).

[11] This role may be undertaken by the Contractor's Environmental Manager if that person has the appropriate knowledge and experience to be able to also fulfil the role of the RM (see also Section 6).

It should be noted that although the Contractor(s) will have responsibility for identifying and managing the wastes to result from their respective construction phase of the Proposed Development, the Developer maintains a waste duty of care throughout to ensure that waste management is being undertaken in accordance with the framework of controls established by this RWMP.

Therefore, the Developer will review all cRWMPs before they are finalised and actioned, verifying that they comply with the framework of controls established by this RWMP, and will undertake periodic checks to verify wastes are being managed in accordance with the respective cRWMP (see also Section 6).

3.3. Future Roles of the Operation & Maintenance Phase and Decommissioning Phase Contractor(s)

As per Section 1.1, Contractors will be appointed for the operation and maintenance phase and for the decommissioning phase and all will be required to produce omRWMP(s) and dRWMP(s) respectively that comply with the framework of controls established by this RWMP.

Each appointed Contractor's RWMP will detail the specific team roles and their respective responsibilities for waste management and will be compliant with relevant regulations, policy and guidance current at the time.

Such relevant regulations, policy and guidance current during the operation and maintenance phase and during the eventual decommissioning phase will determine the responsibilities of the respective Contractors' teams. However as a minimum, those responsibilities are expected to include the following:

- Preparation, implementation and review of the phase specific RWMP(s) throughout the duration of the Contractor's appointment (including the management of all suppliers and sub-contractors) in accordance with this RWMP and in accordance with all resource and waste management related contract conditions;
- Employment of a designated and suitably qualified Resource Manager (RM)[12] who will be responsible for implementing the phase specific RWMPs (see also Section 6) and achieving management of wastes to meet the Proposed Development's phase specific waste management targets (see Section 1.8);
- Assurance that all wastes brought to shore are managed compliantly including the use of appropriately permitted waste hauliers and appropriately authorised waste management facilities, this includes compliance with transfrontier shipment regulations should wastes be transferred outside Ireland for management;
- Ensuring that end-of-waste and by-product notifications are addressed with the EPA where required;
- Clarification of any other statutory waste management obligations, e.g. any on-site processing;
- Ensuring full records of all resources (both wastes and other resources) are maintained as per the requirements of this RWMP; and
- Preparation of a phase specific RWMP Implementation Review Report at project handover (see also Section 6.6 herein).

[12] This role may be undertaken by the Contractor's Environmental Manager if that person is suitably qualified and experienced (see also Section 6).

As per the construction phase, the Developer will review all omRWMPs and dRWMPs before they are finalised and actioned, verifying that they comply with the framework of controls established by this RWMP, and will undertake periodic checks to verify wastes are being managed in accordance with the respective phase specific RWMP (see also Section 6).

4. Design Approach

As per Section 1.6.3, the move to a circular economy requires action to design out wastes where possible during the lifetime of a development and plan for its eventual decommissioning in a manner that enables maximum reuse and recycling.

The following describes the resource and waste management measures already under consideration and those to be included prior to finalisation of the design and to be discussed with the tendering Contractors prior to appointment for each phase of the Proposed Development's life.

4.1. Waste Prevention

Prevention of waste generation is a key consideration throughout the life of the Proposed Development and will be factored into the tendering process at each stage of the Proposed Development's life, including in the tendering process for supply of the component parts of the offshore infrastructure.

Example questions / requirements that will be included in the invitations to tender are:

- Do you have a circular economy strategy which outlines practices to design out waste across the whole asset lifetime?
- Does your company have a documented waste management procedure or strategy to reduce/eliminate waste and bi-products? If yes, please provide evidence (e.g. reducing the use of single use plastics from packaging and consumables).
- Please provide evidence including weight percentage of recycled content within the product or asset being provided.
- Do you have policies/processes/procedures that encourage the reuse of material, recycling and the use of recyclable materials?
- Please detail how operation and maintenance activities will aim to reduce waste and resource consumption. An example of good practice would be to enable the remanufacturing of parts and use of remanufactured parts.

Each appointed Contractor for each phase of the Proposed Development's life will be required to demonstrate, in their phase specific RWMP, how their design of the methodologies via which they will undertake their scopes of work, considers the waste hierarchy and the circular economy and achieves waste prevention and reduction (see also Sections 6 and 7 herein).

Waste prevention considerations to be applied to the Proposed Development will be supported and informed by SSE's involvement in the SusWIND work programmes. SusWIND is a UK based research and development programme being delivered in partnership with the Offshore Renewable Energy Catapult and supported by The Crown Estate and RenewableUK. The work programmes include designing for circularity thereby forwarding the wind sector's ability to design out wastes from developments, irrespective of their geographical location (and therefore applicable to the Proposed Development). SSE's involvement in SusWIND will enable it to apply the programme's results throughout the lifetime of the Proposed Development.

4.2. Reuse

A key aspect of furthering the circular economy is to enable reuse. Design and construction methodology considerations of the Proposed Development will include how to optimise the potential for future removal, repair and reuse of components during both the operation and maintenance phase and during eventual decommissioning.

Such considerations will not be limited to how component parts can be removed and repaired/refurbished but also consider the materials from which they are made and the influence they have on future reuse.

As is further detailed in Sections 6 and 7, each appointed Contractor throughout the life of the Proposed Development will be required to produce a phase specific RWMP which must include detail on how the Contractor will achieve maximum reuse of wastes produced and meet the project waste management targets (see also Section 1).

Reuse could be within the Proposed Development or by third parties and the future phase specific RWMPs to be developed will, as appropriate and relevant, include measures for identifying suppliers for repair and refurbishment and markets for reuse of component parts.

The above will be supported by SSE's membership of the Coalition for Wind Industry Circularity (CWIC), a sector specific collaborative research body based in the UK. CWIC is driving the creation of a circular supply chain for the renewable energy sector, with specific focus on building the capabilities to refurbish wind turbine parts. Given the proximity of the Proposed Development to the UK and its 36.5 year operational period, the Proposed Development is ideally placed to benefit from timely outcomes of the CWIC initiatives.

4.3. Recycling

Similarly to reuse, the potential for removal and recycling of component parts during both the operation and maintenance phase and eventual decommissioning will be considered prior to finalising the design. Recycling will be prioritised for all items that cannot be reused; thus design decisions will consider the materials to be used and the influence they will have on the ability to recycle the component parts.

As per the above, SSE is involved with the SusWIND programme. In addition to designing out wastes, a key area of focus for the programme is to address the current issues faced by the presence of composite materials in end-of-life turbine blades. Composite materials currently limit the ability to recycle blades, thus the programme is investigating how the materials can enter the supply chain as recycled composite materials for use in other sectors. SSE's involvement in programmes such as this will enable it to apply the results directly to the Proposed Development during its lifetime.

4.4. Flexibility and Deconstruction

For those components anticipated to be removed at end of life (see also Section 2.3 herein and the Rehabilitation Schedule prepared for the Proposed Development (Volume III, Appendix 4.1 of the EIAR), the design and construction of the Proposed Development will aim to be such that it optimises the ability to sustainably decommission the Proposed Development, maximising reuse and recycling of the component parts to be removed.

Additionally, decisions informing the design and construction (see also above) will consider if and how the Proposed Development may be designed and built to enable it to be repowered and / or refurbished for other uses in the event that such is a viable option when the Proposed Development reaches its end of life.

5. Estimates of Wastes to Result

5.1. Context

The following sections present provisional estimates of the types and quantities of wastes likely to be generated during the construction, operation and maintenance, and decommissioning phases based on the currently available information. Comment is also provided on the anticipated waste management option(s) to be applied.

The information presented in the following sections will be refined as the design of the Proposed Development progresses and relevant detail, addressing the post design requirements of the EPA's 2021 Best Practice Guidelines, will be presented in a revised RWMP, as appropriate, and in the cRWMPs to be produced by the appointed Contractors prior to construction works commencing.

Following construction, RWMPs will be developed for the operation and maintenance phase (omRWMPs) which will provide more detail on the types and quantities of wastes to arise and the specific waste management routes to be implemented during that phase of the Proposed Development's life.

Similar provisional estimates for the types and quantities of wastes to be generated during eventual decommissioning are also presented. At end of life of the Proposed Development, a detailed RWMP for the decommissioning phase (dRWMP) will be produced by the appointed Contractor(s) detailing the types and quantities of wastes to arise and how they will be managed aligned to the framework of controls established by this RWMP.

5.2. Construction Phase Waste Estimates

Table 5.1 overleaf presents the provisional estimate of waste types to arise from construction of the Proposed Development.

The information presented is based on the project description provided in Section 2.1 and the following considerations:

Demolition or Removal of Existing Structures:

There is no demolition or removal of existing structures required prior to construction of the Proposed Development and therefore no resulting wastes.

Preparatory Works:

Preparatory works will include seabed clearance where obstacles cannot be avoided and where the seabed requires levelling prior to construction of foundations for the OSPs and WTGs and to facilitate installation of the cables. The principal material that will result from preparatory works is dredged material and boulders from the seabed which will be deposited offshore. As per Section 1.4, material deposited offshore is outwith the scope of this and the subsequent RWMPs to be prepared for the Proposed Development, thus is not included in Table 5.1.

It is possible that some manmade debris will require clearance during the preparatory works and, where recoverable, will be brought to shore. Reference to such debris has been included in Table 5.1 however it is not possible to provide an estimate of the associated quantities given such will depend on the debris encountered (if any).

Off-Site Manufacturing:

The component parts of the development (e.g. component parts of the OSPs, component parts of the WTGs, cables) will be manufactured offsite and delivered offshore ready for construction and connection, or to a marshalling port prior to offshore installation.

Limited amounts of waste may be generated should alterations etc be required on the construction vessels or at the marshalling port(s) where some components of the Proposed Development will be temporarily stored pending mobilisation offshore. See below (construction vessels and marshalling ports).

Construction Vessels and Marshalling Ports:

As is explained in Section 2.1, construction of the Proposed Development will take place offshore. Therefore, there will be no "construction site" in the sense normally established for an onshore development, i.e. no common hub where all contractors base themselves and their construction machinery, personnel, tools and supplies. Rather, for this Proposed Development, construction will be undertaken using construction vessels specific to the required tasks. Those construction vessels will form the hubs where personnel and equipment are based.

Wastes generated from routine operations of each vessel will be subject to the vessel's Garbage Management Plan (where applicable) which will govern the segregation, storage and containment of the wastes whilst on the vessel. As per Section 1.4, wastes resulting from routine operations (e.g. food waste, office wastes, wastes resulting from operation and maintenance of the vessel) are not considered wastes associated with the Proposed Development thus are not included in Table 5.1.

Similarly, as per Section 1.4, wastes resulting from the routine operations undertaken at marshalling ports (i.e. ports where components of the Proposed Development will be temporarily stored prior to being transferred offshore) will be controlled by the port's existing Waste Management Plan and are not considered wastes associated with this Proposed Development thus are not included in Table 5.1.

Only wastes resulting from activities directly related to the Proposed Development either onboard a construction vessel or undertaken at a marshalling port (e.g. cable cutting, alterations to a WTG tower etc) will be considered wastes associated with the Proposed Development and subject to the framework of controls set out in this RWMP. A provisional allowance for such wastes is included in Table 5.1 under the relevant activities.

List of Waste Description and Codes

The descriptions entered in the "LoW Waste Description" column in Table 5.1 are as written in the European Waste Catalogue (the List of Wastes, LoW). These descriptions are designed to describe the wastes specific to the source of waste as presented in the EWC and do not necessarily provide a description of the specific waste anticipated to arise from the Proposed Development (e.g. "other wastes"). Therefore an example associated waste that may arise from the Proposed Development and example waste generating activity is included for each row of the table.

The LoW codes presented are those it is reasonable to expect will be assigned to the related wastes, final designation of the codes to the actual wastes generated will be done by the appointed Contractor(s).

Anticipated Waste Management Options:

Anticipated waste management options (i.e. reuse, recycling, energy recovery, disposal) are shown for the identified waste types. Where more than one option is listed, they are listed in order of preference recognising that not all the associated wastes may be able to be managed in the same way. Hazardous wastes will be treated to, where possible, mitigate the hazardous properties. This may require trans frontier shipment of the wastes.

These anticipated waste management options are those it is reasonable to anticipate may be applied to the associated wastes, however the final waste management option for each waste will be identified by the appointed Contractor(s) who will be required to ensure selection of the waste management option(s) is done applying both the waste hierarchy and circular economy principles (see also Section 6).

Considering all the above, Table 5.1 overleaf presents the provisional estimates of wastes to result from construction of the Proposed Development and the associated anticipated waste management options to be applied.

Table 5.1: Provisional Estimates of Wastes to Arise from Construction Phase

LoW Waste Description	LoW Code	Example Associated Activity	Initial Estimated Arisings	Anticipated Waste Management Option(s)
Preparatory Works				
Other wastes	02 01 99	Marine growth associated with manmade debris encountered during seabed clearance (preparatory works) that might require removal	Unknown as will depend on whether debris is encountered and if so, what it comprises	Recycle (composted where facilities exist), landfill
Iron and steel	17 04 05	Reasonably expected waste types associated with manmade debris that might require removal		Recycle
Plastics	17 02 03			Recycle, energy recovery
Mixed metals	17 04 07			Recycle
OSP and WTG Foundation Installation and Scour Protection Installation				
Concrete	17 01 01	Inert grout / concrete mix from installation of monopiles (if used)	4,800 m^3	Recycle, disposal
OSP Topside Installation / Commissioning				
Iron and steel	17 04 05	Reasonably expected waste types that might arise during installation and commissioning of the OSP		Recycle
Plastics	17 02 03			Recycle, energy recovery

Mixed metals	17 04 07	topsides, e.g. from malfunctioning or broken parts, elements needing adjustment etc.	Cumulatively <10 Tonnes	Recycle
Hydraulic oils, waste engine, gear and lubricating oils, fuel oil and diesel, waste organic solvents , batteries and accumulators, discarded equipment (non-hazardous), hazardous components removed from discarded equipment, components removed from discarded equipment (non-hazardous)	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 16 06 01* - 16 06 05, 16 02 14, 16 02 15*, 16 02 16			Recycle, energy recovery, disposal
WTG Installation / Commissioning				
Iron and steel	17 04 05	Reasonably expected waste types that might arise during installation and commissioning of the WTGs, e.g. from malfunctioning or broken parts, elements needing adjustment etc.	Cumulatively <50 Tonnes	Recycle
Plastics	17 02 03			Recycle, energy recovery
Mixed metals	17 04 07			Recycle
Hydraulic oils, waste engine, gear and lubricating oils, fuel oil and diesel, waste organic solvents , batteries and accumulators, discarded equipment (non-hazardous), hazardous components removed	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 16 06 01* - 16 06 05, 16 02 14, 16 02 15*, 16 02 16			Recycle, energy recovery, disposal

from discarded equipment, components removed from discarded equipment (non-hazardous)				
Offshore Export Cable – Offshore Installation and Cable Protection Installation				
Plastics	17 02 03	Reasonably expected waste types that might arise during installation of the offshore export cable and the cable protection, e.g. from damaged sections or sections needing adjustment	Cumulatively <385 Tonnes	Recycle, energy recovery, disposal
Mixed metals	17 04 07			Recycle
Concrete	17 01 01			Recycle, disposal
Inter-Array and Interconnector Cable Installation and Cable Protection Installation				
Plastics	17 02 03	Reasonably expected waste types that might arise during installation of the offshore export cable and the cable protection, e.g. from damaged sections or sections needing adjustment	Inter-Array Cables: cumulatively <470 Tonnes Interconnector cables: cumulatively <270 Tonnes	Recycle, energy recovery, disposal
Mixed metals	17 04 07			Recycle
Concrete	17 01 01			Recycle, disposal

5.3. Operation and Maintenance Phase

Table 5.2 overleaf presents the estimate of waste types and quantities to arise from the operation and maintenance phase of the Proposed Development.

The information presented is based on the project description provided in Section 2.2 and the following considerations:

Maintenance Vessels and Operations and Maintenance Facility:

As is explained in Section 2.2, actual operation of the Proposed Development (i.e. wind generated electricity) will not generate waste, however maintenance of it will.

Maintenance will be coordinated from the onshore Operations and Maintenance Facility (OMF). As per Section 2.2, the OMF is subject to a separate EIAR and RWMP, therefore wastes arising from its operations are excluded from this RWMP thus not included in Table 5.2.

As per the construction phase of the Proposed Development, wastes resulting from the routine operation of vessels are not considered wastes associated with the Proposed Development and are not included in Table 5.2 overleaf. An allowance for wastes resulting from specific activities associated with the Proposed Development and carried out on the maintenance vessels is included in the rows for the activities listed.

Operation and Maintenance Activities:

Table 5.2 has been structured to present the reasonably anticipated waste types likely to arise from the operation and maintenance activities described in Section 2.2.

List of Waste Description and Codes

The descriptions entered in the “LoW Waste Description” column in Table 5.2 are as written in the European Waste Catalogue (the List of Wastes, LoW). These descriptions are designed to describe the wastes specific to the source of waste as presented in the EWC and do not necessarily provide a description of the specific waste anticipated to arise from the Proposed Development. Therefore an example associated waste that may arise from the Proposed Development and example waste generating activity is included for each row of the table.

The LoW codes presented are those it is reasonable to expect will be assigned to the related wastes, final designation of the codes to the actual wastes generated will be done by the appointed Contractor(s).

Anticipated Waste Management Options:

As per Table 5.1, anticipated waste management options (i.e. reuse, recycling, energy recovery, disposal) are shown for the identified waste types. Where more than one option is listed, they are listed in order of preference recognising that not all the associated waste may be able to be managed in the same way. Hazardous wastes will be treated to, where possible, mitigate the hazardous properties. This may require trans frontier shipment of the wastes.

Where possible, component parts that break or malfunction will be expected to be taken for repair enabling their reuse rather than being sent for recycling or disposal.

These anticipated waste management options are those it is reasonable to anticipate may be applied to the associated wastes. However the final waste management option for each waste will be identified by the contractor(s) appointed during the operation and maintenance phase applying both the waste hierarchy and circular economy principles.

Considering the above, Table 5.2 overleaf presents the initial estimates of wastes to result from operation and maintenance of the Proposed Development.

Table 5.2: Provisional Estimate of Types and Quantities of Waste to Arise from Operation and Maintenance Phase

LoW Waste Description	LoW Code	Example Associated Activity	Initial Estimated Arisings	Anticipated Waste Management Option(s)
Operation and Maintenance Activities: WTG and OSP Foundations				
Discarded equipment (non-hazardous), hazardous components removed from discarded equipment, components removed from discarded equipment (non-hazardous), fluorescent tubes and other mercury-containing waste	16 02 14, 16 02 15*, 16 02 16, 20 01 21*	Repairs and replacements of navigational equipment (WTG foundations only)	50 kg every 2 years	Reuse (if possible), recycling, disposal
Mixed metals	17 04 07	Replacement of corrosion protection anodes	100 kg per year	Recycling
Waste paint	20 01 27*	Painting	25 kg per year	Energy recovery, disposal
End of life vehicles (davit cranes), iron and steel, mixed metals, metal waste contaminated with hazardous substances	16 01 04*, 17 04 05, 17 04 07, 17 04 09*	Replacement or modifications of ancillary structures (if required)	100 Tonnes every 5 years	Reuse (if possible), recycling
Iron and steel	17 04 05	Replacement of access ladders and boat landings (OSP foundations only)	20 Tonnes every 5 years	Reuse (if possible), recycling
Iron and steel	17 04 05	Modifications to/replacement of J-tubes	20 Tonnes every 5 years	Reuse (if possible), recycling

Hydraulic oils, waste engine, gear and lubricating oils, fuel oil and diesel, waste organic solvents, packaging, absorbents, filter materials, wiping cloths and protective clothing, batteries and accumulators	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 15 01 01 – 15 01 06, 15 02 02*, 15 02 03, 16 06 01* - 16 06 05	Associated with the above activities	<1 Tonne per year	Recycling, energy recovery, disposal
Operation and Maintenance Activities: WTGs and OSPs				
Hydraulic oils, waste engine, gear and lubricating oils, fuel oil and diesel, waste organic solvents, batteries and accumulators, discarded equipment (non-hazardous), hazardous components removed from discarded equipment, components removed from discarded equipment (non-hazardous)	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 16 06 01* - 16 06 05, 16 02 14, 16 02 15*, 16 02 16	Replacement of consumables within the WTG (e.g. filters, oils, lubricants) Minor repairs and replacements within the WTG (e.g. motors, pumps, small electric equipment, circuit breakers, fuses)	< 830,000 Litres per 5 year period	Reuse (if possible), recycling, energy recovery, disposal
Plastics, waste electronic and electronic equipment	17 02 03, 16 02 09* - 16 02 16	Replacement of blades, gearboxes, transformers or generators	<200 Tonnes per year	Reuse (if possible), recycling, energy recovery, disposal
Waste paint	20 01 27*	Painting blades and minor paint repairs to tower and nacelle	<1 Tonne per year	Energy recovery, disposal
Packaging, absorbents, filter materials, wiping cloths and protective clothing	15 01 01 – 15 01 06, 15 02 02*, 15 02 03,	Associated with the above activities	<5 Tonnes per year	Energy recovery, disposal

Operation and Maintenance Activities: Cables				
Plastics	17 02 03	Reasonably expected waste types that might arise during repair and replacement of cables	Inter-Array Cables: <2,490 Tonnes during operation phase Interconnector cables: <1,530 Tonnes during operation phase Export cables: <1,530 Tonnes during operation phase	Recycle, energy recovery, disposal
Mixed metals	17 04 07			Recycle
Concrete	17 01 01			Recycle, disposal

5.4. Decommissioning Phase

Table 5.3 overleaf presents the provisional estimate of waste types and quantities to arise from the eventual decommissioning phase of the Proposed Development.

The information presented is based on the project description provided in Section 2.3 and the following considerations:

Anticipated Decommissioning Strategy:

The anticipated decommissioning strategy is removal of all structures above the seabed. As per Section 2.3, this will necessitate cutting the piled foundations (WTGs and OSPs) 2 m below seabed level. The sub seabed level parts of the foundations are anticipated to be left in place along with the associated scour protection.

Other sub seabed level components are anticipated to be left in situ (e.g. buried cables). This approach will necessitate leaving the cable protection in place.

Preparatory Works:

Like the construction phase, it is anticipated that prior to decommissioning, some preparatory works to the seabed (e.g. to facilitate lifting of components) will be required.

Decommissioning Vessels and Dismantling Yards

Vessels will be used to remove the relevant component parts of the Proposed Development during decommissioning. As per the approach during the construction, and operation and maintenance phases, wastes resulting from routine vessel operations (e.g. food waste, office wastes, wastes resulting from operation and maintenance of the vessel) are not considered wastes associated with the Proposed Development thus are not included in Table 5.3.

Similarly, as per Section 1.4, wastes resulting from the routine operations undertaken at dismantling yards (i.e. the yards to which the decommissioned component parts of the Proposed Development will be transferred for full dismantling prior to being sent for onward waste management) will be controlled by the yard's existing Waste Management Plan and are not considered wastes associated with this Proposed Development thus are not included in Table 5.3.

Only wastes resulting from activities directly related to the Proposed Development either onboard a decommissioning vessel or undertaken at a dismantling yard will be considered wastes associated with the Proposed Development and subject to the framework of controls set out in this RWMP. A provisional allowance for such wastes is included in Table 5.3 under the relevant activities.

List of Waste Description and Codes

The descriptions entered in the "LoW Waste Description" column in Table 5.3 are as written in the European Waste Catalogue (the List of Wastes, LoW). These descriptions are designed to describe the wastes specific to the source of waste as presented in the EWC and do not necessarily provide a description of the specific waste anticipated to arise from the Proposed Development. Therefore an example associated waste that may arise from the Proposed Development and example waste generating activity is included for each row of the table.

The LoW codes presented are those it is reasonable to expect will be assigned to the related wastes, final designation of the codes to the actual wastes generated will be done by the appointed Contractor(s).

Anticipated Waste Management Options:

As per Tables 5.1 and 5.2, anticipated waste management options (i.e. reuse, recycling, energy recovery, disposal) are shown for the identified waste types. Where more than one option is listed, they are listed in order of preference recognising that not all the associated waste may be able to be managed in the same way. Hazardous wastes will be treated to, where possible, mitigate the hazardous properties. This may require trans frontier shipment of the wastes.

These anticipated waste management options are those it is reasonable to anticipate may be applied to the associated wastes. However, the final waste management option for each waste will be identified by the contractor(s) appointed during the decommissioning phase applying both the waste hierarchy and circular economy principles.

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Table 5.3: Provisional Estimate of Types and Quantities of Waste to Arise from Decommissioning Phase

LoW Waste Description	LoW Code	Example Associated Activity	Initial Estimated Arisings	Anticipated Waste Management Option(s)
Preparatory Works				
Other wastes	02 01 99	Debris encountered during seabed clearance (preparatory works) that might require removal	Unknown as will depend on whether debris is encountered and if so, what it comprises	Recycle (composted where facilities exist), landfill
Iron and steel	17 04 05	Reasonably expected waste types associated with debris that might require removal		Recycle
Plastics	17 02 03			Recycle, energy recovery
Mixed metals	17 04 07			Recycle
WTG Components				
Iron and steel	17 04 05	Towers, nacelles etc	< 120,000 Tonnes	Reuse (if possible), recycling
Plastics	17 02 03	Blades (composite material nominally allocated as “plastics” here)	< 11,000 Tonnes	Reuse (if possible), recycling, energy recovery, disposal
Mixed metals	17 04 07	Component parts	Included in above iron and steel	Recycling

End of life vehicles (cranes), mixed metals, metal waste contaminated with hazardous substances	16 01 04*, 17 04 07, 17 04 09*	Component parts	< 300 Tonnes	Reuse (if possible), recycling, energy recovery, disposal
Hydraulic oils, waste engine, gear and lubricating oils, waste organic solvents, batteries and accumulators, discarded equipment (non-hazardous), hazardous components removed from discarded equipment, components removed from discarded equipment (non-haz), fluorescent tubes and other mercury-containing waste	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 16 06 01* - 16 06 05, 16 02 14, 16 02 15*, 16 02 16, 20 01 21*		Combination of: < 2,100,000 Litres < 20 Tonnes	Reuse (if possible), recycling, energy recovery, disposal
OSP Topsides				
Iron and steel	17 04 05	OSP topsides housing etc	< 6,000 Tonnes	Reuse (if possible), recycling
Mixed metals	17 04 07		Included in above iron and steel	Recycling
Waste electronic and electronic equipment	16 02 09* - 16 02 16	E.g. gearboxes, transformers or generators	Weight currently included in iron and steel	Reuse (if possible), recycling

Hydraulic oils, waste engine, gear and lubricating oils, fuel oil and diesel, waste organic solvents, batteries and accumulators, discarded equipment (non-hazardous), hazardous components removed from discarded equipment, components removed from discarded equipment (non-hazardous), fluorescent tubes and other mercury-containing waste	13 01 01* - 13 01 13*, 13 02 04* - 13 02 08*, 13 07 01*, 14 06 01* - 14 06 03*, 16 06 01* - 16 06 05, 16 02 14, 16 02 15*, 16 02 16, 20 01 21*		Combination of: < 230,000 Litres < 20 Tonnes	Reuse (if possible), recycling, energy recovery, disposal
Foundations				
Iron and steel	17 04 05	WTG and OSP foundations cut at seabed level	< 120,000 Tonnes	Recycling

6. Requirements of Construction Site Management

The following sets out the requirements of the Contractor(s) during the construction phase for management of wastes arising from the Proposed Development aligned to the requirements of this RWMP and in accordance with the EPA's 2021 Best Practice Guidelines for the preparation of resource and waste management plans for construction and demolition projects.

As is explained in the foregoing sections, construction of the Proposed Development will be undertaken by a number of Contractors who will be selected via a competitive tendering exercise. The following applies to each Contractor appointed for the construction phase of the Proposed Development, each of whom will be required to develop and implement a cRWMP specific to their scope of work.

6.1. Appointment of a Resource Manager

A Resource Manager (RM) is required to be appointed by the Contractor. The RM will have responsibility for development and implementation of the cRWMP. Therefore the RM needs to be an appropriately qualified and experienced individual, employed as a senior member of the Contractor's team. It is expected that the RM will report to the Contractor's Project Manager to ensure an appropriate level of authority within the project team and interaction with the rest of the Contractor's project management team.

It is possible that the RM role may be combined with the Environmental Manager's role (i.e. a role required by the EMP), but only where the individual employed as the Environmental Manager also has the relevant knowledge and experience required to undertake the role of RM.

The RM is required to ensure the actions described in the following sections are undertaken.

6.2. Confirmation of Wastes to Arise/Waste Management Options to be Applied

Following appointment of each Contractor, the wastes to be generated from the Contractor's scope of works is required to be confirmed, including the description, waste classification, LoW code, quantity, waste management option(s) to be applied and associated cost.

In determining the waste management option(s) to be applied, the Contractor must document how the waste hierarchy and principles of the circular economy have been considered in the design of their scope of works to ensure that, wherever possible, generation of wastes is being avoided and minimised and that reuse (including repair and repurposing) and recycling of unavoidable wastes is being prioritised. This includes considering the resources to be used and wastes to arise when procuring and managing supplies.

All information is to be recorded in the cRWMP.

6.3. Selection of Waste Management Subcontractors

The process by which the Contractor will select its waste management subcontractors must be documented in the cRWMP. The process must include but not be limited to verifying the following:

- The correct required permit(s) or licence(s) is held both for the facility(ies) where waste management will be undertaken and for the waste carrier(s) that will transport the waste(s) to it;
- The waste management subcontractor(s) are not subject to investigations by the regulatory authority(ies);
- The waste management subcontractor(s) have appropriate procedures in place to ensure appropriate segregation both by type and project of the waste(s) to be received by them;
- The process by which the waste management subcontractor(s) selects its waste management subcontractors (i.e. the facilities to which it transfers wastes for onward waste management or disposal); and
- The means by which the waste management subcontractor(s) will document receipt of the Proposed Development's wastes and their transfer for onward waste management or disposal (noting the specific waste management option applied must be documented) and the access the Contractor will have to that information.

6.4. Communication of the cRWMP

The cRWMP must be communicated to all members of the Contractor's construction phase team, including subcontractors, both during site inductions and during toolbox talks. Relevant information must include but not be limited to:

- Ensuring awareness that a project specific cRWMP has been developed for the construction phase scope of works to be undertaken by the Contractor and its subcontractors with the aim of reducing the amount of waste to be generated and ensuring maximum reuse and recycling of unavoidable waste in order to achieve the Proposed Development's construction phase waste management targets (i.e. those established in this RWMP, see Section 1.7);
- Everyone involved in the project is expected to play their part in ensuring all wastes are managed in accordance with the cRWMP and encouraged to put forward ideas as to how further improvements in waste management could be achieved;
- Ensure an understanding that reduction in the amount of waste to be generated must be a consideration when procuring and managing supplies;
- A copy of the cRWMP will be readily available to all project team members and the role and responsibilities of the RM clearly conveyed;
- The types of wastes to arise from any specific activity must be discussed as part of the toolbox talk and the plan for their management clearly conveyed, including the location where they are to be stored and the containers into which they are to be placed. Any hazardous wastes to arise must be specifically identified as part of the toolbox talk along with the associated hazards and how they are to be managed; and
- The difference between wastes arising directly from the Proposed Development and those arising from routine operations onboard the construction vessel(s) or at the marshalling ports must be explained (see also Section 7).

The means via which the cRWMP will be communicated to the project team(s) must be presented in the cRWMP. Detail must also be included as to how the Contractor will communicate with the regulator(s) and other stakeholders regarding waste management.

6.5. Audits

The cRWMP must set out the procedure and frequency by which the Contractor will audit the waste management practices being undertaken to assess compliance with the cRWMP. The procedure must allow for assessment of all aspects of the cRWMP including communication of it to the project team and their resulting understanding.

Audits must include both the practices undertaken by the Contractor's team, its subcontractors working on the construction of the Proposed Development and the subcontracted waste management facilities to which the resulting wastes are transferred.

The cRWMP must detail how findings of the audits will be communicated and include a means of, and timescale for, verifying corrective action(s) has been taken where identified as needed.

6.6. Record Keeping and Reporting

The RMs will have ultimate responsibility for ensuring correct record keeping in relation to all wastes arising during their respective scope of work during the construction phase of the Proposed Development, including but not limited to the following:

- The type, waste classification and volume/weight of the wastes generated;
- The waste management facility(ies) to which the waste is transferred;
- The waste management option(s) applied to each waste type (reuse, recycling, energy recovery, disposal); and
- Waste management performance against the Proposed Development's construction phase waste management targets.

All transfers of wastes must be accompanied by waste transfer documentation in compliance with the relevant regulations (for both non-hazardous and hazardous wastes), this includes compliance with transfrontier shipment regulations for any transfer of wastes to sites outside Ireland.

The RM must ensure that all personnel tasked with completing the waste transfer documentation associated with movements of waste from the construction vessels and from the marshalling ports have the appropriate training and that the documentation is kept for the required period in accordance with both regulatory and contractual requirements.

Each Contractor will be required, via its RM, to liaise with their waste management subcontractors to ensure the required data is obtained in relation to the management of wastes transferred to them and that all onward transfers of waste from the waste management subcontractor to their subcontractors is appropriately documented and records kept for the required periods.

Waste management reporting will be required both during the construction phase and on its completion (i.e. on completion of the scope of work for each appointed Contractor). The frequency and required content of the reports will be set out in the contract awarded to the Contractor(s) and will be designed to ensure a clear understanding of how waste management is progressing aligned to the requirements of this RWMP and the Proposed Development's construction phase waste management targets.

All wastes that are reused must be documented, including a description of the use they were put to and where the reuse occurred. The Developer may require a document to be signed by any third party intending to reuse a waste arising from construction of the Proposed Development; the need for any such document will be specified in the contract awarded to the Contractor and the wording will be pre-agreed with the Developer.

A report must be generated for each audit undertaken (see Section 6.5) and all reports must be shared with the Developer.

Upon completion of the Contractor's construction phase scope of works, a cRWMP Implementation Review Report shall be prepared and submitted to the Developer (and ultimately to other stakeholders as required and appropriate). The Implementation Review Report shall document how the wastes have been managed during the Contractor's scope of works including how that waste management compares to the construction phase waste management targets and justifying any shortfalls. The cRWMP Implementation

Review Report shall also include lessons learned in respect of waste management and recommendations for future projects.

Detail as to the system(s) via which records will be developed and maintained and the reports to be generated must be presented in the cRWMP(s).

6.7. Liaison with the Developer's Team

As per Section 3.2, although the Contractors will have responsibility for identifying and managing the wastes to result from their respective construction phase of the Proposed Development, the Developer maintains a waste duty of care throughout to ensure that waste management is being undertaken in accordance with the framework of controls established by this RWMP.

Therefore the Developer's Team will review all cRWMPs before they are finalised and actioned and will undertake periodic checks to ensure wastes are being managed in accordance with the respective cRWMP(s); these checks will be in addition to the audits described in Section 6.5 to be undertaken by the Contractor(s).

The Developer's Team will also review all reports produced by the RM and will liaise with the RM to address any queries relating to waste management throughout the duration of the Contractor's scope of work.

7. Requirements of Operation & Maintenance and Decommissioning Site Management

As is explained in the foregoing sections, operation and maintenance, and eventual decommissioning of the Proposed Development will be undertaken by a number of Contractors who will be selected via competitive tendering exercises.

The following applies to each Contractor appointed by the Developer for the operation and maintenance phase and for each appointed for the decommissioning phase of the Proposed Development. Each appointed Contractor will be required to develop and implement a phase specific RWMP relevant to their scope of work.

The following are the minimum requirements of the Contractors for both the operation and maintenance, and decommissioning phases:

- Appointment of a Resource Manager;
- Confirmation of wastes to arise and waste management options to be applied;
- Selection of waste management subcontractors;
- Communication of the phase specific RWMP;
- Audits;
- Record keeping and reporting; and
- Liaison with the Developer's Team.

The detailed requirements of the Contractors as presented in Section 6 for each of the above bullets shall also apply to the Contractors appointed by the Developer[13] for the operation and maintenance phase and the decommissioning phase. This includes end of phase reporting, therefore each Contractor must produce a phase specific Implementation Review Report as described for the construction phase (Section 6.6).

[13] It is acknowledged that ownership of and responsibility for operation of the transmission infrastructure (i.e. the OSPs and export cables) will transfer from the Developer to EirGrid in its capacity, as designated by the Irish Government, as Transmission Asset Owner and Transmission System Operator for Ireland. It is reasonable to expect similar requirements will be made of Contractors employed by EirGrid for the elements of the Proposed Development that transfer to it, however such is outwith the control of this RWMP.

8. Site Infrastructure: Construction Phase

The following sets out the requirements of the Contractor(s) in relation to waste management infrastructure for the construction phase of the Proposed Development.

8.1. Construction Vessels

As described in the previous sections, construction of the Proposed Development will take place offshore. Therefore, there will be no “construction site” in the sense normally established for an onshore development, i.e. no common hub where all contractors base themselves and their construction machinery, personnel, tools and supplies. Rather, for this Proposed Development, construction will be undertaken using construction vessels specific to the required tasks. Those construction vessels will form the hubs where personnel and equipment are based.

As also explained in the foregoing sections, wastes generated from routine operations of each vessel (e.g. food waste, office wastes, wastes resulting from operation and maintenance of the vessel) will be subject to each vessel’s Garbage Management Plan (GMP). The GMP is a requirement of the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex V and the Sea Pollution Regulations 2012. The GMP controls how wastes are stored and managed onboard prior to being transferred to shore for onward waste management.

As per the foregoing sections, routine wastes generated onboard the construction vessels are not considered to be wastes specifically arising from the Proposed Development, thus are not the focus of this RWMP. However all wastes are required to be managed compliantly and each Contractor will be required to share the GMP(s) for its / its subcontractors’ vessel(s) with the Developer’s Team as part of the requirement to demonstrate compliant management of all wastes throughout the construction phase.

Wastes that are specifically related to the Proposed Development that are generated onboard the construction vessels or stored upon them pending transfer to shore, will also be subject to the GMP. However, all Proposed Development specific wastes must be stored separately to the routine wastes in order that they can be readily accounted for in the waste management reporting, the data from which will be used to assess compliance with the Proposed Development construction phase waste management targets.

The Contractor’s cRWMP must include detail as to how the Proposed Development specific wastes will be managed whilst onboard the construction vessels, including but not limited to the following:

- Detail of any revisions to the existing GMP needed to accommodate the Proposed Development specific wastes to arise;
- How Proposed Development specific wastes will be recorded and tracked;
- How they will be kept separate from the vessel’s routine wastes;
- The containers and labelling to be used, including the specific provisions to be made for hazardous wastes; and
- The frequency via which they will be transferred to shore for onward waste management.

Requirements for identifying the specific waste management facilities to which the Proposed Development specific wastes will be transferred, the procedure for selection of those facilities and the associated reporting requirements are given in Section 6.

8.2. Marshalling Ports

As described in the previous sections, marshalling ports will be used for temporary storage of components of the Proposed Development prior to them being transferred offshore.

Each marshalling port will have an existing Waste Management Plan (WMP) in place governing the management of the wastes routinely generated and handled at the port[14]. Like the construction vessels, wastes that are routinely generated at the marshalling ports are not considered to be Proposed Development specific wastes. However, while at the marshalling ports, wastes that are generated from activities directly associated with the Proposed Development (e.g. cable cutting, alterations to a WTG tower etc) will also be subjected to the waste management controls imposed by the port's WMP.

However, all Proposed Development specific wastes must be stored separately to the routine wastes at the marshalling ports in order that they can be readily accounted for in the waste management reporting, the data from which will be used to assess compliance with the Proposed Development construction phase waste management targets.

The Contractor's cRWMP must include detail as to how the Proposed Development specific wastes will be managed whilst at the marshalling ports, including but not limited to the following:

- Detail of any revisions to the existing port's WMP needed to accommodate the Proposed Development specific wastes to arise;
- How Proposed Development specific wastes will be recorded and tracked;
- How they will be kept separate from the port's routine wastes and from any other wastes being generated;
- The containers and labelling to be used, including the specific provisions to be made for hazardous wastes; and
- The frequency via which they will be transferred onwards to the subcontracted waste management facilities.

As per the construction vessels (Section 8.1), requirements for identifying the specific waste management facilities to which the Proposed Development specific wastes will be transferred, the procedure for selection of those facilities and the associated reporting requirements are given in Section 6.

[14] As per section 1.4.3, the term "waste management plan" is used here for ease of reference to the means by which the ports control the wastes generated from their routine operations. It is acknowledged the waste management plan may form part of a broader environmental management plan for such facilities, but will be required to comply with the environmental authorisations associated with the port's activities.

9. Site Infrastructure: Future Phases

The following sets out the requirements of the Contractor(s) in relation to waste management infrastructure for the future phases of the Proposed Development: the operation and maintenance phase and the decommissioning phase.

9.1. Operation and Maintenance Phase

As described in Section 2.2, the Proposed Development will be operational for a period of up to 36.5 years. During that time, regular inspection and maintenance activities will be required, coordinated by a team based at the ABWP2 Operations and Maintenance Facility (OMF) at Arklow Harbour.

As per Section 1.4, the wastes associated with the OMF are subject to a separate RWMP, thus wastes associated with it are not included herein.

Generally, inspection and day-to-day maintenance will be carried out by a team(s) of technicians transiting to and from the Array Area in the Crew Transfer Vessels (CTVs) which will be based at the OMF. Other maintenance vessels, such as Service Operation Vessels (SOVs), may also be used to support maintenance activities. Occasionally, in the event of a fault or to maintain larger components, maintenance will be carried out by external contractors and larger vessels, such as jack-up vessels. Any major component replacement activities will be undertaken by larger vessels operating from suitable port facilities.

As also explained in the foregoing sections, wastes generated from routine operations of vessels (e.g. food waste, office wastes, wastes resulting from operation and maintenance of the vessel) will be subject to each vessel's Garbage Management Plan (GMP) (or equivalent for smaller vessels) which controls how wastes are stored and managed onboard prior to being transferred to shore for onward waste management.

As per the foregoing sections, routine wastes generated onboard the vessels are not considered to be wastes specifically arising from the Proposed Development, thus are not the focus of this RWMP. However all wastes are required to be managed compliantly and each Contractor will be required to share the GMP(s) for its / its subcontractors' vessel(s) with the Developer's Team as part of the requirement to demonstrate compliant management of all wastes throughout the operation and maintenance phase.

Wastes that are specifically related to the Proposed Development that are generated onboard a vessel used during the operation and maintenance phase or stored upon them pending transfer to shore, will also be subject to the vessel's GMP. However, all Proposed Development specific wastes must be stored separately to the routine wastes in order that they can be readily accounted for in the waste management reporting, the data from which will be used to assess compliance with the Proposed Development operation and maintenance phase waste management targets.

The Contractor's omRWMP must include detail as to how the Proposed Development specific wastes will be managed whilst onboard the vessels used during the operation and maintenance phase, including but not limited to the following:

- Detail of any revisions to the existing GMP needed to accommodate the Proposed Development specific wastes to arise;
- How Proposed Development specific wastes will be recorded and tracked;
- How they will be kept separate from the vessel's routine wastes;
- The containers and labelling to be used, including the specific provisions to be made for hazardous wastes; and
- The frequency via which they will be transferred to shore for onward waste management.

Requirements for identifying the specific waste management facilities to which the Proposed Development specific wastes will be transferred, the procedure for selection of those facilities and the associated reporting requirements are given in Section 7.

9.2. Decommissioning Phase

9.2.1. Vessels

Decommissioning of the Proposed Development will, in essence, comprise reverse construction. Therefore, decommissioning vessels will be used in the same manner that construction vessels will be used during the construction phase.

The same principles apply as per the construction and operation and maintenance phases in regard to wastes generated on those vessels from routine operations and the requirement for all vessels to operate in compliance with their GMP. Similarly, all wastes generated from the Proposed Development, must be kept separate to the routinely generated vessel wastes. The Contractor's dRWMP must include detail as to how the Proposed Development specific wastes will be managed whilst onboard the vessels used during the decommissioning phase and must include but not be limited to the following:

- Detail of any revisions to the existing GMP needed to accommodate the Proposed Development specific wastes to arise;
- How Proposed Development specific wastes will be recorded and tracked;
- How they will be kept separate from the vessel's routine wastes;
- The containers and labelling to be used, including the specific provisions to be made for hazardous wastes; and
- The frequency via which they will be transferred to shore for onward waste management.

Requirements for identifying the specific waste management facilities to which the Proposed Development specific wastes will be transferred, the procedure for selection of those facilities and the associated reporting requirements are given in Section 7.

9.2.2. Dismantling Yard(s)

The decommissioning vessels will transfer the removed components of the Proposed Development to an onshore dismantling yard(s) for appropriate dismantling, segregation of the different waste types and preparation for transfer on for further waste management (e.g. repair and refurbishment of components destined for reuse, smelting of steel, etc).

The dismantling yard(s) must be appropriately authorised to both accept the wastes that decommissioning of the Proposed Development will produce and to undertake the activities required to appropriately dismantle the decommissioned structures / components.

The dismantling yard(s) will have an existing Waste Management Plan (WMP) or similar document via which it controls the wastes generated from its routine operations (e.g. canteen, offices). Like the decommissioning vessels, wastes that are routinely generated at the dismantling yard(s) are not considered to be Proposed Development specific wastes and are not the focus of this RWMP.

Therefore, the dismantling yard must produce a Proposed Development specific Waste Management Plan (WMP). The Proposed Development specific WMP must include, but not be limited to, the following:

- Detail of any revisions to the environmental / waste authorisation held by the dismantling yard to accommodate the Proposed Development specific wastes to arise;
- How Proposed Development specific wastes will be recorded and tracked;
- How they will be kept separate from the dismantling yard's routine wastes and any other wastes to be generated (e.g. other decommissioning projects);

- The containers and labelling to be used, including the specific provisions to be made for hazardous wastes; and
- Where the wastes will be transferred to for onward waste management.

The WMP(s) produced by the dismantling yard(s) will inform and support the dRWMP to be produced by the decommissioning phase Contractors.

Requirements for identifying the dismantling yard(s) and the onward waste management facilities to which the Proposed Development specific wastes will be transferred, the procedure for selection of those facilities and the associated reporting requirements are given in Section 7.

10. Summary

This Resource and Waste Management Plan (RWMP) has been prepared by Safetec to form an Annex to the Environmental Management Plan prepared by GoBe, which itself forms an appendix to the Environmental Impact Assessment Report (EIAR) also prepared by GoBe. The EIAR has been prepared to inform the planning application being made by Sure Partners Limited for development of the Arklow Bank Wind Park 2 (ABWP2) offshore infrastructure (the Proposed Development) which is planned for development in the Irish Sea, east of Arklow in County Wicklow.

This RWMP has been prepared considering the requirements of the Irish Environmental Protection Agency's 2021 Best Practice Guidelines for the preparation of resource and waste management plans for construction and demolition projects. The RWMP sets out the framework of controls applicable throughout the lifetime of the Proposed Development via which the generation of wastes will be avoided and minimised, and the requirements to prioritise reuse and recycling over disposal for those wastes that cannot be avoided.

This RWMP sets out the Proposed Development's construction phase waste management targets and anticipated waste management targets for the operation and maintenance, and decommissioning phases. Achievement of the phase specific waste management targets will form a condition of the contracts awarded for each phase of the Proposed Development's life.

Requirements of the Contractors to be appointed for each of the phases regarding waste management are also established. This includes the requirement for each appointed Contractor to prepare a phase specific RWMP which for the construction phase at least must be aligned to the EPA's 2021 Best Practice Guidelines. All phase specific RWMPs must apply the framework of controls established by this ORWMP. Each Contractor will be required to appoint a Resource Manager responsible for ensuring the phase specific RWMP is implemented.

In addition to informing the EIAR as to the types, and where possible, estimated amounts of wastes anticipated to arise during the construction, and operation and maintenance phases of the Proposed Development (as required by the EIA Directive), this RWMP also provides information as to how the eventual rehabilitation of the maritime area at end of life of the Proposed Development has been considered, as required by the Maritime Area Consent granted for it and considering the decommissioning methodology to be employed as described in the Rehabilitation Schedule prepared for the Proposed Development.

Annex A: SSE Environment & Waste Policy and Strategy

Environment Vision

2023/24

Taking care of ourselves, each other and the environment

Taking care of our environment is central to what we do at SSE and how we do it.

To tackle climate change, carbon emissions need to fall to net zero by 2050. That's why we launched our ambitious Net Zero Acceleration Plan (NZAP) which set out how, by 2030, we would accelerate the build-out of renewables, reinforce the networks needed to decarbonise, provide much-needed flexible generation, and work hard to ensure no-one is left behind in the transition to net zero.

This year we announced NZAP plus, which raises the bar on our ambitions, bringing them forward to 2027, and providing a solid platform for growth that could see us invest up to £40bn over the next decade. NZAP plus sets out what we will do and this document sets out how we will achieve those aims while protecting our environment.

While the greatest threat to nature is from climate change, ecosystems and biodiversity are affected by human behaviour in other ways too.

Overuse of resources, land encroachment and pollution are combining with climate change to create a natural environment emergency that is described as profound to human life as global warming.

SSE operates in places that are home to a variety of valuable ecosystems and habitats. Our Environment Strategy is designed to ensure that environmental impacts across all our business activities are carefully managed.

As we look forward to the year ahead, our focus will be on delivering our Environmental Strategy, achieving our vision and objectives, and strengthening our local SHE communities.

Mark Patterson
Director of Safety, Health and Environment

Get involved by joining the environment community on Yammer, checking the environmental pages on Safetynet, or contact us at environment@sse.com

2030 Goals

SSE has updated the targets on our four sustainability goals which will see us strive to cut emissions further and faster. They are designed to ensure that SSE has a credible and verified target that sets accelerated science-based targets on the 1.5°C power sector pathway.

Cut carbon intensity by 80%	Increase renewable energy out-put fivefold	Enable low-carbon generation and demand	Champion a fair and just energy transition
Reduce Scope 1 carbon intensity by 80% by 2030, compared to 2017/18 levels, to 61gCO_2e/kWh.	Build a renewable energy portfolio that generates at least 50TWh of renewable electricity a year by 2030.	Enable at least 20GW of renewable generation and facilitate around 2 million EVs and 1 million heat pumps on SSEN's electricity networks by 2030.	Be a global leader for the just transition to net zero, with a guarantee of fair work and commitment to paying fair tax and sharing economic value.

Environment Strategy

To achieve its core purpose to provide energy today while building a better world of energy for tomorrow, SSE's strategy seeks to simultaneously create value for both shareholders and society.

The four goals have been agreed by SSE's Board, with three further environmental priority pillars identified as being material in terms of our impact on the sustainable development of the world in which we operate.

Our environmental strategy which is underpinned by an ethos of compliance and provides a pathway to engage our stakeholders by holding us accountable for our performance with targets and indicators measuring our success.

Three pillars of our Environment strategy:

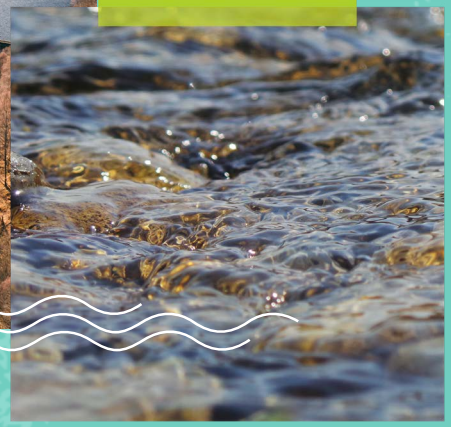
- Environmental Management and Governance
- Responsible Consumption and Production
- Natural Environment

Environmental Management and Governance

Providing a framework for the careful risk management of environmental impacts, protecting local environments from waste, pollution and damage to nature.

SSE's 23/24 group goals with regards to Environmental Management and Governance are:

- Target less than 31 Serious Environmental Incidents in 23/24
- Monitor and baseline Oil Loss, Fluid Filled Cable Leaks and SF6 (Sulphur Hexafluoride) Leaks, with a view to targeting a reduction in 24/25
- All business units to maintain accreditation to ISO14001
- Working with business units, supply chain and corporate partners to develop environmental training and engagement opportunities across SSE



Responsible Consumption and Production

Working towards more sustainable patterns of resource consumption; reducing reliance on non-renewable and single use products, linking to the objectives of UN Sustainability Development Goals.

SSE's 2023/24 group goals for Responsible Consumption and Production are:

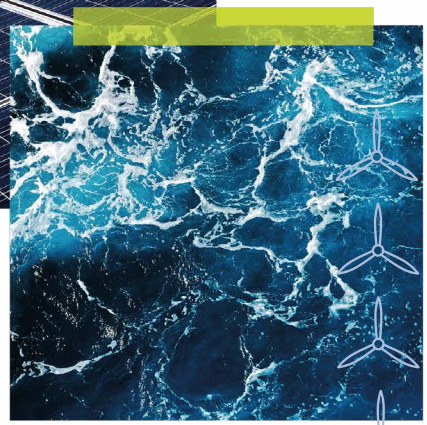
- Group and business unit responsible consumption and production targets to divert 95% by tonnage from landfill and recycle 50% by tonnage.
- Report data monthly and via a Power BI Report.
- Recognise success via Annual Recycling Awards.
- Promote a community benefits fund of £5000 over the 2-year Biffa contract, to promote recycling and circular economy activities across SSE communities.
- Business units to deliver targets and implement processes to capture project/supply chain data.
- Support business units to apply circular economy principles and to send zero waste to landfill and increase recycling.

Natural Environment

Supporting the conservation, restoration and sustainable use of the world's land and water resources; and promoting the integration of amenity, ecosystem and biodiversity improvement into business activities, linking to UN Sustainable Development Goals.

SSE's 2023/24 group goals for the Natural Environment are:

- For onshore Large Capital Projects, all SSE business units have committed to delivering no 'net loss' in biodiversity on those consented from 2023 onwards, and 'net gain' in biodiversity on those consented from 2025 onwards.
- Report data monthly and via a Power BI Report against projects in scope, to confirm compliance to the above target.
- Support business units in the development of natural capital toolkits to evidence compliance and to capture good practice.
- Use the Environment Subgroup to develop our approach and deliverables on Natural Environment.



How our business contributes

Our environment strategy priority areas and Group-wide goals provide guidance for our businesses to use when undertaking their daily activities.

As each of our businesses has different interactions and impacts on the environment, they all have their own detailed environment plan and goals specific to their activities, which has been finalised by their own respective business unit SHE or Executive Committee.

This means their efforts are focused on the areas in which their greatest environment risks and opportunities arise, and they have most potential to influence. By having focused business unit environment plans, supported by the governance of the SSE Environment Subgroup, we have a greater chance of achieving our Group-wide environment goals. The individual business unit environment plans are outlined on the following pages.

Renewables

Business Unit Environmental Plans - Update

Environmental Management and Governance

- Continue to develop and embed governance framework and supporting processes for international expansion (Onshore and Offshore)
- Serious environmental incidents during FY23/24 - <9

Responsible Production and Consumption

- Increase volume of circular parts in onshore wind
- Develop sustainable methods for the decommissioning of all aspects of operational wind farms
- Lead the creation of a new circular supply chain for wind in the UK (CWIC)
- Divert 95% of waste from landfill by tonnage
- Recycle a minimum of 50% of waste by tonnage
- Embed visibility of contractor waste via a supply chain reporting tool

Natural Environment

- No net loss across consented onshore projects from 2023 onwards
- Quantify biodiversity value across operational assets to establish portfolio baseline and pilot opportunities for implementation of BNG
- Development of methodology and industry collaboration for marine biodiversity

Other

- Digitalisation of the LCP Sustainability Assessment and Action Plan
- Innovation pilots: peatland, puffins 2.0
- Focus on supply chain transparency around environment and sustainability

Thermal

Business Unit Environmental Plans - Update

Environmental Management and Governance

- Medium Combustion Plant Directive: permitting / licencing for applicable stations for 5-50MWth combustion plant
- Assess opportunities for standardisation of EU / UK Emission Trading Scheme management procedures and calculation tools (One Thermal Way)
- Improve environmental compliance performance related to Continuous Emissions Monitoring Systems, Data Acquisition / Handling Systems and Reporting through enhanced training. Additionally, assess the use of automated digital tools to improve visibility of key compliance data within the business
- Serious environmental incidents during FY23/24 - <2

Responsible Production and Consumption

Targets (based on SSE group contracts):

- 95% waste diverted from landfill
- 50% waste recycled

Natural Environment

Biodiversity Strategy:

- Large Capital Projects: no net loss from 2023
- Operational sites: prioritisation and implementation of identified biodiversity improvement opportunities to work towards biodiversity gain (against 2022/23 Thermal biodiversity baseline)

Other

- Energy Savings Opportunity Scheme (ESOS) Phase 3: completion of required energy assessment reports for two Power Stations by December 2023 to support Group submission

Distribution

Business Unit Environmental Plans - Update

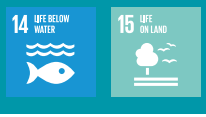
Environmental Management and Governance

- Continually improve the business environmental management system and maintain ISO 14001 certification
- Serious environmental incidents during FY23/24 - <14
- Progress flood mitigation activities in line with ETR138
- Replace 7 leaking assets containing SF6 during FY23/24
- Replace a minimum of 4.4km of FFC during FY 23/24
- Replace a minimum of 3360 PMTs during FY 23/24 and continue to work through testing commitments to remove PCB contaminated equipment from our network
- Review environmental emergency response planning arrangements, training and testing to ensure it is effective
- Develop and deliver strategy for workforce environmental awareness training
- Develop environment consenting manual

Responsible Production and Consumption

- Develop a distribution waste management procedure and ensure all waste streams are being accurately reported including offices, depots and network
- Achieve group waste management targets – 95% diversion from landfill and 50% recycling by April 2024
- Create business wide spares list for Thatcham and Eurocentral to promote circular economy
- Publish a Sustainable Supplier Code and have 15% of suppliers (by spend) signed up by end of FY 23/24
- 20% of suppliers (by spend) targetted to have an accredited SBT by end of FY23/24

Natural Environment



- Large Capital Projects consented from 2023 to deliver Biodiversity No Net Loss
- Demonstrate measurable progress towards the delivery of 17 hectares of seagrass planting, 522 hectares of peatland restoration and 258 hectares of woodland creation
- Establish a biodiversity baseline and natural capital tool for networks and assets
- Engage with stakeholders on visual amenity funding opportunities to progress ED2 target of undergrounding 83km of overhead lines

Transmission

Business Unit Environmental Plans - Update

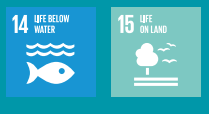
Environmental Management and Governance

- To ensure business resilience to climate change, we will proactively assess the material risks that extreme weather events poses to the resilience of the transmission network
- Remove all equipment containing PCBs by 2025 in compliance with Legislation
- Continually improve the business Environmental Management System and maintain ISO14001 certification
- Implement Eco-Online for all audits & inspections to allow improved scheduling and performance management
- Serious environmental incidents during FY23/24 - <7

Responsible Production and Consumption

- Achieve zero waste to landfill (excluding compliance waste) by the end of the RIIO-T2 period (2021-2026)
- Improve supplier data reporting on waste streams through key framework contractors
- Achieve a recycling, recovery and re-use rate of >70% across our waste streams by the end of the RIIO-T2 period (2021-2026)
- Adopt group targets on waste directly managed by SSE – 95% diversion and 50% recycling

Natural Environment



- Net gain of biodiversity on new infrastructure projects gaining consent going forward
- Embed new procedures for the implementation of our Irreplaceable Habitats Approach into all projects
- Submit or undertake regulatory proposals for at least 5 visual amenity improvement projects (VISTA) by 2026

Enterprise

Business Unit Environmental Plans - Update

Environmental Management and Governance

- Continually improve the business environmental management system and maintain ISO 14001 certification
- Close the Minor non-conformances from the March 2023 ISO14001 Audit
- Continue to review and improve the environmental management process
- Serious Environmental Incident target - 0

Responsible Production and Consumption

- Adopt group targets on waste directly managed by SSE - Waste diverted = 95% and recycled = 50%
- Embed the Enterprise Waste Management Recommendation document

Natural Environment

- Achieve 10% biodiversity net gain on new onshore LCP projects to comply with the Environmental Act 2021 and Group Policy
- Develop an Enterprise Biodiversity strategy

Other

- Review of existing service contracts that are in place and to improve Environment considerations
- Develop a SHE Mandatory competency training programme to include core SHE knowledge and environmental awareness training

Customer Solutions

Business Unit Environmental Plans - Update

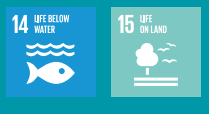
Environmental Management and Governance

- 0 Serious Environmental Incidents in 23/24 (ECS)
- SSE Airtricity to deliver and exceed its ECO obligation targets for 2023, with 6.24 of domestic and fuel poor GWh and to translate the GWh to carbon emissions savings
- Complete two dedicated environmental management internal audits in 23/24 (ECS)
- Complete two education and awareness campaigns related to good environmental practice, waste management in offices and energy management at work and at home (ECS)
- The Sustainability Committee will meet monthly to review activities across ECS, paying particular attention to areas involving circularity and carbon embodiment of materials
- Maintain certification to ISO14001 & continue to promote online Environmental Awareness Training

Responsible Production and Consumption

- Business Energy and Airtricity to Support Corporate waste reduction and recycling targets – Target – 95% diversion and 50% recycling
- Work with Corporate FM to monitor energy/waste/ recycling levels and monitor our consumption at our key offices
- Consider a % of operational fleet to switch to electric vehicles and assess the associated monitoring of CO2 savings in comparison to petrol/ diesel
- Calculate the % of green energy provisions we provide to customers
- Monitor arrangements for meter replacement and energy upgrade responsible disposal – develop a waste monitoring plan with suppliers and engage with ENVA on One Stop Shop disposal
- Review the practice of insulation disposal, engaging with key suppliers around reducing waste, and recycling
- CPPA expansion in Business Energy

Natural Environment



- Support local environmental initiatives and improve awareness, work with the local SHE Community to promote and encourage our staff to take part in two environment related volunteering days, e.g., beach clean or tree planting

Corporate

Business Unit Environmental Plans - Update

Environmental Management and Governance

- Serious Incidents – < 32
- Serious Incidents – 0 - Corporate
- SF6 – SEARs – leaks in KGs – baseline in 23/24
- Oil Loss – SEARs – leaks in litres – FFC and Total Oil loss – baseline in 23/24

Responsible Production and Consumption

- Diversion and Recycling – Targeting 95% Diversion and 50% Recycling
- Recycling Awards to be issued in September, to coincide with national Recycling Week
- Promote a community benefits fund of £5000 over the 2-year Biffa contract, to promote recycling and circular economy activities across SSE communities
- Track and promote PPE recycling and reuse across SSE
- Host Responsible Consumption and Production Working Group to drive compliance to our targets and develop approach to circular economy

Natural Environment

All Business Units signed up to no net loss in Biodiversity by (or from) 2023, onshore Large Capital Projects

- Identify projects in scope – projects commencing or consented in 23/24 across all BUs
- Confirm consent / planning / project requirements deliver target aspirations - % projects consented that deliver NNL or BNG
- Develop a no Group wide deforestation commitment or similar

Other

- Update Power BI to track and report requirements
- Conduct 4 Deep Dive assessments – FFC, Oil loss, SF6 and Silt to drive a reduction in incidents
- Sign up Corporate Partnership with IEMA and develop engagement and training opportunities across SSE
- Host monthly Environment Sub-Group Meeting

Reporting our ‘e’ goals performance

SSE has a set of reports that it publishes annually that show progress against its environment priorities and goals.

Our Biodiversity Report focuses on a range of initiatives across the business that aim to protect, restore and enhance biodiversity in the areas it operates.

From creating suitable habitats at operational sites, supporting salmon on their impressive migrations along Scotland’s rivers, to contributing to vital research - SSE’s businesses have been playing their part in working sustainably with local partners to improve biodiversity across the UK and Ireland.

Our Sustainability Reports and Annual Reports also set out the steps SSE is taking to achieve the environment priorities and goals set out in the Group environment strategy, with specific case studies on environmental management and governance, resource consumption and production and the natural environment.

Want to know more?

Safetynet

Environmental Awareness Training

Sustainability Report

UN Sustainable Development Goals

For further information, please contact your BU Environment Lead or contact environment@sse.com