

## 31. MAJOR ACCIDENTS AND NATURAL DISASTERS

## 31.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) describes the likely significant effects on the environment arising from the vulnerability of the Project as detailed in Chapter 5: Project Description to risks of major accidents and/or natural disasters, as well as the potential of the Project itself to cause potential major accidents and/or natural disasters.

The Cumulative Study Area (CSA) for the assessment is defined based on the spatial location of the Offshore Site and Onshore Site and their proximity to the nearest county and their associated Major Emergency Plan. The closest county to the Offshore Site is Galway and therefore all elements of the Galway County Council Major Emergency Plan are fully considered. The Onshore Site is fully contained within Co. Clare and therefore all those elements within the Clare County Council Major Emergency Plan are fully considered. An overlapping and extended CSA is defined for SEVESO sites. All SEVESO sites in counties Clare, Galway, Kerry and Limerick are considered as a precautionary measure. The CSA is extended in this case due to the proximity of several SEVESO sites in counties Limerick and Kerry to the Shannon estuary and its potential utilisation during the construction and decommissioning of the Project.

When a risk is only applicable to the Onshore Site or Offshore Site, this will be defined within the assessment.

This assessment has been completed in accordance with the guidance set out by the Environmental Protection Agency (EPA) in '*Guidelines on Information to be contained in Environmental Impact Statements*' (EPA, 2022) (hereafter referred to as the EPA Guidelines), the European Commission in relation to Environmental Impact Assessment of Projects (Directive 2011/92/EU, as amended by 2014/52/EU), namely '*Guidance on the preparation of the Environmental Impact Assessment Report*' (EU 2017) and the '*Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*' (DHPLG, 2018).

The National Marine Planning Framework (NMPF)<sup>1</sup> is part of the Project Ireland 2040 plans for the effective and sustainable management of the marine environment and associated activities, as required under the Maritime Spatial Planning Directive (EU Directive 2014/89/EU). The NMPF outlines several 'Overarching Marine Planning Policies' (OMPPs) which are relevant to the development of offshore renewable energy. Policy points which have relevance to the Project have been considered within this assessment of major accidents and natural disasters. The most relevant policy points in relation to this assessment are described below, while the Projects alignment with the full list of policies detailed in the NMPF are outlined in Chapter 2: Background and Planning Policy and considered fully in Appendix 2-1: NMPF Compliance Report.

- Environmental Ocean Health Policy 1 Compliance with NMPF policies relating to:
  - Biodiversity
  - Non-Indigenous Species
  - Water Quality
  - Seafloor and Water Column Integrity
  - Marine litter
  - o Underwater Noise

<sup>&</sup>lt;sup>1</sup> Government of Ireland (2021)., Project Ireland 2040 – National Marine Planning Framework. Available at: https://www.gov.ie/pdf?file=https://assets.gov.ie/139100/10984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null



- Safety at Sea Policy 1 Proposals for installation, operation and maintenance, and decommissioning of Offshore Wind Farms must demonstrate how they will:
  - Minimise navigational risk between commercial vessels arising from an increase in the density of vessels in maritime space as a result of wind farm layout; and
  - Allow for recreational vessels within the Offshore Wind Farm (including consideration of turbine height) or redirect recreational vessels, minimising navigational risk arising between recreational and commercial vessels.
- Safety at Sea Policy 3 All proposals for temporary or permanent fixed infrastructure in the maritime area must ensure navigational marking in accordance with appropriate international standards and ensure inclusion in relevant charts where applicable.
- Safety at Sea Policy 5 Proposals must identify their potential impact, if any, on Maritime Emergency Response (Search and Rescue (SAR), Maritime Casualty and Pollution Response) operations. Where a proposal may have a significant impact on these operations it must demonstrate how it will, in order of preference:
  - a) avoid,
  - b) minimise,
  - c) mitigate
  - Adverse impacts, or
    - d) if it is not possible to mitigate significant adverse impacts, proposals should set out the reasons for proceeding, supported by parties responsible for maritime SAR.
- Sport and Recreation Policy 2 Proposals should demonstrate the following in relation to potential impact on recreation and tourism:
  - The extent to which the proposal is likely to adversely impact sports clubs and other
  - recreational users, including the extent to which proposals may interfere with facilities or other physical infrastructure.
  - The extent to which any proposal interferes with access to and along the shore, to the water, use of the resource for recreation or tourism purposes and existing navigational routes or navigational safety.
  - The extent to which the proposal is likely to adversely impact on the natural environment.
- Sport and Recreation Policy 5 Proposals should seek to enhance water safety through provision of appropriate International Organization for Standardization (ISO) and European Committee for Standardization (CEN) compliant safety signage. In general, the safety of persons should be a key consideration for planners and due consideration should be given to best practice guidance for marine and coastal recreation areas endorsed by the Visitor Safety in the Countryside Group.

Other planning policy which has been considered within this assessment can be found in Chapter 2: Background and Planning Policy and Chapter 4: Environmental Impact Assessment (EIA) Methodology of this EIAR.

Further to this, the Offshore Renewable Energy Development Plan (OREDP), published in February 2014 (Department of Communications, Energy and Natural Resources) is also considered in this assessment.

This assessment of the vulnerability of the Project to major accidents and/or natural disasters, as well as the risk of the Project itself causing major accidents and/ or natural disasters is carried out in compliance with the EIA Directive (2014/52/EU) which states the need to assess:

"the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or natural disasters which are relevant to the project concerned."



The objective of this assessment is to ensure that appropriate precautionary actions are taken for those projects.

"because of their vulnerability to major accidents and/or natural disasters, are likely to have significant adverse effects on the environment".

Based on the requirements of the EIA Directive, this chapter seeks to determine:

- > The relevant major accidents and/or natural disasters, if any, that the Project could be vulnerable to or could cause.
- > The potential for these major accidents and/or natural disasters to result in likely significant environmental effect(s); and
- > The measures that are in place, or need to be in place, to prevent or mitigate the likely significant effects of such events on the environment.

The full description of the Project is provided in Chapter 5 of this EIAR.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various Project components are described and assessed using the following references: 'Project', 'the Offshore Site', the Offshore Array Area ('OAA), the Offshore Substation ('OSS'), the Offshore Export Cable ('OEC'), Offshore Export Cable Corridor ('OECC') the 'Landfall', 'the Onshore Site', the Onshore Grid Connection ('OGC'), the Onshore Compensation Compound ('OCC), the Transition Joint Bay ('TJB') and the Onshore Landfall Location ('OLL').

## 31.1.1 Statement of Authority

This section of the EIAR has been prepared by Keelin Bourke and Sean Creedon.

Keelin is an Environmental Scientist with MKO, with over 1 years' experience in private consultancy, having joined the company in September 2023. Keelin holds a BSc (Hons) in Environmental Science from University College Cork and an MSc (Dist) in Environmental Engineering from Trinity College Dublin. Prior to taking up her position with MKO, Keelin worked as an Environmental Health and Safey Officer in an EPA licensed Waste Transfer Facility in Cork City. Keelin's current key strengths and areas of expertise are in environmental surveying, report writing and environmental mapping. Since joining MKO, Keelin has become a member of the MKO Environmental Renewables Team and has been involved in preparing and managing Environmental Impact Assessments and in leading large multi-disciplinary teams in order to produce robust Environmental Impact Assessment Reports for large-scale onshore and offshore wind energy developments.

Sean is an Associate Director in the Environment Team at MKO. He oversees a team of highly skilled environmental professionals working on EIAR for large-and medium scale Renewable Energy infrastructure. Sean has directed and overseen multiple renewable energy projects across wind, solar, battery and hydrogen as well as a range of thermal and other energy related developments. He has worked on the planning and environmental impact elements within all stages of wind farm project delivery. He is a member of the MKO senior management team responsible for developing the business, mentoring team members, fostering a positive culture and promoting continuous employee professional development. Sean has over 22 years' experience in program and project development, holds an MSc from NUI Galway and a Diploma in Project Management from Institute of Project Management Ireland.

## **Assessment Methodology**



## 31.2.1 General

The following sources of information and literature pertinent to the area were used in the preparation of this section:

- Census of Ireland 2016; 2022
- Regional Planning Guidelines for the West Region (2010 2022)
- Mid-West Regional Planning Guidelines 2010-2022
- North and Western Regional Assembly, 2020. Regional and Spatial Economic Strategy 2020-2032.
- Southern Regional Assembly, 2020, Regional Spatial & Economic Strategy 2020 2032
- Galway County Development Plan 2022-2028
- Clare County Development Plan 2023-2029
- Salway County Council Major Emergency Plan (2021)
- Clare County Council Major Emergency Plan (2018)
- Shannon Foynes Port Onshore Emergency Response Plan (2024)
- > Galway County Council Website,
- > Clare County Council Website, and
- > Fáilte Ireland Website

Major accidents or natural disasters are hazards which have the potential to affect the Project and lead to environmental effects directly or indirectly or the potential the Project has to cause environmental effects. These include accidents during construction, operation and maintenance, and decommissioning of the Project, caused by operational failure and/or natural hazards.

The assessment of the risk of major accidents and/or natural disaster is considered in relation to the information required to be provided in the EIAR, i.e. Chapter 6 Population and Human Health, Chapter 7 Marine Physical and Coastal Processes, Chapter 8 Water and Sediment Quality, Chapter 13 Commercial Fisheries, Chapter 16 SLVIA, Chapter 17 Marine Archaeology and Cultural Heritage, Chapter 19 Offshore Air Quality and Airborne Noise Chapter 20 Terrestrial Biodiversity, Chapter 22 Land, Soils and Geology, Chapter 23 Water, Chapter 24 Onshore Cultural Heritage, Chapter 25 Onshore Air Quality, Chapter 27 LVIA, Chapter 28 Material Assets, and Chapter 30 Climate.

## 31.2.2 Legislative Context

## 31.2.2.1 Legislation

An assessment of the following key elements was undertaken in accordance with the EIA Directive (2014/52/EU):

- > The vulnerability of the Project to potential accidents and disasters
- The Project potential to cause major accidents or disasters which pose a risk to human health, cultural heritage and/or the environment.

The information relevant to major accidents and/or disasters to be included in the EIAR is set out in Section 8 of Annex IV of the EIA Directive as follows:

"(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include



measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies".

### 31.2.2.2 Guidance Documents

The following guidance documents informed and directed the preparation of this section:

- European Commission. (2017). Environmental Impact Assessment of Projects Guidance on the preparation of Environmental Impact Assessment Reports
- > Environmental Protection Agency (2022), Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- Department of Environment, Heritage and Local Government (2010) A Guide to Risk Assessment in Major Emergency Management
- Environmental Protection Agency (2014) Guidance on Assessing and Costing Environmental Liabilities
- > Department of Defence (2020) A National Risk Assessment for Ireland
- Salway County Council Major Emergency Plan 2021
- Clare County Council Major Emergency Plan 2018
- HSE Emergency Management Area 2 Crisis Management Team Major Emergency Plan: Covering Geographical Areas of Counties Galway, Mayo and Roscommon (July 2023)
- HSE Emergency Management Area 3 Crisis Management Team Major Emergency Plan: Covering Geographical Areas of Counties Clare, Limerick and North Tipperary (June 2023)

On a regional scale, County Galway falls under the scope of the HSE Emergency Management Area 2 Emergency Plan, while County Clare falls under the scope of the HSE Emergency Management Area 3 Emergency Plan.

## 31.2.3 **Categorisation of the Baseline Environment**

A desk-study has been completed to establish the baseline environment for which the proposed risk assessment is being carried out. This will influence both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

Further detail on the baseline environment is provided in Section 31.3.

## 31.2.4 Impact Assessment Methodology

## 31.2.4.1 Introduction

It is considered that the impact assessment methodology outlined in this section is best practice.

Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to issues such as flooding, sea level rise/coastal erosion and severe weather and are described in the sections below. Potential Major accidents that are considered are Critical Infrastructure Emergencies, Utility emergencies, Traffic Incident, Contamination, Fire/Gas Explosion and Collapse/damage to structures. These major accidents are also described.

It should be noted that as described in Chapter 5: Project Description, dredging may be required at some WTG locations to remove soft seabed material from locations where stonebed material is to be added, with suitable disposal locations identified. This activity will be carried out adhering to the



described methods and controls in the EIAR. Furthermore, the relevant Dumping at Sea permits, as required by the Dumping at Sea Act 1996, will be obtained prior to any dredging and discharging activity.

During the operation and maintenance phase, the Project is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other Environmental Protection Agency environmental regulatory consent. It is not an activity which requires Environmental Protection Agency licensing under the Environmental Protection Agency Act 1992, as amended apart from a Dumping at Sea licence as described above.

Should a major accident or natural disaster occur, the potential sources of pollution onsite during the operational and maintenance, and decommissioning phases are limited and of low environmental risk. Sources of pollution with the potential to cause significant environmental pollution and associated negative effects such as bulk storage of hydrocarbons or chemicals, storage of wastes, management of flammable materials etc. are limited and so there is an inherent low level of environmental risk associated with major accident or natural disaster impacting the Project and causing environmental damage.

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment; such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. Activities which have potential to cause major industrial accidents are regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations (COMAH). The Project is proposed to connect to the national grid via the Moneypoint 220kV Substation, Carrowdotia South, Co. Clare, which is as an Upper Tier SEVESO site. The ESB has confirmed the Project is not considered a significant modification to the establishment, and thus will not increase the current consequences of the major accident hazards at or outside the establishment.

According to the Irish National Seismic Network (INSN), earthquakes measuring ~2 on the Richter Scale are "normal" in terms of seismicity in Ireland. These are known as microearthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. As such, buildings or structures in Ireland are extremely unlikely to be damaged or collapse due to seismic activity. Irelands geographic position means that tsunamis, which may pose a risk to developments similar to the Project in other geographic locations, are of a low likelihood of occurrence, and are less likely to be of a significant magnitude in order to cause an accident or disaster.

The landslide susceptibility at the Onshore Site is mapped as being predominantly 'Low' with some very localised areas of 'Moderately Low' to 'Moderately High' mapped along the OGC. Due to the absence of peat across the majority of the Onshore Site and the relatively flat topography there is not considered to be a risk of a landslide. Where peat is present, it is typically shallow and even where deeper peat deposits were recorded the topography is relatively flat.

Current EIA practice already includes an assessment of potential accidents and disaster scenarios during construction, operation and maintenance, and decommissioning, such as pollution incidents to ground, marine and watercourses, navigation incidents, as well as assessment of flooding events. These are described in detail in the relevant EIAR assessment chapters (Refer to Chapters 6 to 30 for further detail as well as specific appendices such as Appendix 23-1 Flood Risk Assessment. These potential accidents and disasters are outlined as part of the baseline but are not brought into the impact assessment stage as their potential effects are assessed in the chapters referenced above and in Section 31.3 Baseline Conditions.

## 31.2.4.2 Site Specific Risk Assessment Methodology

A site-specific risk assessment identifies and quantifies risks focusing on unplanned, but possible and plausible events occurring during the construction, operation and maintenance, and decommissioning of the Project. The approach to identifying and quantifying risks associated with the Project by means of



a site-specific risk assessment is derived from the EPA '*Guidance on Assessing and Costing Environmental Liabilities*' document<sup>2</sup>. The following steps were taken as part of the site-specific risk assessment:

- Risk Identification
- > Risk Classification, likelihood and consequence, and
- Risk Evaluation

### 31.2.4.2.1 Risk Identification

Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this EIAR. The identification of risks has focused on non-standard but plausible incidents that could occur at the Project during construction, operation and maintenance, and decommissioning.

In accordance with the European Commission EIAR Guidance, risks are identified in respect of the Project's:

- 1. Potential to cause accidents and/or disasters,
- 2. Vulnerability to potential disaster/accident

<sup>&</sup>lt;sup>2</sup> EPA (2014)., Guidance on assessing and costing environmental liabilities. Available at: <u>https://www.epa.ie/publications/compliance-enforcement/licensees/reporting/financial-provisions/EPA\_OEE-Guidance-and-Assessing-WEB.pdf</u>



#### **Classification of Likelihood**

After identifying the potential risks, the likelihood of occurrence of each risk has been assessed. An analysis of safety procedures and proposed environmental controls was considered when estimating likelihood of identified potential risks occurring. Table 31-1 defines the likelihood ratings that have been applied.

The approach adopted has assumed a 'risk likelihood' where one or more aspects of the likelihood description are met.

Ranking	Likelihood	Description
1	Extremely Unlikely	May occur only in exceptional circumstances; once every 500 or more years.
2	Very Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or very few incidents in associated organisations, facilities or communities; and / or little opportunity, reason or means to occur; may occur once every 100-500 years.
3	Unlikely	May occur at some time; and /or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisation's worldwide; some opportunity, reason or means to occur; may occur once per 10-100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years.
5	Very Likely	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

#### Table 31-1 Classification of likelihood (Source: DoEHLG, 2010)

#### **Classification of Consequence**

The consequence rating assigned to each risk has assumed that all proposed mitigation measures and/or safety procedures have failed to prevent the major accident and/or disaster. Furthermore, the Galway County Council Major Emergency Plan (2021), and the Clare County Council Major Emergency Plan (2018), will work to reduce the consequence of any major accident or disaster. The consequence of the impact if the event occurs has been assigned as described in Table 31-2.

The consequence of a risk to/from the Project has been determined where one or more aspects of the consequence description are met, i.e., risks that have no consequence have not been considered further in the assessment.

Table 31-2 Classification of Impact (Source: DoEHLG, 2010)							
Ranking	Likelihood	Impact	Description				
1	Minor	Life, Health, Welfare	Small number of people affected; no fatalities and				
		Environment	small number of minor injuries with first aid				
		Infrastructure	treatment.				

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		Social	No contamination, localised effects <€0.5M Minor localised disruption to community services or infractructure (<6 hours)
2	Limited	Life, Health, Welfare Environment Infrastructure Social	Single fatality: limited number of people affected; a few serious injuries with hospitalisation and medical treatment required. Localised displacement of a small number of people for 6-24 hours. Personal support satisfied through local arrangements. Simple contamination, localised effects of short duration €0.5-3M Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare Environment Infrastructure Social	Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 6-24 hours or possibly beyond; up to 500 evacuated. External resources required for personal support. Simple contamination, widespread effects or extended duration €3-10M Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure Social	5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated Heavy contamination, localised effects of extended duration €10-25M Community functioning poorly, minimal services available
5	Catastrophic	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. Very heavy contamination, widespread effects of extended duration. >€25M Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

#### **Risk Evaluation**

Once classified, the likelihood and consequence ratings have been multiplied to establish a 'risk score' to support the evaluation of risks by means of a risk matrix.

The risk matrix sourced from the DoEHLG Guide to Risk Assessment in Major Emergency Management and as outlined in Table 31-3 indicates the critical nature of each risk. This risk matrix has therefore been applied to evaluate each of the risks associated with the Project. The risk matrix is colour coded to provide a broad indication of the critical nature of each risk:

> The red zone represents 'high risk scenarios':



- > The amber zone represents 'medium risk scenarios', and
- > The green zone represents 'low risk scenarios'.



Table 31-3 Classification of Impact (Source: DoEHLG, 2010)

		Consequence I	Rating			
		1.Minor	2.Limited	3. Serious	4.Very	5.Catastrophic
					Serious	
Likelihood	5.Very Likely					
Rating	4. Likely					
	3. Unlikely					
	2. Very					
	Unlikely					
	1. Extremely					
	Unlikely					

## **Baseline Conditions**

The CSA for the Offshore site has been defined as Galway County and therefore the current Galway County Council Major Emergency Plan is utilised to describe the current baseline in Section 31.3.1. The CSA for the Onshore site has been defined as Clare County and therefore the most recent Clare County Council Major Emergency Plan is utilised to describe the baseline.

## 31.3.1 Offshore Site

The most recent Major Emergency Plan prepared by Galway Council (2021) outlines the following potential major emergency scenarios in the county (Galway).

- > Transport Emergencies:
  - M6 and M18 Motorways
  - National Primary Routes N6, N17 & N18
  - Iarnród Éireann: Galway Athlone, Galway Ennis Rail Lines
  - Airports including Island Airports
  - o Galway Harbour
  - Rossaveel Harbour
  - Offshore Inhabited Islands and Ferries
- > Natural Emergencies:
  - Flooding
  - Severe Weather
  - Landslide/ Tsunami
- > Technological Emergencies:
  - COMAH Sites
  - Large Fires/Lakes
  - Hazardous Materials Incidents
  - Environmental Pollution
- > Civil Emergencies:
  - Terrorism
  - Large Crowd Events
  - Loss of Critical Infrastructure
  - Pollution of Water Supplies
  - o Communicable Diseases/ Public Health Emergencies
- > Utility Company Emergencies:
  - o Bord Gáis Networks
  - E.S.B. Networks
- Site/Event Specific Internal Emergency Plans:
  - Galway Harbour Major Emergency Incident Plan (GFRS)
  - Island Response Major Incident Plan (GFRS)



- M6, M17 & M18 Motorway Plans (GFRS)
- Severe Weather (Excluding Flood Events) Plan
- Flood Response Plan
- Mortality Management Plan
- Marine and Inland Pollution Plans
- o GCC Business Continuity Plan
- Site/Event Specific External Emergency Plans:
  - Circle K Oil Terminal, Galway Harbour
    - Colas Bitumen Emulsion West, Oranmore
  - Inter-Agency Island Response Plan
  - Inter-Agency Plan for Galway Racecourse
  - Tynagh Energy, Tynagh
  - Galway Harbour GALFIRE
  - Rossaveal Harbour Plan
  - Coillte Forestry Emergency Plans.

Other offshore risks most relevant to the Project are described in Section 31.3.1.1.2 below.

As part of the Local Authority Climate Action Plan<sup>3</sup> for County Galway (Galway LACAP) a qualitative Climate Change Risk Assessment was carried out by KPMG for County Galway. A profile of historical climate hazards in County Galway from 1973-2022 and assessment on future climate hazards is provided in the County Galway LACAP. Future projections of climate change indicate that Cold Spells, Heavy Snowfall, Severe Windstorms and Groundwater Flood will remain consistent with existing conditions. However, risk is predicted to increase for all other identified climate hazards (i.e., Heatwave, Drought, Coastal Flood, Coastal Erosion, Pluvial Flood and River Flood.

#### **Transport Emergencies**

- > Rossaveel Harbour
- > Offshore Inhabited Island and Ferries

As detailed in Chapter 5 Rossaveel Harbour is being considered as the O&M harbour for the Project, along with other potential harbours and ports. This is subject to Project -specific requirements and the availability of ports and other local facilities during construction and operations Traffic movements to and from this port arising from Operation and Maintenance requirements are assessed in Chapter 29: Traffic and Transportation. Traffic movements are determined to be between 30 and 50 movements per day. Shannon Foynes Port has been assessed for potential use as the temporary GBS foundations anchorage area and is under consideration for use during the construction phase as a marshalling yard for the Offshore Site components. (see Chapter 5 Section 5.6.1.4 for further details). Rossaveel has been considered as the main port for operational phase activities for the Offshore Site. The use of facilities and frequent transits by Project vessels may disrupt third-party access to the harbour, particularly when considering the narrow approach to the harbour through Cashla Bay. However, Project vessels will be managed by marine coordination such as designated routes to and from Rossaveel harbour. During consultation, Rossaveel Harbour indicated no concerns with use of the harbour, with the proposed mitigation measures suitable to allow continued safe navigation.

The closest inhabited island port or harbour to the Project is Kilronan, a pier on the largest of the three Aran Islands, Inishmore, 11.9NM southeast of the OAA and 7.7NM east of the OECC. This is situated in the village of Kilronan, on the west of Killeany Bay, and which upon its breakwater stands a light beacon. According to the Admiralty Sailing Directions (UKHO, 2019), the pier is usually occupied by fishing vessels and mainland ferries.

<sup>&</sup>lt;sup>3</sup> Galway County Council Local Authority Climate Action Plan 2024-2029. Available at: << <u>https://consult.galway.ie/en/consultation/galway-county-council-local-authority-climate-action-plan-2024-</u> 2029#:--text=Galway%20County%20Council%20is%20delighted,climate%20neutral%20economy%20by%202050. >>



A Navigational Risk Assessment (Appendix 14-1) has been prepared for the Project, which presents information regarding baseline features and activity of relevance to the Project and considers potential effects of the Project on shipping and navigation users, in particular, in relation to the Offshore Site.

#### **Natural Emergencies**

- Severe Weather
- > Landslide/ Tsunami
- Sea level Rise/Erosion

Section 30.3.1 of Chapter 30 Climate describes the current baseline environment with respect to Climate. Severe Weather in the form of storms, high levels of precipitation and high winds, have become more frequent. In late 2023 and early 2024, Ireland and the UK experienced a very active storm season; the countries were affected by 13-14 severe storms. The increased frequency and intensity of storm events lead to associated increases in precipitation.

The OLL is an elevation of approximately 10 metres above Ordnance Datum (mOD), is situated approximately 115m from the cliff edge and is currently a greenfield site comprising of agricultural land. The OGC is a linear feature mainly along existing roads or in agricultural lands. The OCC is located on agricultural land and the subsequent connection to the Moneypoint 220kV Substation is mainly located within or adjacent to existing roadways. The landslide susceptibility at the Onshore Site is mapped has being predominantly 'Low' with some very localised areas of 'Moderately Low' to 'Moderately High' mapped along the OGC.

Table 30-5 Summary of current physical baseline environment (Chapter 30: Climate) details that Climate change is impacting sea levels and costal erosion in the Northern European region. Along the Irish coastline, the sea level has risen by approximately 2 - 3 mm per year since the 1990s. It is estimated that 19.9% of the Irish coastline is undergoing erosion and only 7.6% of the coastline is protected via defence works or artificial beaches

#### **Technological Emergencies**

The nearest COMAH site to the OAA is the Circle K Oil Depot (Upper tier), located in Galway Harbour, Co. Galway. This facility is located approximately 70km east of the Offshore Site, therefore, the probability of a major emergency at this location having an effect on the Offshore Site, whether during the construction, operation and maintenance, or decommissioning phase, is low. There are no locations in the vicinity of the OAA which store hazardous materials, and there is no recorded history of environmental pollution.

#### **Civil Emergencies**

The likelihood of a civil emergency, as defined in the Galway Major Emergency Plan, occurring at the OAA is anticipated to be low. There is no potential for a large crowd event, and communicable disease/public health emergency as well as limited potential for a terrorism event due to the remote nature of the OAA. During construction of the infrastructure associated with the OAA, there is a possible risk of contamination of seawater in the absence of mitigation. Chapter 8: Water and Sediment Quality of this EIAR has put forward detailed mitigation measures which, once implemented, will ensure that no negative impact to water quality occurs. Loss of Critical Infrastructure is considered within this chapter.



#### **Utility Company Emergencies**

The likelihood of a utility company emergency, as defined in the Galway Major Emergency Plan, occurring at the Offshore Site is low. There are no underwater gas pipelines or electricity in proximity to the Offshore Site.

The IRIS subsea cable - which was raised by the Port of Galway during consultation – runs between Iceland and Galway and intersects the OEC south of the Aran Islands, which was not considered in the Galway County Council Major Emergency Plan, as this was not constructed at the time of publishing of the Plan. There are no other existing subsea cables in the region. Chapter 5: Project Description provides further information regarding cable crossings. Mitigation measures, materials and design methodology will be agreed with the IRIS cable operator in a crossing agreement, which will ensure that no negative effect on utilities occurs. Cable crossings shall be completed in accordance with International Cable Protection Committee specifications.

#### Site/Event Specific External Emergency Plans

A Site Specific Rossaveel Harbour Plan has been referenced in the Galway County Council Major Emergency Plan and forms part of the Major Emergency Plan considerations.

#### 31.3.1.1.2 Other Risks

#### Aircraft Collision/Loss

The Project will not utilise air strips or aircraft for the delivery of wind turbine generator (WTG) components. Delivery of WTGs and their associated components will be via sea

The OAA has the potential to affect aviation due to the erection of manmade structure in excess of 45 metres that may constitute an obstacle to air navigation. These impacts are addressed in detail in Section 15.6 in Chapter 15 Civil and Military Aviation of this EIAR:

The scoping response from the Irish Aviation Authority (IAA) set out that in the event of planning consent being granted, Fuinneamh Sceirde Teoranta (FST) (the Applicant) should be conditioned to contact the IAA to (1) agree an aeronautical obstacle warning light scheme for the offshore wind farm development, (2) provide as-constructed coordinates in WGS84 format together with blade tip height elevations at each WTG location and (3) notify the IAA of intention to commence crane operations with at least 30 days prior notification of their erection. These conditions will be fulfilled (as required) and the coordinates and elevations for built WTGs will be supplied to the IAA, as is standard practice for wind farm developments. Scoping responses from the Commissioner of Irish Lights (CIL) requested that a meeting be held to discuss the Project which was as held on 22nd November 2023. Following the guidance above, consultation with the IAA and the Department of Defence (DoD) has been carried out by MKO as part of the assessment of the Project and are summarised in Section 15.3 of Chapter 15 of this EIAR. It was noted that (1) Irish guidance document is still being worked on, but in the interim, there is an expectation that projects will align with MGN 654, and with the IALA requirements. (2) CIL will require that the lighting and marking aspects of the Offshore Site will need to be provided in accordance with industry standards. (3) CIL will undertake inspections of the lighting systems on the WTGs during the operation and maintenance phase. The Applicant acknowledges and accepts CIL's comments regarding the lighting and marking of the WTGs. Further detail on these aspects is covered in Section 15.7 and Appendix 5-9: Lighting and Marking Plan.

Appendix 5-9: Lighting and Marking Plan (LMP) has been prepared which sets out specific requirements in terms of aviation lighting to be installed on the WTGs. The LMP will be finalised in consultation with the IAA, DoD and IRCG post consent. It will take into account DoD's requirement that wind turbines are observable to night vision equipment. Potential impacts to the operations of low flying aircraft will be managed through the agreement of the LMP with key aviation stakeholders, and



notification of the locations, heights and lighting status of the WTGs to aviation stakeholders for inclusion in appropriate aviation documentation and charts. This will enable aviation operators to set an appropriate MSA over the Project. The LMP will also cover the lighting and marking details for the construction infrastructure (e.g. cranes).

Information on aviation and radar receptors within the aviation and radar study area was collected through a desktop review and consultation with the relevant stakeholders. The impacts assessed include creation of physical obstacles affecting air traffic; and interference with civil Primary Surveillance Radars (PSR) systems and are fully detailed in Chapter 15 Civil and Military Aviation. No potential transboundary impacts have been identified in regard to effects of the Project. Overall, it is concluded that there will be no potential for significant effects on aircraft arising from the Offshore Site during the construction, operation and maintenance, or decommissioning phases.

#### Water Contamination

The Project, in particular the Offshore Site, has potential to cause contamination and pollution of seawater from the potential release of contaminated sediments, increased suspended sediments or accidental release of contaminants. These impacts are addressed in detail in Chapter 8: Water and Sediment Quality of this EIAR and are not related to either the vulnerability of the Offshore Site to natural disasters or major accidents nor the potential for the Offshore Site to cause natural disasters or accidents. Appendix 5-3 Marine Pollution Contingency Plan sets out the approach to management and mitigation in respect of the Offshore Site. The Marine Pollution Contingency Plan describes a response plan to marine pollution incidents, such as oil spills or hazardous substance releases during the construction, operation and maintenance, and decommissioning of the Project, and all its offshore component parts within the Offshore Site

#### Industrial Fire / Explosion

Large volumes of flammable material or explosives do not form part of the construction or decommissioning works and are also not stored as part of the operation of the Project and the likelihood of fire or explosion occurring at the Project is anticipated to be low. The likelihood of fire or explosion occurring will be further lowered by the implementation of good site management practices during the construction, operation and maintenance, and decommissioning phases. Appendix 5-4: Emergency Response Co-operation Plan describes the emergency response to be followed in the event of an emergency within the Offshore Site.

#### Loss of Critical Infrastructure

The Offshore Site will have no impact on telecoms or other signalling infrastructure. Chapter 15 Civil and Military Aviation assess the potential impact of the Offshore Site on Civil and Military Radar (including Met Eireann Meteorological Radar) and concludes that no significant negative residual effects are predicted.

#### Unexploded Ordnance (UXO)

In the construction of offshore wind farms there is potential need for UXO clearance. Based on preconstruction surveys which have been carried out to date, and a UXO risk assessment, the requirement for UXO clearance within the Offshore Site is unlikely. Further information on UXO, and clearance procedures in the unlikely event that subsequent surveys lead to the identification of any possible or confirmed UXO can be found in Chapter 5: Project Description and Chapter 12: Marine Mammals and Other Megafauna. Appendix 5-4: Emergency Response Co-operation Plan n outlines further instructions to be followed in the event of interaction between the Project and a UXO.



#### Clare County Council Major Emergency Plan

A number of different Location and Event Specific risks are considered within the Clare County Council Major Emergency Plan. The element of this plan which is relevant to the Offshore Site is the Shannon Estuary. The Shannon Estuary is of major economic, commercial and environmental importance to the country of Ireland. The environmental importance of the Estuary is highlighted by the presence of a number of designated sites such as Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas.

Potential hazards located in the Shannon Estuary and surrounding areas are high volumes of bulk marine traffic, air traffic and the presence of heavy industry located adjacent to the Estuary. This includes power generation. Risks associated with the estuary include:

- > Severe Weather
- > Flooding
- > Water Contamination

The Offshore Site construction phase may potentially interact with the Shannon Estuary. Ports to be used during the construction phase of the Project are not yet confirmed. However, Shannon Foynes Port which is within the defined CSA has been assessed for use as a potential temporary GBS foundations anchorage area and is under consideration for use during the construction phase as a marshalling yard for the Offshore Site components. All construction ports will be confirmed post consent. For Shannon Foynes Port, shipping and navigation related constraints anticipated for the transit corridors include navigable water depths within the Shannon Estuary as well as pilotage and anchorage locations. The use of Shannon Foynes Port during the Project construction phase has the potential to increase the volume of marine traffic in the estuary. Chapter 5: Project Description contains information on the activities which will be conducted at the marshalling harbour and at the temporary anchorage area during the construction phase of the Project.

## 31.3.2 **Onshore Site**

>

Clare County Council's Major Emergency Plan (2018) identifies the following risks within the county, which may have the potential to lead to a major emergency. The risks and their relevance to both the Onshore Site of the Project are described below.

- > Shannon Airport Fuel Terminal, Shannon International Airport
  - Fuel Farm and fuel hydrant system to Shannon International report.
  - Upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015
- > ESB Moneypoint Power Generating Station, Kilrush Co. Clare
  - Moneypoint Power Station is Ireland's biggest electricity station.
  - Upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015
- > Roche Ireland, Clarecastle, Co. Clare
  - Pharmaceutical manufacturing plant
  - Lower tier classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015
  - ENVA, Smithstown Industrial Estate, Shannon, Co. Clare
    - Waste treatment and disposal facility.
      - Lower tier classification under the Chemicals Act (Control of Major
    - Accident Hazards Involving Dangerous Substances) Regulations 2015
- > Avara, Shannon Industrial Estate, Co. Clare
  - > Pharmaceutical manufacturing plant and Research and Development facility
  - Lower tier classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015



- Shannon International Airport, Shannon, Co. Clare
  - Shannon Airport is the No. 1 designated airport for emergency landings for all air traffic over the Eastern half of the North Atlantic Ocean. The runway is capable of taking the largest type of aircraft now in operation.
  - Shannon Airport is operated in accordance with ICAO (International Civil Aviation Organisation) regulations.
  - Category 9 Airport under ICOA regulations
- > Shannon Estuary
  - The Shannon Estuary is of major economic, commercial and environmental importance to the country of Ireland.
  - The environmental importance of the Estuary is highlighted by the presence of six locations proposed as Special Protection Areas and Natural Heritage Areas.
  - Potential hazards located to the Shannon Estuary and surrounding areas are high volumes of bulk marine traffic, air traffic and the presence of heavy industry located adjacent to the Estuary. This includes power generation plants, pharmaceutical manufacturing facilities, fuel storage, and an alumina refinery.
  - The Shannon Estuary Serious Incident and Major Emergency Strategic Coordination Document may be used as a reference document to provide guidance to assist in the strategic co-ordination of the response of the various agencies/companies that may be involved in responding to such an incident.
- > Severe Weather
  - The location of Co. Clare near the Atlantic Ocean is exposed to the influences of low-pressure depressions forming over the Atlantic Ocean. Damaging wind speeds are experienced in the County.
  - Atmospheric depressions combined with spring tides can cause coastal flooding, particularly if combined with offshore South Westerly winds.
  - Prolonged rainfall events have led to fluvial flooding in South-East Clare along the River Shannon, in Mid-Clare in the Ennis area and in North-Clare.
  - Pluvial Flooding has been experienced in coastal areas with extreme shortduration intense rainfall events.

It should be noted that the Roche pharmaceutical manufacturing plant and Avara Shannon pharmaceutical manufacturing plant identified above are no longer operational (i.e. Roche Ireland site is currently undergoing remediation works as per the conditions of its EPA Licence, and the Avara site is currently undergoing repurposing, again as per its EPA licence conditions). This information is considered in the assessment.

As part of the Local Authority Climate Action Plan<sup>4</sup> for County Clare (Clare LACAP) a Tier 1 Climate Change Risk Assessment (CCRA) was carried out; KPMG supported Clare County Council to build the adaptation baseline that formed part of the CCRA. This CCRA was undertaken in accordance with Technical Annex B of the Local Authorities Climate Action Plan and provides a qualitative assessment of climate risk for County Clare. In assessing climate change risk, the risk assessment framework of the Intergovernmental Panel on Climate Change (IPCC) was adopted. This framework identifies three key components of climate risk: hazard, exposure, and vulnerability. A profile of historical climate hazards in County Clare and assessment on future climate hazards is provided in the Clare LACAP. The Shannon Airport long term weather station was used for baseline 30- year average figures. Based on the climate hazard baseline, severe windstorm events have impacted upon County Clare most frequently over the period 1986-2022, with heatwaves, flooding events (river, pluvial, groundwater, and coastal) and cold spells also affecting the County on several occasions. Coastal erosion, heavy snowfall, and droughts have also impacted Clare in the time period but have occurred less frequently. Future

<sup>&</sup>lt;sup>4</sup> Clare County Council (2024) Local Authority Climate Action Plan 2024-2029. Available at: https://www.clarecoco.ie/services/climate/publications/clare-climate-action-plan-2024-2029-55368.pdf



projections of climate change indicate that the risk of existing hazards such as river, pluvial, and coastal flooding and coastal erosion are likely to increase in the future because of changes in both hazard frequency as a result of climate change and impact due to changes in exposure and vulnerability. Emerging risks for the region as a result of climate change include heatwaves and droughts as, although these are already experienced within County Clare, a greater impact is expected to occur as a direct result of climate change.

The risks which are most relevant to this assessment are described below in line with the specific sites identified above. General baseline conditions are also included as part of this assessment and include the following:

- Severe Weather
- > Flooding
- > Aircraft Collision/Loss
- > Water Contamination
- > Hazmat (Hazardous Material)
- Rail Accident
- > Industrial Fire/Explosion
- Loss of Critical Infrastructure
- > Structural Collapse

These Location and Event Specific risks are further detailed below.

## 31.3.2.1 Location and Event Specific Risks in Co. Clare

#### Shannon Airport Fuel Terminal, Shannon International Airport

The fuel farm and fuel hydrant system to Shannon International Airport is an upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. Due to the nature of the fuel terminal, an external emergency plan has been developed for responding to emergencies at this location.

Risks that may to occur at this site:

- Flooding
- > Water contamination
- > Hazmat
- > Industrial Fire/Explosion

Due to the location of the fuel terminal (i.e., approx. 34km to the Project at its closest point), it is not considered likely that any of the above identified risks will impact the Project if they were to occur.

#### ESB Moneypoint Power Generating Station, Kilrush Co. Clare

ESB Moneypoint is Ireland's largest electricity generation station with an installed capacity of 915MW. It has an upper tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (the COAMH Regulations). Due to the nature of the generating station, an external emergency plan has been developed for responding to emergencies at this location. Moneypoint Power Station is a strategically important part of Ireland's electricity generating network. The recently granted permission for the change of fuel use at this site will facilitate a conversion from its primary fuel source (coal) to Heavy Fuel Oil and a change to its operation to a generator of last resort, with limited run hours from 2024, up until the end of 2029. The COMAH classification at the site will remain unchanged as a result of the change of fuel use.

Risks that may occur at this site:



- Flooding
- > Water contamination
- > Hazmat
- > Industrial Fire/Explosion
- Loss of Critical Infrastructure

Consultation was held with the HSA regarding the OGC at Moneypoint Power Station, which is classed as an Upper Tier SEVESO Site, due to the presence of hazardous substances The HSA were contacted in order to confirm if the OGC, which is proposed to connect from the OCC into the existing Moneypoint 220kV Substation, is considered a modification to a Seveso Site under Article 13 of the Planning and Development Regulations 2001 (as amended).

The HSA clarified that it is the ESB's responsibility as the operators of the SEVESO site, to complete a 'preliminary assessment' of the proposed works, in order to confirm if it would be considered a significant modification. Arising from this requirement, ESB has confirmed to the Applicant that the connection of the Project to the existing Moneypoint 220kV Substation is not considered a significant modification to the establishment.

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Project will not be regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e., SEVESO sites and so there are no potential effects from this source. As stated above, the ESB has confirmed the Project is not considered a significant modification to establishment, and thus will not increase the current consequences of the major accident hazards at or outside the establishment. There is potential for an incident at the Moneypoint Power Station to impact upon the construction, operation and maintenance, or decommissioning of the cable connection from the OCC to the existing Moneypoint 220kV Substation. This is considered in the impact assessment.

#### Roche Ireland, Clarecastle, Co. Clare

The Roche Ireland plant, located in Clarecastle, operated as a pharmaceutical plant since 1974 (initially as Synetx Ireland and subsequently as Roche since 1994), and at the time of writing, is subject to a remediation operation. During its operational phase, the Roche Ireland plant was a lower tier site, classified under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. Due to the nature of the pharmaceuticals plant, an external emergency plan has been developed for responding to emergencies at this location.

Risks that may occur at this site:

- Water contamination
- > Hazmat
- > Industrial Fire/Explosion

Due to the location of this pharmaceutical plant (i.e. c. 37km northeast of the Onshore Site at its closest point) and its current status (demolition completed, remediation underway), it is not considered likely that any of the above identified risks will impact the Project if they were to occur.

#### ENVA, Smithstown Industrial Estate, Shannon, Co. Clare

ENVA Smithstown Industrial Estate is a waste treatment and disposal facility with a lower tier site classification under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015.

Risks that may occur at this site:



- Flooding
- > Water contamination
- > Hazmat
- > Industrial Fire/Explosion
- > Loss of Critical Infrastructure

Due to the location of the waste treatment and disposal facility (i.e., c.38.2km to the northeast of the Onshore Site at its closest point), it is not considered likely that any of the above identified risks will impact the Project if they were to occur.

#### Avara, Shannon Industrial Estate, Co. Clare

The Avara pharmaceutical manufacturing and Research and Development facility is located in the Shannon Industrial Estate and is classified as a lower tier site under the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015.

Risks that may occur at this site include:

- > Water contamination
- > Hazmat
- > Industrial Fire/Explosion

The Avara plant was closed in 2019. The site has been repurposed and reopened in 2023 as a state-ofthe-art OLED (Organic Light-Emitting Diode) manufacturing facility. Due to the location of this pharmaceutical plant (i.e. c. 36.5km to the northeast of the Onshore Site at its closest point) and its current status it is not considered likely that any of the above identified risks will impact the Project if they were to occur.

#### Shannon International Airport, Shannon, Co. Clare

Shannon airport is the No. 1 designated airport for emergency landings for all air traffic over the Eastern half of the North Atlantic Ocean. The runway is capable of taking the largest type of aircraft now in operation. Shannon Airport is operated in accordance with ICAO (International Civil Aviation Organization) regulations and is a Category 9 airport under these regulations.

Risks that may to occur at this site include:

- > Severe Weather
- > Flooding
- > Aircraft Collision/Loss
- > Hazmat
- > Industrial Fire/Explosion
- > Loss of Critical Infrastructure
- > Structural Collapse

Due to the location of the airport (i.e., 35.5km to the northeast of the Onshore Site at its closest point), it is not considered likely that any of the above identified risks will impact the Project if they were to occur.

#### Shannon Estuary

The Shannon Estuary is of major economic, commercial and environmental importance to the country of Ireland. The environmental importance of the Estuary is highlighted by the presence of a number of designated sites such as Special Areas of Conservation, Special Protection Areas and Natural Heritage Areas.



Potential hazards to the Shannon Estuary and surrounding areas are high volumes of bulk marine traffic, air traffic and the presence of heavy industry located adjacent to the Estuary. This includes power generation. Therefore, risks associated with the estuary include:

- > Severe Weather
- > Flooding
- > Water Contamination

A section of the OGC cable route runs adjacent to the Shannon estuary for approximately 400m. Due to the limited nature of the works proposed during the construction phase it is not considered likely that any of the above identified risks will impact the Onshore Site if they were to occur.

## 31.3.2.2 Other Risks

#### Severe Weather

The climate change risk assessments included in the Clare LACAP detail the major risks posed from climate change relating to flooding, severe wind, storms, extreme precipitation, and drought. The changes in frequency in intensity of weather patterns as a result of climate change will continue to influence the wide range of functions caried out by Local Authorities. The identification of future risks is critical to enable the progression of adaptation and mitigation measures in the development and execution of plans and policies.

Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the Onshore Site infrastructure, collisions onsite and offsite with vehicles involved in construction, operation and maintenance, and decommissioning of the Onshore Site, and damage to critical transport infrastructure caused by extreme weather i.e., periods of heavy rainfall, taking into account climate change and strong winds.

As detailed in Chapter 29: Traffic and Transportation of this EIAR, the localised traffic disruptions as a result of proposed Onshore Site works will be mitigated through the use of industry standard traffic management measures. These traffic management measures will be designed in accordance with the Department of Transport's '*Guidance for the Control and Management of Traffic at Roadworks – Second Edition (2010)*' and are detailed in Appendix 29-2 Traffic Management Plan.

#### Flooding

Chapter 23: Water and the accompanying Appendix 23-1: Flood Risk Assessment (FRA), detail a flood risk identification study which was undertaken to identify existing potential flood risks associated with the Onshore Site. Based on the information provided in the stated documents, the areas of the Onshore Site at risk of flooding were identified. In relation to the Onshore Site, the closest mapped historic flood event is located 1.63km east of the OGC and 2.3km to the southeast of the OLL at Doonbeg, while the nearest recurring flood event is located 1.3km to the west of the OGC in Kilrush. Neither the OCC nor the OLL are mapped within OPW/CFRAM flood zones. Short sections of the OGC have been mapped within OPW/CFRAM flood zones.

Due to the relatively flat topography and the absence of peat across much of the Onshore Site, it is considered that the risk of a peat failure arising from significant rainfall events is low. Where peat is present, it is typically shallow and even where deeper peat deposits were recorded the topography is relatively flat.

Flooding can also result in downstream major accidents and disasters. However, due to the small scale of the onshore elements of the Project, the small permanent development footprint, and with the implementation of the prescribed mitigation measures the increased flood risk associated with the onshore elements of the Project is low.



The overall risk of flooding posed at the Onshore Site is assessed to be low. Please refer to the Chapter 23: Water and Appendix 23-1: Flood Risk Assessment of this EIAR for further details.

#### Aircraft Collision/Loss

The Project will not utilise air strips or aircraft for the delivery of WTG components. Delivery of Onshore Site components (OLL, OGC and OCC infrastructure) will be via the national and local road network.

The Onshore Site has no potential to affect aviation, as there are no structures in excess of 45 metres, and the majority of infrastructure will be located underground. Information regarding the Offshore Site and the risk of aircraft collision/loss can be found in Section 31.3.1 above, and is further detailed in Chapter 15: Civil and Military Aviation

#### **Peat Stability**

Due to the absence of peat across the majority of the Onshore Site and the relatively flat topography there is not considered to be a risk of a landslide. Where peat is present, it is typically shallow and even where deeper peat deposits were recorded the topography is relatively flat. Chapter 22: Land, Soils and Geology describes the stability of the Onshore Site.

#### Water Contamination

The Onshore Site has the potential to cause contamination and pollution of groundwater and surface water from elevated suspended solids concentrations, potential release of hydrocarbons and cementbased products during the construction and operational phase of the Onshore Site. These impacts are addressed in detail in Chapter 23: Water of this EIAR and are not related to either the vulnerability of the Project or Onshore Site to natural disasters or major accidents nor the potential for the Project or Onshore Site to cause natural disasters or accidents.

There is potential for hazardous materials in the form of hydrocarbons and cement-based materials to be transported to and used on the Onshore Site. Best practice mitigation measures as detailed in Chapter 23: Water and Appendix 5-16 Onshore Construction and Environmental Management Plan (OCEMP), respectively, will minimise the potential for leaks and will break the potential pathways between any source and receptor. Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. There will be low potential for hazardous material release during the operation and maintenance phase of the Onshore Site.

The release of effluent from Onshore Site temporary wastewater treatment systems has the potential to impact on groundwater and surface water quality. Impacts on surface water quality could affect fish stocks and aquatic habitats. There will be no requirement for the storage of wastewater along the OGC. No water or wastewater will be sourced on the Onshore Site, nor discharged to the Onshore Site. The potential for contamination resulting from wastewater disposal is a risk to surface and groundwater quality. This is a risk common to all construction sites containing welfare facilities. Proven and effective measures to mitigate the release of wastewater on the Onshore Site have been proposed in Chapter 23: Water and will break the pathway between the potential source and each receptor. Indirect impacts associated with major accidents and/or natural disasters on contamination are considered further in Chapter 23 of this EIAR.

#### Hazmat

The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites where certain quantities of specified dangerous substances are present. These sites (SEVESO sites) are classified as upper tier and lower tier. At present, there are 3



no. SEVESO sites within County Clare. The 3 no. SEVESO sites within County Clare have specific External Emergency Plans for each site which are reviewed and tested on a three-year cycle. The closest SEVESO site to the Project is the ESB Moneypoint Power Station, Kilrush. It is proposed that the OGC is to connect from the OCC into the existing Moneypoint 220kV Substation. The interaction of the Project, in particular the Onshore Site has been confirmed to not be a modification to the SEVESO Site, and thus is it anticipated that the Project does not have the opportunity to negatively impact the Moneypoint Power Station. An incident at the Moneypoint Power Station does have the potential to impact the operation of the OGC and interfere with the construction, operation and maintenance, or decommissioning of the Project.

Due to the large spatial scale and varying temporal scale of the Project, and the distances between the locations of both the Offshore Site and Onshore Site, other elements have been taken into account where necessary which may have potential relevance to this assessment into the vulnerability of the Project to major accidents and natural disasters. Additional COMAH sites considered are presented below and have been considered within this assessment.

There are two Upper Tier and one Lower Tier SEVESO sites in County Kerry, and three Upper Tier and three Lower Tier SEVESO sites within Co. Limerick which are within the SEVESO ZOI.

- National Oil Reserves Agency (NORA), Tarbert, Co. Kerry, located approximately 4km southeast of the Onshore Site, across the Shannon Estuary (Upper Tier).
- SSE Generation Ireland Ltd. Tarbert, Co. Kerry, located approximately 4.2km southeast of the Onshore Site, across the Shannon Estuary (Upper Tier).
- West Cork Distillers Limited Bioatlantis, Clash Industrial Estate, Tralee, Co. Kerry, located approximately 42km southwest of the Onshore Site at its closest point (Lower Tier)
- Atlantic Fuel Supply Co. Ltd, Foynes Harbour, Co. Limerick, located approximately 22km east of the Onshore Site, in the Shannon Estuary (Upper Tier)
- Goulding Chemicals, Askeaton, Co. Limerick, located approximately 26.7km east of the Onshore Site, in the Shannon Estuary (Upper Tier).
- Grassland Agro, Limerick City, Co. Limerick, located approximately 52.5km east of the Onshore Site (Lower Tier).
- Chemifloc Foynes Ltd. Foynes, Co. Limerick, located approximately 21.8km southeast of the Onshore Site (Lower Tier).
- Analog Devices International, Raheen, Co. Limerick, located approximately 51.5km east of the Onshore Site (Lower Tier).

The Project is not a SEVESO Site, is not considered a modification to the SEVESO status of Moneypoint Power Station and is not connected to any of the above SEVESO Sites.

#### Industrial Fire/Explosion

Due to the projected low volumes of flammable material to be required for the construction, operation and maintenance, and decommissioning of the Onshore Site, the likelihood of fire or explosion occurring at the Onshore Site is anticipated to be low. The likelihood of fire or explosion occurring will be further lowered by the implementation of good site management practices during the construction, operational and decommissioning phases.

#### Loss of Critical Infrastructure

The Onshore Site will utilise the existing road network and specific third-party lands during the construction phase. Construction related traffic will originate from the delivery of materials to the Onshore Site and transport of employees to, from and throughout the Onshore Site.



Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the Onshore Site infrastructure, collisions onsite and offsite with vehicles involved in construction and operation of the Project, and damage to critical transport infrastructure caused by extreme weather i.e., periods of heavy rainfall, taking into account climate change and strong winds or during OGC construction.

As detailed in Chapter 29: Traffic and Transportation of this EIAR: Material Assets, the localised traffic disruptions as a result of proposed works will be mitigated through the use of industry standard traffic management measures. These traffic management measures will be designed in accordance with the Department of Transport's '*Guidance for the Control and Management of Traffic at Roadworks – Second Edition (2010)*'.

Regarding telecoms and other signalling infrastructure, the Onshore Site will have no impact as it will not physically interact with any infrastructure of this nature.

#### Gas Explosion on Mains Line from Galway to Cork

The Galway to Cork Gas line runs from Galway to Ennis, Limerick, and terminates in Cork. Offshoots of the line are provided into Shannon, Tipperary Town, and Kinsale, which are located approximately 34km southeast, 87km southeast, and 118km south of the Project, respectively. As such, it is considered that neither the Project nor the gas line have the opportunity to negatively impact the other.

#### Structural Collapse

Structural collapse in the surrounding areas of the Onshore Site may occur due to earthquake, landslide, extreme weather events, and/or vehicular collision due to driver negligence.

Due to the transport of abnormal size loads, i.e., OCC components, there is potential for road infrastructure collapse during delivery. This impact may be exacerbated by extreme weather i.e., severe winds, storms and heavy precipitation resulting from climate change. The Climate Change Risk Assessments which have been conducted as part of the Clare County Council LACAP provides Observed Changes and Impacts of Clare's Climate (Page 33)<sup>5</sup> which details the significant climate and weather events which have impacted the area from 1986 to 2022. In the circumstance of an extreme weather event occurring at the Onshore Site during the operation and maintenance phase, the measures set out in the HSE Area 3 Major Emergency Plan will be followed.

Having regard to existing public speed limits within the Onshore Site, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.

The Onshore Site will utilise sections of the existing road network during the construction phase. Construction related traffic will originate from the delivery of materials to the Onshore Site and transport of employees to, from and throughout the Onshore Site.

Potential impacts that may occur on the identified road networks could be caused by vehicles involved in construction and operation of Project, and damage to critical transport infrastructure and bridges, and structural collapse.

As detailed in Chapter 29: Traffic and Transportation of this EIAR, the localised traffic disruptions as a result of proposed works will be mitigated through the use of industry standard traffic management measures. These traffic management measures will be designed in accordance with the Department of Transport's '*Guidance for the Control and Management of Traffic at Roadworks – Second Edition (2010)*'.

<sup>&</sup>lt;sup>5</sup> <u>https://www.clarecoco.ie/services/climate/publications/clare-climate-action-plan-2024-2029-55368.pdf</u>



As detailed in Section 5.6.2 in Chapter 5 of this EIAR, the OGC will involve 3 no. bridge crossings, the crossing methodologies to be used to traverse these watercourses are overcrossing (trefoil or flat configuration) and Horizontal Direction Drilling (HDD). Potential contamination may arise during this process from a 'frac-out'. This is the unintentional return of drilling fluids to the surface during HDD. The construction methodologies for these approaches are outlined in Section 5.6.2.2.9 of Chapter 5 and included in Appendix 5-17: Onshore Grid Construction Methodologies of the EIAR.

## **Risk Assessment**

This section outlines and assesses the possible non-standard risks associated with the Project for the construction, operational and decommissioning phases.

These risks have been assessed in accordance with the relevant methodology and classification as outlined in Table 31-1 and 31-2.

As detailed in Section 31.2.4.2.2, the consequence rating assigned to each potential risk assumes that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster i.e., pre-mitigation. Any embedded mitigation or mitigation by design is considered as part of the determination of the risk likelihood.

## 31.4.1 Likely Significant Effects

## 31.4.1.1 **Do-Nothing Scenario**

If the Project doesn't proceed, the opportunity to capture the available renewable energy resource and connect it to Ireland's electricity grid would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Both the offshore and onshore elements of the Project would not be constructed, and no wind farm would become operational off the west coast of Ireland as part of the Phase One projects. There would be a loss of approximately 450 MW of offshore wind capacity. If the Project does not proceed, a significant area of the seabed already identified by the Irish Government as suitable and made available for large-scale offshore wind development, would not be developed in the near-term, if at all. This will have a knock-on effect on all future phases of offshore wind developments in Ireland. Ireland cannot be expected to meet its target for 5 GW of offshore wind energy by 2030 if the Project does not proceed.

In summary, the opportunity to generate local employment, increase offshore capacity, reduce carbon emissions and investment would be lost.

The existing sea and land uses can and will continue in conjunction with the Project. A comparison of the potential environmental effects of the 'Do-Nothing' Alternative when compared against the chosen option of developing a renewable energy project at this location are presented in Table 3-1 in Chapter 3: Site Selection and Alternative of this EIAR.

## 31.4.1.2 Identification of Effects During Construction

A risk register has been developed which contains all potentially relevant risks identified during the construction phase of the Project. 7 risks specific to the construction of the Project have been identified and are presented in Table 31-4. Other potential risks such as contamination, flooding and aircraft collision are considered in the relevant chapters of the EIAR.



#### Table 31-4 Risk Register - Construction Phase

Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
Potential v	l ulnerability to accid	lents and / or	natural disasters	
	Critical	A1	Offshore Site Risk to delivery of infrastructure to the OAA.	Extreme weather- storms, periods of heavy rainfall, taking into account climate change and strong winds
A	Infrastructure Emergencies	A2	<u>Onshore Site</u> Risk to delivery of infrastructure to Onshore Site.	Extreme weather- storms, periods of heavy rainfall, taking into account climate change and strong winds Accident or incident at Moneypoint Power Station
		B1	Offshore Site Risk to construction activity on OAA	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning
B	Severe Weather	B2	<u>Onshore Site</u> Risk to construction activity on Onshore Site.	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning
		C1	<u>Offshore Site</u> The Offshore Site is not considered as there no potential risk from Sea Level Rise or Coastal Erosion	
С	Sea Level Rise/Coastal Erosion	C2	<u>Onshore Site</u> Risk of coastal erosion and sea level rise in the areas surrounding the OLL impacting the construction phase and leading to environmental emissions	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning
Potential to	o cause accidents an	d / or natural	disasters.	<u> </u>
		D1	Offshore Site Risk of construction activity along the proposed OEC route.	Construction activity along proposed OEC route impacting on national services and utilities.
D	Utility Emergencies	D2	Onshore Site Risk of construction activity along the proposed OGC.	Construction activity along proposed OGC and road network impacting on local services and utilities



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
Е	Traffic/Vessel Incident	E1	Offshore Site Risk of Collisions between Project vessels or third-party vessels. Risk of Allision between third party vessels and OAA infrastructure	Driver negligence or failure of vessel operations on transport routes Lack of route planning, vessel machinery failure or navigational error within or in close proximity to the OAA Extreme weather event
		E2	<u>Onshore Site</u> Risk of Collisions onsite with vehicles involved in Onshore Site construction.	Driver negligence or failure of vehicular operations on Onshore Site roads (Public Road network in which the OGC is proposed). Traffic Management not implemented
F	Fire / Gas Explosion	F1	Offshore Site Risk of Unidentified UXO within the Offshore Site	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence. Interaction with unidentified UXO
		F2	<u>Onshore Site</u> Risk of Use of fuels/flammables during construction	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence
		G1	<u>Offshore Site</u> Risk of Structure Damage/Collapse	Earthquake, land slide, extreme weather events; Allision between Project or third-party vessels and OAA infrastructure
G	Collapse/ damage to structures	G2	<u>Onshore Site</u> Risk of structure Damage/Collapse	Earthquake, land slide, extreme weather events; Vehicular collisions due to driver negligence on public roads. Traffic Management not implemented

## 31.4.1.3 Identification of Effect During Operation and Maintenance

7 risks specific to the operation of the Project have been identified and are presented in Table 31-5 below. Other potential risks such as contamination, flooding and aircraft collision are considered in the relevant chapters of the EIAR

Table 31-5 Risk Register - (	Dueration and Maintenance Phase
Tubic DI D Tubic Incelbici C	peradon and manachance r mase

Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause	
Potential vulnerability to accidents and / or natural disasters					



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
		H1	Offshore Site Risk of Cable or joint bay failure	Internal infrastructure fault Damage from Offshore site or third- party yessel or yehicle
н	Critical Infrastructure Emergencies	H2	<u>Onshore Site</u> Risk of Cable or joint bay failure.	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning Accident or incident at Moneypoint Power Station
I	Severe Weather	11	Offshore Site Risk to operational activity on the OAA, i.e., damage to WTG (blade or turbine damage) Risk of Lightning strike to WTG or OSS	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning
		12	<u>Onshore Site</u> Risk to operational activity on the Onshore Site Risk of Lightning strike to OCC	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning
J	Sea Level Rise/Coastal Erosion	J1	<u>Offshore Site</u> The Offshore Site is not considered as there no potential risk from Sea Level Rise or Coastal Erosion	
		J2	<u>Onshore Site</u> Risk of coastal erosion and sea level rise in the areas surrounding the OLL impacting the operation and maintenance phase and leading to environmental emissions	Extreme weather periods taking into account climate change
Potential to	cause accidents an	d / or natural	disasters.	·
K	Utility Emergencies	K1	Offshore Site	Operational phase activity along proposed OEC route impacting on national services and utilities.



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
			Risk of operational phase activity along the proposed OEC route.	
		K2	<u>Onshore Site</u> Risk of operational phase activity along the proposed OGC	Operational phase activity along proposed OGC and road network impacting on local services and utilities
L	Traffic/Vessel Incident	LI	Offshore Site Risk of Collisions offsite (onshore) with vessels involved in the operational phase of the Offshore Site. Risk of Collisions between Project vessels or third-party vessels. Risk of Allision between third party vessels and OAA infrastructure	Driver negligence or failure during vehicular operations Lack of route planning, vessel machinery failure or navigational error within or in close proximity to the OAA Extreme weather event
		L2	<u>Onshore Site</u> Risk of Collisions onsite with vehicles involved in Onshore Site operational phase acitivites	Driver negligence or failure during vehicular operations on Onshore Site roads (Public Road network in which the OGC is proposed).
М	Fire / Gas Explosion	M1	Offshore Site Risk of potential unidentified UXO within the Offshore Site and Fire	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence. Interactions with unidentified UXO
		M2	<u>Onshore Site</u> Risk of Fire/Explosion	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence.



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
	Collapse/	N1	<u>Offshore Site</u> Risk of Structure Damage/Collapse	Earthquake, land slide, extreme weather events; Allision between Project or third-party vessels and OAA infrastructure
Ν	damage to structures	N2	<u>Onshore Site</u> Risk of Structure Damage/Collapse	Earthquake, land slide, extreme weather events; Vehicular collisions due to driver negligence on public roads. Traffic Management not implemented

## 31.4.1.4 Identification of Effect During Decommissioning

7 risks specific to the decommissioning of the Project have been identified and are presented in Table 31-6. Other potential risks such as contamination, flooding and aircraft collision are considered in the relevant chapters of the EIAR

Table 31-6 Ris	Table 31-0 Kisk Register - Decommissioning rnase				
Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause	
Potential vul	nerability to accide	nts and / or na	atural disasters		
0	Critical Infrastructure Emergencies	01	Offshore Site Risk of removal of infrastructure from the OAA.	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning	
		O2	<u>Onshore Site</u> Risk of removal of infrastructure from the Onshore Site.	Traffic accident during infrastructure transportation or extreme weather periods of storms, lightning and heavy rainfall, taking into account climate change and strong winds Accident or incident at Moneypoint Power Station	
Р	Severe Weather	P1	Offshore Site Risk to decommissioning activity on the Offshore Site leading to environmental emissions	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning	
		P2	<u>Onshore Site</u> Risk to decommissioning activity on the Onshore Site leading to environmental emissions	Extreme weather- storms, periods of heavy rainfall, taking into account climate change, strong winds and lightning	

Table 31-6 Risk Re ת Ph:



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
Q	Sea Level Rise/Coastal Erosion	Q1	Offshore Site The Offshore Site is not considered as there is no potential for sea level rise to pose a risk	
		Q2	<u>Onshore Site</u> Risk of coastal erosion and sea level rise in the areas surrounding the OLL impacting the operational phase and leading to environmental emissions	Extreme weather periods taking into account climate change
Potential to o	cause accidents and	/ or natural d	lisasters.	
R	Utility Emergencies	RI	Offshore Site Risk of decommissioning activity along the proposed OEC route.	Decommissioning activity along proposed OEC route impacting on national services and utilities.
		R2	Onshore Site Risk of decommissioning activity along the proposed OGC.	Decommissioning activity along proposed OGC and road network impacting on local services and utilities
S	Traffic/Vessel Incident	S1	Offshore Site Risk of Collisions offsite (onshore) with vehicles involved in decommissioning of the Offshore Site. Risk of Collisions between Project vessels or third-party vessels. Risk of Allision between third party vessels and OAA infrastructure	Driver negligence or failure during vehicular operations Lack of route planning, vessel machinery failure or navigational error within or in close proximity to the OAA Extreme weather event
		S2	<u>Onshore Site</u> Risk of Collisions onsite with vehicles involved in Onshore Site decommissioning.	Driver negligence or failure during vehicular operations on Onshore Site roads (Public Road network in which the OGC is proposed). Traffic Management not implemented



Primary Risk ID	Potential Risk	Secondary Risk ID	Potential Risk (Offshore/Onshore)	Possible Cause
Т	Fire / Gas Explosion	T1	Offshore Site Risk of unidentified UXO within the Offshore Site and Fire	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence. Interactions with unidentified UXO
		T2	<u>Onshore Site</u> Risk of Fire/Explosion	Equipment or infrastructure failure; Fuel spillage/ storage Electrical problems; and Employee negligence.
U	Collapse/ damage to structures	U1	<u>Offshore Site</u> Risk of Structure Damage/Collapse	Earthquake, land slide, extreme weather events; Allision between Project or third-party vessels and OAA infrastructure
		U2	<u>Onshore Site</u> Risk of Structure Damage/Collapse	Earthquake, land slide, extreme weather events; Vehicular collisions due to driver negligence on public roads. Traffic Management not implemented

These risks have been assessed in accordance with the relevant classification (Refer to Table 31-1 and Table 31-2) and the resulting full risk analysis is detailed in Appendix 31-1: Assessment of Likely Significant Effects

The risk register is based upon possible risks associated with the Project. As outlined in Section 31.2.4.2.2, the consequence rating assigned to each potential risk assumes that all proposed mitigation measures and safety procedures have failed to prevent the major accident and/or disaster.

## 31.4.1.5 Assessment of Effects – Summary

Appendix 31-1: Assessment of Likely Significant Effects contains a risk assessment which has been developed and contains all potentially relevant risks identified during the construction, operation and maintenance, and decommissioning phases of the Project. 21 risks specific to the construction, operation and maintenance, and decommissioning of the Project have been identified and are presented in Appendix 31-1.

The risk assessment for each of the potential risks identified are consolidated in Table 31-7 which provides their 'risk score.' A corresponding risk matrix is provided in Table 31-8, which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in Section 31.2.4.2, the red zone represents 'high risk' scenarios, the amber zone represents 'medium risk' scenarios, and the green zone represents 'low risk' scenarios.



Primary Risk ID	Potential Risk	Secondary Risk ID	Likelihood Rating	Consequence Rating	Risk Score
Construction P	hase				
A	Critical	A1	2	2	4
	Infrastructure Emergencies	A2	2	1	2
В	Severe	B1	3	2	6
	Weather	B2	3	1	3
С	Sea Level	C1	Not Applicable	Not Applicable	Not Applicable
	Rise/Erosion	C2	1	1	4
D	Utility	D1	2	1	2
	emergencies	D2	2	1	2
Е	Traffic	E1	2	2	4
	Incident	E2	2	1	2
F	Fire / Gas	F1	2	3	6
	Explosion	F2	2	2	4
G	Collapse/	G1	1	2	2
	structures	G2	1	2	2
Operation and	Maintenance Phas	e			
Н	Critical Infrastructure	H1	1	1	1
	Emergencies	H2	1	2	2
I	Severe Weather	I1	3	1	3
		I2	3	1	3
J	Sea Level Rise	J1	Not Applicable	Not Applicable	Not Applicable
		J2	4	1	4
К	Utility Emergencies	K1	2	1	2
		K2	2	1	2
L	Traffic Incident	L1	2	1	2
		L2	2	1	2
М		M1	1	3	3



	Fire / Gas Explosion	M2	2	2	4
Ν	Collapse/ damage to	N1	1	2	2
	structures	N2	1	2	2
Decommissionin	ig Phase				
0	Critical Infrastructure Emergencies	O1	2	2	4
		O2	2	2	4
Р	Severe Weather	P1	3	2	6
		P2	3	1	3
Q	Sea Level Rise	Q1	Not Applicable	Not Applicable	Not Applicable
		Q2	4	1	4
R	Utility Emergencies	R1	2	1	2
		R2	2	1	2
S	Traffic Incident	S1	2	2	4
		S2	2	1	2
Т	Fire / Gas Explosion	T1	1	3	3
	L	T2	2	2	4
U	Collapse/ damage to	U1	1	2	2
	structures	U2	1	2	2



#### Table 31-8 Risk Matrix

		Consequence Rating					
		1.Minor	2.Limited	3. Serious	4.Very Serious	5.Catastrophic	
	5.Very Likely						
ood Rating	4. Likely	C2, J2, Q2					
	3. Unlikely	B2, I1, I2, P2	B1, P1				
	2. Very Unlikely	A2, D1, D2, E2, K1, K2, L1, L2, R1, R2, S2	A1, E1, F2, M2, O1, O2, S1, T2	F1			
	1. Extremely Unlikely	H1	G1, G2, H2, N1, N2, U1, U2	M1, T1			
Likelih							

Table 31-8 presents the potential risks identified during the construction, operation and maintenance, and decommissioning of the Project all of which can be classified as 'low risk' scenarios. On this basis none of the assessed risks have the potential to have a significant effect on the environment. Therefore, the overall effect is **not significant**. The scenarios with the highest risk score in terms of a major accident and/or natural disaster during the construction, operation and maintenance, and decommissioning phase of the Project are identified below and associated mitigation measures are described. It should be noted specific mitigation measures are proposed for the lower risk score scenarios and are described in detail in their relevant chapters.

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## 31.4.1.6 Severe Weather during Construction, Operation and Maintenance, and Decommissioning (B1, P1,)

There is a potential risk of severe weather interrupting Project activities, during the construction and decommissioning phase of the Offshore Site due to its location in the Atlantic Ocean. The risk of the potential vulnerability of the Project to severe weather was given a risk score of 6 as a precautionary measure. Chapter 30: Climate provides a Climate Change Risk Assessment which describes the vulnerability of the Project to climate variables including severe weather events. Weather and tidal information including current and predicted weather are a key factor that influence both the timing and progress of the construction and decommissioning plans for the Offshore Site, and this is highlighted in Appendix 5–10 Vessel Management Plan.

Based on the outcome of the risk assessment this risk is a slight, short-term effect and is not Significant.

## 31.4.1.7 Fire/Explosion during Construction, Operation and Decommissioning (F1)

There is a potential risk of fire/explosion at the Offshore Site during construction. As outlined in Section 31.2.1, the scope of this assessment has been based on the understanding that the Project will be designed, built and operated in line with current best practice. Chapter 5 and Appendix 5-4 outline the procedure to be followed in the unlikely event that an UXO is discovered within the Offshore Site. Based on pre-construction surveys and a UXO risk assessment conducted by the Applicant for the Offshore Site, the requirement for UXO clearance is very unlikely. Further, in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, the Project shall be subject to a fire safety risk assessment which will assist in the identification of any major risks of fire, and mitigation of the same during construction. Therefore, based on the risk assessment it can be concluded that effect it not significant.

## 31.4.2 Mitigation Measures

As outlined in Section 31.4.1, the scenario with the highest risk score in terms of the occurrence of major accident and/or disaster during construction, operation and maintenance, and decommissioning was identified as 'Severe Weather' interrupting Offshore activities and risk of 'Fire/Explosion' occurring at the Offshore Site.

The Project has been designed and will be built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. In accordance with the provision of the European Commission '*Guidance on the preparation of Environmental Impact Assessment Reports*', a Risk Management Plan will be prepared and implemented to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures. All mitigation measures proposed as part of the Project are also listed in Chapter 33: Schedule of Mitigation.

# 31.4.2.1 Mitigation – Severe Weather during Construction and Decommissioning

Potential effects associated with severe weather during construction and decommissioning are addressed fully in Chapter 30: Climate, along with further information outlined in Chapter 5: Project Description. The mitigation and adaptation required and the mitigation by design measures outlined in Chapter 30 to protect environmental receptors as well as the procedures and measures described in the Offshore Environmental Management Plan (OEMP) and its associated appendices,) will ensure that the risk from these sources is maintained as low. All construction and decommissioning works will take place in



appropriate weather conditions and will be informed by weather and tidal information including current and predicted weather;

## 31.4.2.2 Mitigation – Fire/Explosion during Construction

The Project will be subject to a fire safety risk assessment in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, which will assist in the identification of any major risks of fire on site, and mitigation of the same during operation. Based on pre-construction surveys and a UXO risk assessment conducted by the Applicant for the Offshore Site, the requirement for UXO clearance is very unlikely. In the event of interaction between the Offshore Site and a UXO, the procedure to be followed is outlined in Chapter 5: Project Description, and Appendix 5-4 Emergency Response and Coordination Plan.

As outlined in Chapter 5 of the EIAR, the OEMP and associated appendices will be reviewed and updated prior to the commencement of any works. These documents will be live and are to be maintained by the contractor to ensure that any potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Appendices 5-2: OEMP, set out the minimum standards to be employed by the contractor.

## 31.4.3 **Residual Effects**

The risk of a major accident and/or disaster during the construction and decommissioning of the Project is considered 'low' in accordance with the '*Guide to Risk Assessment in Major Emergency Management*' (DoEHLG, 2010).

It is considered that when the above mitigation is implemented, and all mitigation detailed in the EIAR is implemented, there will **not be significant** residual effect(s) associated with the construction, operation and maintenance, and decommissioning of the Project.

## 31.4.4 Monitoring

## 31.4.4.1 Monitoring During Construction

As outlined in Section 5.3 of the EIAR, in the event that development permission is granted for the Project, the OEMP (with various appendices) and the OCEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned or required through the appointment of contractors. The OEMP and associated appendices and the OCEMP will be a live document maintained by the contractor that will work to ensure that potential risks of a major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 5-2 and Appendix 5-16 for the OCEMP and the OCEMP that sets out the minimum standards to be employed by the contractor throughout the construction of the Project.

All monitoring measures proposed as part of the Project are also listed in Chapter 33: Schedule of Mitigation.

## 31.4.4.2 Monitoring During Operation and Maintenance

The operator of the Project will continue to assess the risk of major accidents and/or disasters on site on an on-going basis during operation.

The maintenance programme, record of reported incidents, as well as general site activities will be monitored on an on-going basis to ensure risk of major accidents does not increase over time.

## 31.4.4.3 Monitoring During Decommissioning

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As outlined in Chapter 5, a Rehabilitation Schedule (including a Decommissioning Plan) (Appendix 5-18)) has been prepared for the Project and will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and any proposed changes will be agreed with the competent authority at that time.

These can also be found in a Chapter 33: Schedule of Mitigation and Monitoring Measures which sets out all proposed Mitigation and Monitoring Measures for all three phases of the Project.

## 31.4.5 **Cumulative and In Combination Effects**

A search in relation to plans and projects that may have the potential to result in a cumulative impact with the Project on the environment was carried out as part of the EIAR. The Project has been considered, in combination with existing, permitted and proposed projects and plans (large infrastructure or otherwise), as set out in Section 4.3.3.4 of Chapter 4: EIA Methodology, Appendix 4-1: Offshore Cumulative Impact Assessment methodology & Long List and Appendix 4-2 Onshore Cumulative Impact Assessment methodology & Long List.

Following a detailed assessment of the potential for any further impact when considered in combination with any or all of the plans and projects set out in set out in Section 4.3.3.4 of Chapter 4: EIA Methodology, Appendix 4-1: Offshore Cumulative Impact Assessment methodology & Long List and Appendix 4-2 Onshore Cumulative Impact Assessment methodology & Long List, the Project, with mitigation measures in place, was found to have no potential for significant in-combination or cumulative effects associated with the potential for the Project to be impacted by major accidents and/ or natural disasters or the Projects potential to cause major accidents and/ or natural disasters. This is based on the low risk associated with the Project described in this Chapter of the EIAR and a review of the nature of the surrounding land uses and plans and projects existing or intended in the surrounding area. Therefore, the cumulative residual effect of the Project to cause or be impacted by major accidents and natural disasters is **not significant**.

## 31.5 **Conclusion**

This chapter of the EIAR describes the likely significant adverse effects on the environment arising from the vulnerability of the Project as detailed in Chapter 5 to risks of major accidents and/or natural disasters, as well as the potential of the Project itself to cause potential major accidents and/or natural disasters.

The risk of Major Accidents and/or Disasters associated with the construction, operation and maintenance, and decommissioning stages of the Project have been described in detail in Section 31.3, Utilising the impact assessment methodology described in Section 31.2.4 the key Major Accident and/or Disaster scenarios were identified for each stage and a risk assessment for each scenario was conducted (aside from Contamination, Aviation and Flooding which are assessed in their relevant chapters in the EIAR).

The risk assessment assumes that all proposed mitigation measures and safety procedures have failed. All scenarios identified and assessed in Section 31.4.1 for each of the three stages of the Project were determined to be low risk scenarios. The effect of a Major Accident or Disaster during all three stages of the Project has been determined to be **not significant**. It is considered that when embedded mitigation is implemented, and all mitigation detailed in the EIAR is implemented, there will not be significant residual effect(s) associated with the construction, operation and maintenance, and decommissioning of the Project.



Finaly, there is no potential for significant cumulative or in combination impacts with other plans or projects.