

Environmental Impact Assessment Report

Lemanaghan Wind Farm,
Co. Offaly

Chapter 16 Major Accidents and
Natural Disasters



Table of Contents

| | | |
|----------|--|-------------|
| 16. | MAJOR ACCIDENTS AND NATURAL DISASTERS | 16-1 |
| 16.1 | Introduction..... | 16-1 |
| 16.1.1 | Statement of Authority..... | 16-1 |
| 16.2 | Assessment Methodology..... | 16-2 |
| 16.2.1 | General..... | 16-2 |
| 16.2.2 | Legislative Context..... | 16-3 |
| 16.2.3 | Guidance Documents..... | 16-3 |
| 16.2.4 | Categorisation of the Baseline Environment..... | 16-3 |
| 16.2.5 | Impact Assessment Methodology..... | 16-4 |
| 16.2.5.1 | Introduction..... | 16-4 |
| 16.2.5.2 | Site-Specific Risk Assessment Methodology..... | 16-5 |
| 16.3 | Baseline Environment..... | 16-9 |
| 16.3.1 | Offaly Major Emergency Plan..... | 16-9 |
| 16.3.2 | Site Specific Potential Major Emergency Scenarios..... | 16-9 |
| 16.3.3 | Baseline Risks to the Proposed Project..... | 16-9 |
| 16.3.3.1 | Flooding..... | 16-9 |
| 16.3.3.2 | Major Road Traffic Accident..... | 16-10 |
| 16.3.3.3 | Contamination Event..... | 16-11 |
| 16.3.3.4 | Major Fire..... | 16-11 |
| 16.3.3.5 | Bog Fire..... | 16-11 |
| 16.3.3.6 | Civil Disorder at Large Events..... | 16-12 |
| 16.3.3.7 | Adverse Weather Conditions..... | 16-12 |
| 16.3.3.8 | Loss of Critical Infrastructure..... | 16-13 |
| 16.3.3.9 | Peat Stability..... | 16-13 |
| 16.4 | Risk Assessment..... | 16-15 |
| 16.4.1 | Likely Significant Effects..... | 16-15 |
| 16.4.1.1 | Do-Nothing Scenario..... | 16-15 |
| 16.4.1.2 | Assessment of Effects During Construction..... | 16-15 |
| 16.4.1.3 | Assessment of Effect During Operation..... | 16-18 |
| 16.4.1.4 | Assessment of Effect During Decommissioning..... | 16-19 |
| 16.4.2 | Risk Assessment Summary..... | 16-20 |
| 16.4.3 | Mitigation Measures..... | 16-46 |
| 16.4.3.1 | Contamination Events..... | 16-46 |
| 16.4.3.2 | Major Fire..... | 16-47 |
| 16.4.4 | Residual Effects..... | 16-47 |
| 16.4.5 | Monitoring..... | 16-47 |
| 16.4.5.1 | Monitoring During Construction..... | 16-47 |
| 16.4.5.2 | Monitoring During Operation..... | 16-47 |
| 16.4.5.3 | Monitoring During Decommissioning..... | 16-47 |
| 16.4.6 | Assessment of Cumulative Effects..... | 16-48 |
| 16.5 | EIA Classification Summary..... | 16-49 |

GLOSSARY OF TERMS

| Term | Definition |
|--|---|
| Catchment Flood Risk Assessment Management | The Catchment Flood Risk Assessment and Management Programme is Ireland’s largest-ever national flood study, commissioned by the Office of Public Works to assess 80% of the country’s primary flood risk, develop detailed flood management Plans with tailored strategies for 300 communities to meet EU Directive requirements |
| Do Nothing Alternative | The environment of the site and its environs should the Proposed Project not be developed |

| | |
|-------------|--|
| SEVESO Site | Industrial facilities storing potentially dangerous substances in high quantities under the EU SEVESO Directives |
|-------------|--|

GLOSSARY OF ACRONYMS

| Acronym | Definition |
|---------|--|
| AEP | Annual Exceedance Probability |
| AER | Annual Environmental Reports |
| CEMP | Construction and Environmental Management Plan |
| CFRAM | Catchment Flood Risk Assessment and Management |
| EIAR | Environmental Impact Assessment Report |
| EPA | Environmental Protection Agency |
| ERP | Emergency Response Plan |
| FoS | Factor of Safety |
| INSN | Irish National Seismic Network |
| LACAP | Local Authority Climate Action Plan |
| NCCs | National Control Centres |
| NIFM | National Indicative Fluvial Flood Mapping |
| OCDP | Offaly County Development Plan |
| OHL | Overhead lines |
| OPW | Office of Public Works |
| RMP | Risk Management Plan |
| RSES | Regional Spatial and Economic Strategy |
| TMP | Traffic Management Plan |

16. MAJOR ACCIDENTS AND NATURAL DISASTERS

16.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes the likely significant effects on the environment arising from the vulnerability of the proposed Lemanaghan Wind Farm project (the “Proposed Project”), as detailed in Chapter 4: Description of the Proposed Project, to the risk of major accidents and/or natural disasters. It 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 Assessment Reports*” (EPA, 2022)¹ and 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*”².

The assessment of the vulnerability of the Proposed Project to major accidents and natural disasters, as well as the risk of the Proposed Project itself causing major accidents and/or natural disasters, has been carried out in compliance with the EIA Directive, as amended, 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, to which the Proposed Project could be vulnerable.
- The potential for these major accidents and/or natural disasters to result in likely significant adverse environmental effect(s); and
- The measures that are in place, or need to be in place, to prevent or mitigate the likely significant adverse effects of such events on the environment.

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: ‘Proposed Project’, ‘Proposed Wind Farm’, the ‘Proposed Grid Connection’, the ‘Proposed Project site’ and the ‘site’. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Project is provided in Chapter 4 of this EIAR.

16.1.1 Statement of Authority

This chapter of the EIAR has been prepared by Catherine Johnson, with input from Aisling Thompson, and reviewed by Ellen Costello and Sean Creedon, all of MKO.

¹ EPA, 2022. *Guidelines on Information to be contained in Environmental Impact Statements*. Available at: https://www.epa.ie/publications/monitoring-assessment/assessment/EIAR_Guidelines_2022_Web.pdf

² European Commission, 2017. *Guidance on the preparation of Environmental Impact Assessment Reports*. Available at: <https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1>

Aisling is a graduate Environmental Scientist with MKO with over 1 year of experience in both private practice and local authorities. Aisling holds a BSc in Applied Freshwater and Marine Biology and LLM Marine and Maritime Law. Aisling has specialist knowledge in Environmental and Marine law and policy, Marine and freshwater laboratory skills, and Appropriate Assessments, GIS, MMO, and Legal dispute resolutions. Since joining MKO Aisling has been involved as a Graduate Ecologist within the Forestry department, carrying out AA's and NIS, and has now moved to the Renewables department. Within MKO Aisling plays a role and works as part of a large multi-disciplinary team to produce EIARs.

Catherine is a Project Environmental Scientist at MKO with over 3 years of consultancy experience in sustainability and renewable energy. Prior to joining MKO in 2022, Catherine worked as an Environmental Social Governance (ESG) analyst for Acasta in Edinburgh. Catherine has expertise in international climate law and policy, renewable energy, earth science, and sustainability/ESG processes. Catherine has a BSc in Earth and Ocean Science and an LLM in Global Environment and Climate Change Law.

Ellen Costello is a Senior Environmental Scientist with MKO with over six years of experience in private consultancy. Ellen holds a BSc (Hons) in Earth Science, and a MSc (Hons) in Climate Change: Integrated Environmental and Social Science Aspects where she focused her studies on renewable energy development in Europe and its implications on environment and society. Ellen's key strengths and expertise are Environmental Protection and Management, Environmental Impact Statements, Project Management, and GIS Mapping and Modelling. Since joining MKO, Ellen has been involved in a range of renewable energy infrastructure projects. In her role as a project manager, Ellen works with and co-ordinates large multidisciplinary teams including members from MKO's Environmental, Planning, Ecological and Ornithological departments as well as sub-contractors from various fields in the preparation and production of EIARs.

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 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 23 years' experience in program and project development, holds an MSc from University of Galway and a Diploma in Project Management from Institute of Project Management Ireland.

16.2 Assessment Methodology

16.2.1 General

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

- Offaly County Council - Major Emergency Plan (Offaly County Council ,2019);
- Offaly County Council Website (Offaly County Council, 2025);
- Offaly County Development Plan 2021-2027 (Offaly County Council, 2021); and
- Regional Spatial and Economic Strategy (RSES) 2019-2031 (Eastern and Midland Regional Assembly, 2019).

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Project and consequently have potential impacts on the environment. These include accidents during construction, operation and decommissioning caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disasters considers all factors defined in the EIA

Directive that have been considered in this EIAR, i.e., population and human health, biodiversity, land, soils (peat stability), water, air quality, climate, material assets, cultural heritage and the landscape.

16.2.2 Legislative Context

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

- The vulnerability of the Proposed Project to potential accidents and disasters;
- The Proposed Project's potential to cause major accidents or disasters, which pose a risk to the environment.

The information relevant to major accidents and/or disasters to be included in the EIAR is set out in paragraph 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”.

16.2.3 Guidance Documents

In addition to the guidance documents described in Chapter 1 Section 1.2, the following guidance documents have been consulted in the preparation of this section:

- A Guide to Risk Assessment in Major Emergency Management (Department of Environment, Heritage and Local Government, 2010);
- Guidance on Assessing and Costing Environmental Liabilities (Environmental Protection Agency, 2014);
- Health Service Authority Advice for Health and Safety in the Renewable Sector;
- National Risk Assessment 2024: Overview of Strategic Risks (Government of Ireland, 2024);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2022);
- Offaly County Council Major Emergency Plan (Offaly County Council, 2019).

On a regional scale, County Offaly falls under the scope of the Midlands Major Emergency Region (MMEM)³.

16.2.4 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

³ Department of Housing, Local Government and Heritage, 2024. A framework for major emergency management. Available at: https://www.gov.ie/en/department-of-housing-local-government-and-heritage/collections/a-framework-for-major-emergency-management/?utm_source=chatgpt.com#major-emergency-management-regions-and-regional-steering-groups

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 16.3. Please see Section 11.3 of Chapter 11: Climate of the EIAR for further information on the baseline environment and future environment relative to climate change.

16.2.5 Impact Assessment Methodology

16.2.5.1 Introduction

This assessment is based on an understanding that the Proposed Project will be designed, built and operated in line with the methodologies and measures prescribed in this EIAR.

A wind farm is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other Environmental Protection Agency (EPA) environmental regulatory consent. Should a major accident or natural disaster occur, the potential sources of pollution onsite during the construction, operational and decommissioning phases of this type of development 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 Proposed Project and causing environmental damage.

The supporting Construction and Environment Management Plan (CEMP) (Appendix 4-4) details the environmental management, mitigation and monitoring measures to prevent and minimise impacts of the construction phase of the Proposed Project on environmental receptors such as air and water quality, noise emissions and ecological and archaeological receptors.

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 European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites known as ‘SEVESO sites’, where certain quantities of specified dangerous substances are present. The Proposed Project site is not regulated by or connected to any SEVESO sites, with the closest lower tier SEVESO sites being the Electricity Supply Board⁴ in Shannonbridge, Co. Offaly, located 15.1km to the west of the Proposed Project site at its closest point (i.e., Site Entrance 1) and Synergy Health Ireland in the I.D.A Business and Technology Park⁵ in Tullamore Co. Offaly, located approx. 15.3km east of the Proposed Project site at its closest point (i.e., T15). The closest upper tier SEVESO site is the William Grant & Sons Irish Brands Ltd⁶ in Tullamore Co, Offaly, located approx. 16.8km southeast of the Proposed Project site at its closest point (i.e., T14). Therefore, there are no potential effects from this source. Mitigation and monitoring measures to avoid the resale of fuels and hazardous materials at the site during the construction phase are detailed below in Section 16.4.3 in the CEMP (Appendix 4-4), in Chapter 9: Water and Chapter 18: Schedule of Mitigation and Monitoring Measures.

The Proposed Project has a low potential to cause natural disasters or major accidents. The site is relatively flat and so there is low risk for peat failure. Furthermore, Ireland is a geologically stable country with a mild temperate climate. 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

⁴ <https://www.hsa.ie/media/gkpvjagvl/1378-esb-shannonbridge.pdf>

⁵ <https://www.hsa.ie/media/cpyj1car/1276-synergy.pdf>

⁶ <https://www.hsa.ie/media/vljzjmmml/1316-william-grant-tullamore.pdf>

collapse due to seismic activity. Ireland's geographic position (in particular the Irish Midlands) 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 potential natural disasters and/or major accidents that may occur are therefore limited to issues such as flooding, impacts on infrastructure, fire, etc., which are addressed in the sections below.

Current EIA Guidelines, as outlined in Section 16.2.2 above, already include an assessment of some potential accidents and disaster scenarios, such as pollution incidents to ground and watercourses as well as assessment of flooding events and peat instability. These are described in detail in the relevant EIAR assessment chapters (Refer to Chapters 5 to 16 for further detail).

16.2.5.2 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 decommissioning of the Proposed Project. The approach to identifying and quantifying risks associated with the Proposed Project by means of a site-specific risk assessment is derived from the EPA (2014) document "*Guidance on Assessing and Costing Environmental Liabilities*". The following steps were taken as part of the site-specific risk assessment:

- Risk identification;
- Risk classification, likelihood and consequence; and
- Risk evaluation.

16.2.5.2.1 Risk Identification

Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with the relevant contributors to this EIAR (refer to *Statements of Authority* in Chapters 5 to 16 of this EIAR). The identification of risks has focused on non-standard but plausible incidents that could occur at or as a result of the Proposed Project during construction, operation and decommissioning.

In accordance with the European Commission EIAR Guidance⁸, risks are identified in respect of these projects:

1. *Potential to cause accidents and/or disasters*
2. *Vulnerability to potential disasters and/or accidents*

16.2.5.2.2 Risk Classification

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 environment controls was completed when estimating likelihood of identified potential risks occurring. Table 16-1 defines the likelihood ratings that have been applied.

⁷ Environmental Protection Agency, 2014. *Guidance on Assessing and Costing Environmental Liabilities*. Available at: <https://www.epa.ie/publications/compliance-enforcement/licenses/reporting/financial-provisions/guidance-on-assessing-and-costing-environmental-liabilities.php>

⁸ European Commission, 2017. *Guidance on the preparation of Environmental Impact Assessment Reports*. Available at: <https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1>

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

Table 16-1 Classification of Likelihood (Source: DoEHLG, 2010)

| 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 organisations 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. |

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. Further, the Offaly County Council Major Emergency Plan⁹ 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 16-2.

The consequence of a risk to/from the Proposed Project has been determined where one or more aspects of the consequence description are met, i.e., risks that have no consequences have been excluded from the assessment.

Table 16-2 Classification of Impact (Source: DoEHLG, 2010)

| Ranking | Likelihood | Impact | Description |
|---------|------------|--|--|
| 1 | Minor | Life, Health, Welfare Environment Infrastructure | Small number of people affected; no fatalities and small number of minor injuries with first aid treatment. No contamination, localised effects |

⁹ Offaly County Council (2019) Galway Major Emergency Plan <https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf>

| Ranking | Likelihood | Impact | Description |
|---------|--------------|--|---|
| | | Social | <€0.5M Minor localised disruption to community services or infrastructure (<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 or extended duration €10-25M Community functioning poorly, minimal services available |
| 5 | Catastrophic | Life, Health, Welfare | Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. |

| Ranking | Likelihood | Impact | Description |
|---------|------------|---|---|
| | | Environment Infrastructure Social | 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 the means of a risk matrix.

- The risk matrix sourced from the DoEHLG (2010) “*Guide to Risk Assessment in Major Emergency Management*”¹⁰ (and as outlined in Table 16-3 indicates the critical nature of each risk. This risk matrix has therefore been applied to evaluate each of the risks associated with the Proposed 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 16-3 Impact Classification Matrix (Source: DoEHLG, 2010)

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

¹⁰ Department of Environment, Heritage and Local Government, 2010. *A Guide to Risk Assessment in Major Emergency Management*. Available at: <https://assets.gov.ie/117528/e06a7ca8-a634-4f70-a9a7-b405ee08429a.pdf>

16.3 Baseline Environment

16.3.1 Offaly Major Emergency Plan

The Major Emergency Plan prepared by Offaly County Council (2019)¹¹ outlines a series of potential major emergency scenarios in County Offaly. The risks that are most relevant to this assessment, and the areas to which they are relevant, are outlined below:

1. **Flooding** – Offaly County Council Functional Areas;
2. **Major Road Traffic Accident** – M6 motorway, National Primary Routes, National Secondary Roads, Regional Roads, Local Roads and Irish Rail;
3. **Chemical Incident at Any industrial premises** – At present, there are 2 no. Lower Tier SEVESO Sites in County Offaly; Synergy Health Ireland Ltd., located approx. 15.3km east of the Proposed Project site and Electricity Supply Board located approx. 15.1km west of the Proposed Project site, and 1 no. Upper Tier SEVESO site, William Grant & Sons Irish Brands Ltd located approx. 16.8km southeast of the Proposed Project site.
4. **Major Fire** – Offaly County Council Functional Areas;
5. **Civil disorder at larger events** – Offaly County Council Functional Areas; and
6. **Adverse weather conditions** – Offaly County Council Functional Area.

16.3.2 Site Specific Potential Major Emergency Scenarios

In addition to the potential major emergency scenarios identified in the County Offaly Major Emergency Plan, a number of other potential scenarios are identified of relevance to the Proposed Project. These are described in further detail below:

1. **Contamination Event** – In addition to incidents at SEVESO sites, chemical and other contamination incidents at the Proposed Project site;
2. **Bog Fire** – In addition to major fires relating to accidents and industrial incidents, spontaneous fires at the Proposed Project site;
3. **Loss of Critical Infrastructure** – At the Proposed Project site; and
4. **Peat Stability** – At the Proposed Project site.

16.3.3 Baseline Risks to the Proposed Project

The following baseline risks have been identified, considering the Offaly County Council Major Emergency Plan, and the site specific potential major emergency scenarios.

16.3.3.1 Flooding

Chapter 9: Water of this EIAR provides detailed assessment regarding the susceptibility of the Proposed Project to flooding. A flood risk identification study was undertaken to identify existing potential flood risks associated with the Proposed Project. As detailed in Chapter 9: Water, there are no recurring flood incidents recorded within the Proposed Project site. However, several flood events have been recorded in the surrounding lands. According to the Office of Public Work's (OPW) Past Flood Events Map (www.floodinfo.ie), 2 no. recurring flood events (Flood ID: 2627 and 2643) are mapped along the Boor River downstream of the site. Further downstream recurring flood events are also recorded along the Shannon River. A recurring flood event is recorded along the R346 to the south of the site (Flood ID:

¹¹ Offaly County Council, 2019. Major Emergency Plan. Available at: https://www.offaly.ie/app/uploads/Council/Council_Services_A-Z/Emergency_Services/Offaly-County-Major-Emergency-Plan-2019-1.pdf

2906). A second recurring flood event (Flood ID: 2907) is also mapped ~1 km west of the site at Derrica Beg. Several historic flood events have also been recorded along the Brosna River to the south of the site. Meanwhile, a recurring flood event (Flood ID: 13233) is recorded ~800m south of the site in the townland of Pollagh.

The national Catchment Flood Risk Assessment and Management (CFRAM) programme commenced in Ireland in 2011 and is managed by the OPW. The CFRAM Programme is central to the medium to long-term strategy for the reduction and management of flood risk in Ireland. CFRAM mapping is available along the Brosna River to the south of the site. Fluvial flooding encroaches upon the site in 1 no. location, i.e., at an existing Bord na Móna (BnM) railway line in proximity of the Lemanaghan Stream, which traverses the site. With regards to the Proposed Project infrastructure, the low probability fluvial flood zone associated with the 1 in 1,000-year flood event is situated ~1.6 km from the nearest proposed turbine location.

The GSI Historical Groundwater flood map and the modelled groundwater flood extents map (www.floodinfo.ie) do not show the occurrence of any groundwater flooding within the site.

The National Indicative Fluvial Flood Mapping (NIFM) (www.floodinfo.ie) shows probabilistic fluvial flood zones for catchments greater than 5 km² for which flood maps were not produced under the CFRAM Programme. For the present-day scenario, the low (1,000-year flood event) and medium (100-year flood event) probability fluvial flood zones are recorded in the centre of the Proposed Project site along the EPA-mapped Lemanaghan Stream. With respect to the Proposed Project susceptibility to flooding, the proposed turbine T12 and associated proposed new access roads are mapped within the low probability fluvial flood zone.

There are three types or levels of flood zones defined within the Flood Risk Management Guidelines (DoEHLG, 2009):

- **Flood Zone A** – where the probability of flooding from rivers and the sea is highest (greater than 1% Annual Exceedance Probability (AEP) or 1 in 100 for river flooding or 0.5% (AEP) or 1 in 200 for coastal flooding);
- **Flood Zone B** – where the probability of flooding from rivers and the sea is moderate (between 0.1% (AEP) or 1 in 1000 and 1% (AEP) or 1 in 100 for river flooding and between 0.1% (AEP) or 1 in 1000 year and 0.5% (AEP) or 1 in 200 for coastal flooding); and,
- **Flood Zone C** – where the probability of flooding from rivers and the sea is low (less than 0.1% (AEP) or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

Based on the information gained through the flood identification process, the majority of the site is mapped within Flood Zone C, with some areas in the site in Flood Zones A and B with flooding likely due to the Lemanaghan stream. However, detailed site surveys, outlined in full in the FRA (Appendix 9-1), reveal that the EPA-mapped Lemanaghan stream has been heavily modified within the site to facilitate the historic peat extraction activities. Therefore, the FRA concludes that based on site observations and the high drainage density within the site at this location, that the actual fluvial flood risk is the same across the entire site and it should be mapped in Flood Zone C. Please see Section 5 of the FRA (Appendix 9-1) and Section 9.5 of Chapter 9: Water for information on flood impact prevention and associated mitigation measures.

A full assessment of flooding has been conducted in Appendix 9-1 of Chapter 9: Water.

16.3.3.2 Major Road Traffic Accident

As detailed in Chapter 15: Material Assets, the Proposed Project will utilise the M18 Motorway, M6 Motorway, N52 National Road and N62 National Road from the Port of Galway in order to facilitate the delivery of abnormal indivisible loads to the Proposed Project site. The majority of source material

(approximately 36% of overall materials, and 70% of spoil volume) for the site will be obtained from the onsite borrow pits, however where necessary construction materials will be sourced from local authorised quarries. Please see Chapter 4: Description of the Proposed Project Section 4.7.2 for further information of construction material delivery. A Traffic Management Plan (TMP) (Appendix 15-2) will be included as part of the detailed traffic and transport assessment provided in Chapter 15.

16.3.3.3 Contamination Event

The European Communities Control of Major Accident Hazards Involving Dangerous Substance Regulations, 2000, applies to sites known as 'SEVESO sites', where certain quantities of specified dangerous substances are present. The Proposed Project is not connected to or in the vicinity of any SEVESO Sites.

The closest SEVESO site is the Electricity Supply Board at Shannonbridge, Co. Offaly. This lower tier SEVESO site is located approximately 15.1km west of the Proposed Project at its closest point, i.e., Site Entrance 1. The second closest SEVESO site (lower tier) to the Proposed Project is Synergy Health Ireland Ltd., located at I.D.A Business & Technology Park, Tullamore, Co. Offaly, located approx. 15.3km east of the Proposed Project site at its closest point (i.e., T15). The closest upper tier SEVESO site is William Grant & Sons, Irish Brands Ltd (Tullamore), located at Clonminch, Tullamore, Co. Offaly, approximately 16.8 km southeast of the Proposed Project at its closest point (i.e., T14). Due to distance between the nearest SEVESO sites and the Proposed Project site, the probability of a major emergency at any of these sites having an effect on the Proposed Project, whether during the construction, operational or decommissioning phase, is low.

Galway Port in Galway City is the proposed point of arrival for the large turbine components for the Proposed Wind Farm. This port is a well-established point of arrival for wind turbine components of similar scale into the State on a regular basis, as is the road network between the port and the national road network. For the purposes of this EIAR the Port of Galway has been considered.

16.3.3.4 Major Fire

The likelihood of a major fire occurring at the Proposed Project is anticipated to be low due to best practice measures of storing fuel in banded containers during the construction phase. The likelihood of fire occurring will be further lowered by the implementation of good site management practices during the construction, operational and decommissioning phases.

16.3.3.5 Bog Fire

Bog fires may naturally arise during periods of dry weather. Though infrequent, they can happen during exceptionally dry conditions, causing peat, scrub, and heather to ignite spontaneously, especially if the water table has dropped and a potential source of ignition such as broken glass has been left on the bog surface.

Since 2000, it has been a condition of the IPC License (P0500-01) that fires are reported to the EPA in the Annual Environmental Reports (AER) for the Boora Bog Group. There are records of bog fires at the Proposed Project site in 2009, 2011 and 2020. The first record of a bog fire on the site was one incident in 2009; further detail on the ignition source of the bog fire is not available. In 2011, the AERs report five incidents of bog fires at Lemanaghan Bog and Bellair Bog, however the AER does not specify which bog the fires occurred on. Therefore, it is assumed that all five fires occurred at the Proposed Project site. The cause of these fires was due to the spread of gorse fires due to challenging dry and windy weather conditions. There was one record of fire at the Proposed Project site that started in May 2020 and continued into June 2020. The bog fire was spread to the Proposed Project site from a fire on third party land and was caused by a farmer burning vegetation waste on their own land. In all cases, the EPA was contacted, corrective measures were put in place, and the fires were brought under

control. No BnM staff were involved in the outbreak of the fire, and the fires were contained by BnM staff within the site.

During the period for which historical peat extraction activities were undertaken onsite, there was an increased potential for outbreak of fire due to the presence of vehicles on site and the regular use of locomotives throughout the site. However, peat extraction no longer occurs at the Proposed Project and site activities today comprise onsite management and environmental monitoring; please note, all previously extracted peat stockpiled on the site was removed at the end of 2024. Therefore, the potential for human-related fire outbreak at the site has decreased significantly.

Separate to the Proposed Project, is a condition of the IPC licence for Lemanaghan Bog (P0500-01) that BnM produces a Draft Cutaway Bog Decommissioning and Rehabilitation Plan (Draft Rehabilitation Plan) (provided as Appendix 2-4). The Draft Rehabilitation Plan describes the peatland rehabilitation measures that will be implemented, upon agreement with the EPA, at Lemanaghan to facilitate the environmental stabilisation of the bog. The main rehabilitation measure involves the rewetting of the bog via drain blocking which will raise the water levels of the bog and encourage the natural recolonisation of bog vegetation. The conditions of the IPC License will result in the restoration of the water levels and bog skin (vegetation top layer) and ultimately facilitate the restoration of the bogs natural carbon sink function where possible. Additionally, the rewetting and recolonisation of bog habitats reduce the potential for fire outbreak, whether through auto-ignition or by human interference. Please note that irrespective of the consenting or construction of the Proposed Project, the measures outlined in the Draft Rehabilitation Plan will be implemented by BnM in agreement with the EPA, per BnM's IPC Licence obligations.

16.3.3.6 Civil Disorder at Large Events

The likelihood of a civil emergency occurring at the site is anticipated to be low, as only authorised personnel will be permitted to access the site during construction and decommissioning. During the operational phase, the Proposed Wind Farm will facilitate amenity access for pedestrians and cyclists. Therefore, major crowd safety and civil disorder at large events (e.g. sports events) are not relevant to the Proposed Project and have not been continued in the assessment in Section 16.4 below. Access to the Proposed Project will be to authorised personnel and local landowners only during the construction, and decommissioning phases. Access to the Proposed Project will be open to the public during the operational phase for amenity use as detailed in Appendix 2-2.

16.3.3.7 Adverse Weather Conditions

Ireland has a temperate, oceanic climate, resulting in mild winters and cool summers. The dominant influence on Ireland's climate is the Atlantic Ocean and Gulf Stream. Therefore, Ireland does not suffer from the extremes of temperature experienced by many other countries at similar latitude.

Chapter 11: Climate of this EIAR provides a full description of the baseline environment in relation to weather. In terms of adverse weather conditions, in late 2023 and early 2024, Ireland experienced a very active storm season; the county was affected by 13-14 severe storms¹². In the 2024/2025 storm season there were 6 no. named storms, with Storm Eowyn, occurring in January 2025, reaching hurricane force winds (maximum wind speed recorded as 42km/h). At the time of writing there have been 4 no. named storms in the 2025/2026 storm season.¹³ Climate change is impacting weather patterns in the Northern European region with a range of observable effects including increased wind

¹² Met Éireann, 2024. Human-caused Climate Change Brings Increased Storm Rainfall. Available at: <https://www.met.ie/human-caused-climate-change-brings-increased-storm-rainfall>

¹³ <https://www.met.ie/climate/storm-centre>

speeds, increased precipitation, more extreme precipitation events, changes in wind direction and seasonal variations¹⁴.

The climate change risk assessments included in the Offaly Local Authority Climate Action Plan (LACAP)¹⁵ detail the major risks posed from climate change, being river flooding, pluvial flooding, severe windstorms, heatwaves, 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 carried 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. Please see Section 11.3 of Chapter 11: Climate of the EIAR for further information on the baseline environment and future environment relative to climate change.

Potential impacts that may occur on the identified road networks could be caused by an accident during the delivery of the turbines, collisions onsite and offsite with vehicles involved in construction operation, and decommissioning of Proposed 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.

Please see Section 16.3.3.2 above for further information on potential impacts associated with critical road infrastructure.

16.3.3.8 Loss of Critical Infrastructure

EirGrid operates and develops Ireland's electricity grid. This includes interconnecting to neighbouring grids and running the wholesale electricity market. The grid safely brings power from generators such as wind farms to the ESB network that supplies homes and business in Ireland. It also brings power directly to large energy users. EirGrid operates the grid from National Control Centres (NCCs) in Dublin and Belfast, matching electricity production to customer demand, switching from different electricity generators where required to ensure no power outages. Therefore, any technical fault at the Proposed Project is unlikely to significantly impact the local or national electricity supply.

The Proposed Project will connect to the national grid through an onsite 220kV substation which will be connected to the existing Shannonbridge-Maynooth 220kV Overhead Line (OHL) via an OHL connection. Full details of the Proposed Grid Connection are provided in Chapter 4: Description of the Proposed Project.

With the implementation of requested buffers identified in Chapter 15: Material Assets and Appendix 15-6 Telecommunications Impact Assessment, the Proposed Project will have no impact on telecommunications networks as it will not physically interact with any of infrastructure of this nature.

In relation to telecommunication impacts, scoping was carried out with Irish Rail where it was identified that the proposed turbines are located within a GSR 5km exclusion zone. Ai Bridges was engaged to carry out a Telecoms Impact Assessment in relation to specific impacts on Irish Rail (Appendix 15-7) which states that the proposed turbines will not result in any impacts on the Irish Rail telecommunication links. Please see Section 15.2.5 and Appendix 15-7 for further information.

16.3.3.9 Peat Stability

A comprehensive and robust Peat Stability Assessment was undertaken by Fehily Timoney (refer to Appendix 8-1) for the Proposed Project and used to inform the design process including the siting of all

¹⁴ IPCC, 2021. *Climate Change 2021: The Physical Science Basis*. Available at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_FullReport.pdf

¹⁵ Offaly County Council, 2023. *Climate Change Risk Assessment*. Available at: https://www.offaly.ie/app/uploads/KPMG_OffalyCoCo_LACAP_Final-Report_20230202-1.pdf

proposed main infrastructure locations and drainage control measures. The Peat Stability Assessment was informed by the Scottish Government's 2017 guidance document, "*Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Generation Developments*". Intrusive ground investigation works were carried out as part of the peat stability assessment included peat depth probing, shear strength testing, ground auguring/coring and trial pitting. The extensive suite of ground investigations, the robust peat stability assessment and the lessons learned from previous peat slide events on similar sites will ensure that the risk of such an event, occurring during the construction, operation or decommissioning of the Proposed Project site is minimised.

The findings of the peat assessment showed that the site has a low risk of peat failure and is suitable for the Proposed Wind Farm. The findings include recommendations and control measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety as identified in Appendix 8-1 and discussed below.

The site is typically covered in cutover/cutaway peat with the exception of the northern section of site where the temporary access road and Proposed Grid Connection infrastructure under the existing OHL is mapped to be overlain by mainly basic shallow well drained mineral soils.

Peat thicknesses were recorded during the site walkovers from 722 no. peat probes. The combined peat probe dataset shows that the peat depths across the Proposed Project site range from 0 to >6m with an average peat depth of 2m. Of the 722 no. peat probes, approx. 21% recorded peat depths of less than 1.0m, 36% recorded peat depths of 1.0m to 2.0m, and 23% of peat depth probes recorded peat depths of 2.0m to 3.0m. The remaining 20% of probes recorded peat depths of between 3.0 to 6.2m.

An analysis of peat sliding was carried out at the main infrastructure locations across the Proposed Project site for both the undrained and drained conditions. The purpose of the analysis was to determine the Factor of Safety (FoS) of the peat slopes. Please note, the FoS provides a direct measure of the degree of stability of a peat slope. A FoS of less than 1.0 indicates that a slope is unstable; a FoS of greater than 1.0 indicated a stable slope. An acceptable FoS for slopes is generally taken as a minimum of 1.3 (Section 2.3 of Appendix 8-1 – Geotechnical Peaty Stability Risk Assessment).

An undrained analysis was carried out, which applies in the short-term during construction. For the undrained condition, the calculated FoS for load conditions 1 and 2 for the locations analysed, showed that all locations have an acceptable FoS of greater than 1.3, indicating a low risk of peat failure. The undrained analysis is considered the most critical condition for the peat slopes.

A drained analysis was also carried out, which examined the effect of in particular, rainfall on the existing stability of the natural peat slopes on site. For the drained condition, the calculated FoS showed that all locations have an acceptable FoS of greater than 1.3.

The peat stability risk assessment at each infrastructure location, along access roads, in peat deposition areas and at settlement pond locations identified a number of mitigation/control measures to reduce the potential risk of peat failure. See Appendix 8-1 of this EIAR for details of the required mitigation/control measures for each infrastructure element.

In summary, the findings of the peat assessment showed that the Proposed Project has an acceptable margin of safety, is suitable for the Proposed Wind Farm and is considered to be at low risk of peat failure provided appropriate mitigation measures, such as implementing and maintaining an appropriate drainage system are implemented. The findings include recommendations and mitigation/control measures for construction work in peat lands, all of which will be implemented in full to ensure that all works adhere to an acceptable standard of safety.

Please see Chapter 8: Land, Soils and Geology and Appendix 8-1 Peat Stability Assessment for more details.

As outlined in the preceding sections and in Chapter 11 (Climate), Ireland is and will continue to experience climate change in line with global trends, with current projections indicating that these effects will intensify in the coming decades. The design of the Proposed Project has considered the potential climate change effects under both the baseline and future environment (Section 11.3 of Chapter 11), and it is considered that the Proposed Project will not be negatively impacted by climate change, nor will it have a negative impact on climate change over its 35-year design horizon.

16.4 Risk Assessment

This section outlines the possible risks associated with the Proposed Project for the construction, operational and decommissioning phases.

These risks have been assessed in accordance with the relevant classification as outlined in Table 16-1 and Table 16-2 above.

As outlined in Section 16.2.5.2.2, 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.

16.4.1 Likely Significant Effects

16.4.1.1 Do-Nothing Scenario

If the Proposed Project were not to proceed, the site would continue to be managed under the requirements of the IPC licence (P0500-01) and therefore the ongoing decommissioning activities, site management and environmental monitoring would continue.

In the absence of the Proposed Project, natural revegetation processes would continue across the site. Areas of bare peat would progressively revegetate and transition through successional stages, potentially developing into heath communities, scrub or bog woodland over time, depending on local hydrological conditions. Therefore, the existing baseline of the landscape will transition from a predominantly industrial cutover peatland landscape, with open exposed peat surfaces and drainage features, to a more natural mosaic landscape of cutaway peatland, wetland and regenerating bog habitats.

The Proposed Project site is located on lands that are subject to ongoing and future peatland rehabilitation and decommissioning works required under the existing IPC Licence. Therefore, under a 'Do-Nothing' scenario, the implementation of the Draft Rehabilitation Plans as required under IPC License would continue. These rehabilitation works are mandatory and will proceed irrespective of whether the Proposed Project is permitted, in order to ensure compliance with the IPC Licence. If the Proposed Project were not to proceed, the potential for fire outbreak, whether through auto-ignition or by human interference, would still be reduced due to the IPC License Obligations.

The opportunity to capture part of Offaly's valuable renewable energy resource 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. The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

16.4.1.2 Assessment of Effects During Construction

A risk register has been developed which contains all potentially relevant risks identified during the construction phase of the Proposed Project, with consideration of the risks identified in the Major Emergency Plan prepared by Offaly County Council (2019). A total of eight risks specific to the construction of the Proposed Project have been identified and are presented in Table 16-4.

Table 16-4 Risk Register - Construction Phase

| Risk ID | Potential Risk | Possible Cause |
|---|--|---|
| Potential vulnerability to disaster risks | | |
| A | <p>Adverse Weather Conditions</p> <p>Risk to construction activity on site.</p> | <p>Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.</p> |
| B | <p>Flooding</p> <p>Risk of high levels of surface water on site impacting the construction phase and leading to environmental emissions (e.g. sediment emissions).</p> | <p>Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds.</p> |
| C | <p>Loss of Critical Infrastructure</p> <p>Risk to delivery of turbines and infrastructure to site.</p> | <p>Traffic accident during turbine delivery or extreme weather periods of heavy rainfall, taking into account climate change and strong winds.</p> |
| Potential to cause accidents and / or disasters. | | |
| D | <p>Major Road Traffic Incident</p> <p>Collisions onsite and offsite with vehicles involved in construction of Proposed Project.</p> <p>Localised Traffic Disruptions.</p> <p>Leaks of hazardous materials which are being transported on and used on site.</p> | <p>Driver negligence or failure of vehicular operations on Proposed Project roads (Proposed Wind Farm access roads) and the public road network.</p> <p>Traffic Management Plan not implemented.</p> <p>Not following best practice for transporting hazardous materials.</p> |
| E | <p>Contamination Event</p> <p>Discharge or spillage of fuel, chemical solvents, sewage or wastewater into surface water, groundwater or percolated to groundwater.</p> <p>Groundwater and surface water emissions from construction activities.</p> <p>Risk of sediment-laden run off reaching the groundwater system</p> | <p>Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).</p> <p>Accidental fuel spillage during delivery to site.</p> <p>Failure of fuel storage tank or tanks in plant machinery and vehicles leading to uncontrolled emissions.</p> <p>Drainage and seepage water resulting from infrastructure excavation.</p> |

| Risk ID | Potential Risk | Possible Cause |
|---------|---|---|
| | | <p>Stockpiled excavated material from the construction phase providing a point source of exposed sediment.</p> <p>Erosion of sediment from emplaced site drainage channels.</p> <p>Excavation works during the construction of the Proposed Project which may result in entrainment of sediment from the excavations during construction.</p> |
| F | <p>Major Fire</p> <p>Fires from accidents causing personal injury and structural damage.</p> | <p>Equipment or infrastructure failure.</p> <p>Electrical problems.</p> <p>Employee negligence.</p> |
| G | <p>Bog Fire</p> <p>Spontaneous fire or fire spread from adjacent lands.</p> | <p>Lowered water tables.</p> <p>Extreme dry weather events.</p> |
| H | <p>Peat Stability</p> <p>Movement of peat within the site during construction.</p> | <p>Mismanagement of excavated material on site.</p> <p>Extreme weather conditions.</p> |

16.4.1.3 Assessment of Effect During Operation

A total of eight risks specific to the operation of the Proposed Project have been identified and are presented in Table 16-5.

Table 16-5 Risk Register – Operational Phase

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| Potential vulnerability to disaster risks | | |
| I | Adverse Weather Conditions Risk to operational activity on site, blade or turbine damage. | Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds. |
| J | Loss of Critical Infrastructure Risk to infrastructure on site. | Equipment or infrastructure failure. Electrical problems. Employee negligence. Earthquake. Extreme weather conditions such as periods of heavy rainfall, taking into account climate change and strong winds. |
| K | Flooding Risk of high levels of surface water on site impacting the operational phase. | Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds. |
| Potential to cause accidents and / or disasters. | | |
| L | Major Road Traffic Incident Collisions onsite and offsite with vehicles involved in the operation of the Proposed Project, and public vehicles visiting the Proposed Wind Farm for amenity use. | Driver negligence or failure of vehicular operations on site roads or surrounding road network. |
| M | Contamination Event Discharge or spillage of fuel, chemical solvents, sewage or wastewater into groundwater or percolated to groundwater. | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks). A vehicular incident on the public road involving fuel, wastewater or sewage transportation in the operational phase. Spill or leak of oil/fuel during operational maintenance. |

| Risk ID | Potential Risk | Possible Cause |
|---------|---|--|
| N | Major Fire Fires causing personal injury and structural damage. | Equipment or infrastructure failure. Electrical problems. Employee negligence. |
| O | Bog Fire* Spontaneous fire or fire spread from adjacent land. | Lowered water tables. Extreme dry weather events. |
| P | Peat Stability Movement of peat within the site during operation. | Extreme weather conditions. |

**During the operational phase, the peatland rehabilitation measures as required under IPC license will be implemented at Lemanaghan Bog. These rehabilitation measures comprise the rewetting of the bogs through drainage blocking which will subsequently encourage the recolonisation of bog vegetation at the site. The restoration of the natural conditions will continue over the lifetime of the operational phase. An indirect benefit of the peatland rehabilitation measures is that the potential for fire outbreak is considerably reduced.*

16.4.1.4 Assessment of Effect During Decommissioning

A total of seven risks specific to the decommissioning of the Proposed Project have been identified and are presented in Table 16-6.

Table 16-6 Risk Register – Decommissioning Phase

| Risk ID | Potential Risk | Possible Cause |
|---|---|---|
| Potential vulnerability to disaster risks | | |
| Q | Adverse Weather Conditions Risk to decommissioning activity on site. | Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds. |
| R | Flooding Risk of high-level surface water on site and in areas surrounding the Proposed Project impacting the decommissioning phase and leading to environmental emissions. | Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds. |
| Potential to cause accidents and / or disasters. | | |
| S | Major Road Traffic Incident Collisions onsite and offsite with vehicles involved in the decommissioning of Proposed Wind Farm. | Driver negligence or failure of vehicular operations on site roads. Traffic Management Plan not implemented. |

| Risk ID | Potential Risk | Possible Cause |
|---------|---|---|
| | Localised Traffic Disruptions. Leaks of hazardous materials which are being transported on and used on site. | Result of other proposed works. Not following best practice for transporting hazardous materials. |
| T | Contamination Event Discharge or spillage of fuel, chemical solvents, sewage or wastewater into groundwater or percolated to groundwater. | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks). Accidental fuel spillage during delivery to site. Failure of fuel storage tank or tanks in plant and machinery and vehicles. Drainage and seepage water resulting from infrastructure excavation. Erosion of sediment from emplaced site drainage channels. |
| U | Major Fire Fires causing personal injury, structural damage and forest fires. | Equipment or infrastructure failure. Electrical problems. Employee negligence. |
| V | Bog Fire* Spontaneous fire or fire spread from adjacent land. | Lowered water tables. Extreme dry weather events. |
| W | Peat Stability Movement of peat within the site during decommissioning. | Extreme weather conditions. |

**The potential for bog fires during the decommissioning phase is considered to be lower than the risk during the construction phase as some infrastructure, e.g., substation will remain in situ and some elements of the construction phase, e.g., borrow pits will not be required to be decommissioned and therefore the associated construction works will not be needed. More specifically, the benefits of peatland rehabilitation will result in reduced potential for bog fires during the decommissioning phase. All mitigation measures are outlined below in 16.4.3.2 will be adhered and all best practice measures and monitoring as detailed in the accompanying CEMP will be implemented.*

16.4.2 Risk Assessment Summary

These risks have been assessed in accordance with the relevant classification (Refer to Table 16-1 and Table 16-2) and the resulting risk analysis is given in Table 16-7.

The risk register is based upon possible risks associated the Proposed Project. As outlined in Section 16.2.5, the likelihood of occurrence of each risk incorporates any safety procedures and proposed environment controls. 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.

16.4.2.1.1 Assessment of Effect – Summary

Table 16-7 Risk Assessment

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------------------------|----------------------------|---|--|-------------------|---|--------------------|--|---------------------------------------|
| Construction Phase | | | | | | | | |
| A | Adverse Weather Conditions | Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds. | Illness or loss of life. Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter 11: Climate of this EIAR and local weather conditions recorded over the last 30 years. The works programme for the groundworks part of the construction phase of the Proposed Project, which is laid out in detail in the CEMP (Appendix 4-4) will take account of weather forecasts and predicted rainfall in particular and construction will be paused if required. | 1 | The risk of severe weather conditions during the construction phase will result in a minor consequence in that ‘a small number of people would be affected’ should severe weather occur, with ‘no fatalities and a small number of minor injuries with first aid treatment’. ‘Simple contamination’ of environment (e.g., watercourses), ‘localised effects of short duration’. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|---------------------------------|---|--|-------------------|---|--------------------|--|---------------------------------------|
| B | Flooding | Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds. | Illness or loss of life, Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | 3 | Based on CFRAM and NIFM mapping, the risk of surface water flooding is considered likely in some areas of the site, However, the FRA states that the Lemanaghan stream has been heavily modified and concludes that based on site observations and the high drainage density within the site, the entire site should be mapped in Flood Zone C. The risk of the Proposed Project contributing to downstream flooding is very low, when taking into account the baseline assessment in Chapter 9: Water of the EIAR. | 1 | The risk of flooding during the construction phase will result in a minor consequence in that a 'small number of people would be affected' should a flood event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. 'Simple contamination' of environment (e.g., watercourses), 'localised effects of short duration'. | 3 |
| C | Loss of Critical Infrastructure | Traffic accident during turbine | Injury or loss of life. | 1 | The risk of traffic accident during | 1 | The risk of a traffic accident due to severe weather conditions, and of impact | 1 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|-------------------------|-------------------|---|--------------------|--|---------------------------------------|
| | | <p>delivery or extreme weather periods of heavy rainfall, taking into account climate change and strong winds.</p> <p>Construction activity along road network during the Proposed Grid Connection installation impacting on local services and utilities.</p> <p>Connecting the Proposed Project to the national grid via the Shannonbridge - Maynooth 20kV OHL.</p> | Disruption to services. | | <p>turbine delivery and severe weather conditions impacting the identified road network is extremely unlikely when considering the assessment in Chapter 11: Climate (baseline environment and future environment (Section 11.3)) and Section 15.1 – Traffic Assessment (turbine delivery occurring during the night, Garda patrolled, etc.)</p> <p>Confirmatory surveys will be carried out by the Contractor to ensure that the Proposed Project is designed to take into consideration any services and utilities with the road network. Therefore, impacts resulting from the Proposed Grid Connection are considered “extremely unlikely”.</p> | | on utilities and services during the construction phase will result in a minor consequence in that ‘a small number of people would be affected’ should severe weather occur, with ‘no fatalities and a small number of minor injuries with first aid treatment’. | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|-----------------------------|--|-------------------------|-------------------|---|--------------------|---|---------------------------------------|
| D | Major Road Traffic Incident | <p>Driver negligence or failure of vehicular operations on site roads.</p> <p>Traffic Management Plan not implemented.</p> <p>Result of other proposed works.</p> <p>Not following best practice for transporting hazardous materials.</p> | Injury or loss of life. | 3 | <p>The Traffic and Transport section of Chapter 15: Material Assets of this EIAR details traffic movements which relate to the Construction Phase of the Proposed Project. The Traffic Management Plan included as Appendix 15-2 details proposals for traffic movements entering and leaving the site, and within the internal access roads.</p> <p>The internal road network within the Proposed Wind Farm has been designed to allow for 2 vehicles to pass on the road, and/or in passing bays, which will reduce the likelihood of a traffic incident or collision occurring within the Proposed Wind Farm. There will also be a</p> | 1 | A minor consequence is predicted. Having regard to on-site speed limits and vehicular movements, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.' | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|---------------------|---|---|-------------------|--|--------------------|--|---------------------------------------|
| | | | | | <p>speed limit imposed on the internal Proposed Wind Farm Road network, which will also reduce the likelihood and severity of any traffic incident or collision. A limited number of vehicles will be permitted on the site as part of the construction phase.</p> <p>As such, it can be determined that there is some ‘opportunity, reason or means’ for a vehicle collision to occur on site, ‘at some time.’ An unlikely risk is therefore predicted.</p> | | | |
| E | Contamination Event | Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks). | <p>Damage to, or depletion of aquatic habitats and species,</p> <p>Release of suspended solids to surface watercourses could result in an</p> | 2 | As outlined in Chapter 4: Description of the Proposed Project, fuel will be stored on-site in a bunded area to ensure containment and prevent spillages of fuel. No fuels, chemicals or solvents | 2 | <p>The risk of a fuel spillage or impact on surrounding drainage during the construction stage will result in a limited consequence in that there would be ‘a limited number of people affected’ with ‘localised effects of short duration’.</p> <p>‘Simple contamination’ of environment (e.g., watercourses), ‘localised effects of short duration’.</p> | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|--|--|-------------------|--|--------------------|----------------------|---------------------------------------|
| | | <p>Fuel spillage during delivery to site.</p> <p>Failure of fuel storage tank or tanks in plant and machinery and vehicles.</p> <p>Drainage and seepage water resulting from infrastructure excavation.</p> <p>Stockpiled excavated construction material providing a point source of exposed sediment.</p> <p>Construction of the Proposed Project internal cable trench resulting in entrainment of sediment from the excavations during construction.</p> | <p>increase in the suspended sediment load, leading to increased turbidity which in turn could affect the water quality and fish stocks of downstream water bodies.</p> <p>Contamination of local drinking water supplies and groundwater aquifers.</p> <p>Groundwater and surface water emissions from construction activities.</p> <p>Accidental spillage during refuelling.</p> | | <p>will be stored outside of the confines of the site.</p> <p>Setback distances from sensitive hydrological features means that adequate room is maintained for the proposed drainage measures as detailed in Chapter 9: Water.</p> <p>Therefore, contamination events are very unlikely to occur.</p> | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|--|-------------------|---|--------------------|--|---------------------------------------|
| | | Erosion of sediment from emplaced site drainage channels. | | | | | | |
| F | Major Fire | <p>Equipment or infrastructure failure.</p> <p>Electrical problems.</p> <p>Employee negligence.</p> | <p>Injury or loss of life.</p> <p>Structural damage.</p> <p>Air Pollution.</p> <p>Damage to, or depletion of habitats and species.</p> <p>Contamination.</p> | 2 | <p>As outlined in Chapter 4: Description of the Proposed Project, fuel stored onsite during the construction phase of the Proposed Project and will be stored in bunded areas. Therefore, fuel leakage/spillage is considered to be a very unlikely risk.</p> <p>In accordance with Chapter 19 of the Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project shall be subject to a fire safety risk assessment which would assist in the identification of any major risks of fire on site, and mitigation of</p> | 2 | <p>Should a fire/explosion occur at the site, a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration' on people and environmental receptors due to the nature of the Proposed Project.</p> <p>Should a fire occur, there will be 'normal community functioning' in the area with 'some inconvenience'.</p> <p>Furthermore, the emergency response elements detailed in the Offaly Fire Major Emergency Plan work to reduce the consequence (both on people and the environment) of potential risk of major fire at the site.</p> | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|--|---|-------------------|---|--------------------|--|---------------------------------------|
| | | | | | the same during operation. | | | |
| G | Bog Fire | Lowered water tables. Extreme dry weather events. | Illness or loss of life. Damage to, or depletion of habitats and species. Impacts on ambient air quality. | 3 | Spontaneous bog fires/bog fire spread is unlikely (7 small, contained fire occurrences over the 23 years when the site was under industrial peat extraction). Peat production has ceased at the site, and all peat stockpiles have been removed. Please note, an indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plan) is the potential for fire outbreak is considerably reduced. Best Practice measures as detailed in the CEMP (Appendix 4-4_ will be implemented during the construction phase. | 1 | Bog fires caused by autoignition or due to spread from adjacent lands tend to be small in nature and can be contained much more easily than fires caused by explosion. Negligible contamination of environment (e.g., watercourses), 'localised effects of temporary duration'. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|--------------------------|----------------------------|--|--|-------------------|--|--------------------|--|---------------------------------------|
| H | Peat Stability | <p>Ground disturbance from excavations, earthworks and other construction activities.</p> <p>Extreme weather-periods of heavy rainfall, taking into account climate change.</p> <p>Deep peat, subsurface weakness such as karst areas.</p> | <p>Movement of peat within the site.</p> <p>Sedimentation of nearby watercourse.</p> <p>Damage to, or depletion of aquatic habitats and species.</p> | 1 | Lemanaghan Bog, in which the majority of the Proposed Project site is located has undergone extensive drainage and peat extraction over an extended period of time and significant volumes of peat have been removed from the site. The Proposed Project has been designed to minimise the potential for peat instability and failure, with peat instability considered extremely unlikely. Refer to Appendix 8-1: Geotechnical and Peat Stability Assessment Report for further detail. | 2 | <p>The risk of peat instability during the construction phase will result in a limited consequence in that there would be ‘a limited number of people affected’ with ‘localised effects of short duration’.</p> <p>‘Simple contamination’ of environment (e.g. watercourses), ‘localised effects of short duration’.</p> | 2 |
| Operational Phase | | | | | | | | |
| I | Adverse Weather Conditions | Extreme weather-periods of heavy rainfall, taking into account climate | Illness or loss of life. | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter | 1 | The risk of severe weather conditions during the operational phase will result in a minor consequence in that ‘small number of people would be affected’ | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|--|-------------------|--|--------------------|---|---------------------------------------|
| | | change and strong winds. | Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | | 11: Climate and weather conditions recorded over the last 30 years within the area. | | should a severe weather occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. | |
| J | Flooding | Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds. | Illness or loss of life. Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | 3 | Based on CRFAM and NIFM mapping, the risk of surface water flooding is considered likely in some areas of the site, However, the FRA states that the Lemanaghan stream has been heavily modified and concludes that based on site observations and the high drainage density within the site, the entire site should be mapped in Flood Zone C. The risk of the Proposed Project contributing to downstream flooding is very low, when | 1 | The risk of flooding during the operational phase will result in a minor consequence in that a 'small number of people would be affected' should a flood event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. 'No contamination' of environment (e.g., watercourses), 'localised effects'. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|---------------------------------|---|-------------------------|-------------------|---|--------------------|---|---------------------------------------|
| | | | | | taking into account the baseline assessment in Chapter 9: Water of this EIAR. | | | |
| K | Loss of Critical Infrastructure | <p>Equipment or infrastructure failure.</p> <p>Electrical problems.</p> <p>Employee negligence.</p> <p>Earthquake.</p> <p>Extreme weather conditions such as flooding and storms.</p> | Injury or loss of life. | 1 | <p>EirGrid operates the grid from National Control Centres matching electricity production to customer demand, switching from synchronous to non-synchronous where required to ensure no power outages.</p> <p>The Proposed Project will be connected to the proposed onsite 220kV substation which in turn will connect to the existing Shannonbridge-Maynooth 220kV OHL. Any shortages or failures will not impact other connections to the Shannonbridge-Maynooth 220kV Overhead Line.</p> | 2 | <p>Should a power failure occur at the proposed onsite 220kV substation, it will result in a 'limited number of people affected' and will have 'localised effects of short duration'.</p> <p>The risk of infrastructure collapse and damage during the operational phase will result in a minor consequence in that a 'small number of people would be affected' and no real likelihood of any impact on any environmental receptors.</p> | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|----------------|----------------------|-------------------|---|--------------------|----------------------|---------------------------------------|
| | | | | | <p>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, structures and infrastructure (e.g. turbines, met mast) in Ireland are extremely unlikely to be damaged or collapse due to seismic activity.</p> <p>As outlined in Chapter 11: Climate of this EIAR, due to Ireland’s latitudinal position, the probability of extreme weather events posing</p> | | | |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|-----------------------------|---|-------------------------|-------------------|---|--------------------|---|---------------------------------------|
| | | | | | <p>a threat to human life are low. However, in the circumstance of such a weather event occurring at the site of the Proposed Project during the operational phase, the Severe Weather Plan as set out in the Offaly County Major Emergency Plan will be followed</p> <p>Having regard to speed limits within the Proposed Project site, it is not predicted that any collision of vehicles and any infrastructure would result in significant damage/collapse.</p> | | | |
| L | Major Road Traffic Incident | Driver negligence or failure of vehicular operations on site roads. | Injury or loss of life. | 3 | The Traffic and Transport section of Chapter 15: Material Assets of this ELAR details traffic movements which relate to the | 1 | A minor consequence is predicted. Having regard to on-site speed limits and vehicular movements, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.' | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|---------------------|---|--|-------------------|---|--------------------|---|---------------------------------------|
| | | | | | <p>Operational Phase of the Proposed Project.</p> <p>A limited number of vehicles will be permitted on the site as part of the operational phase.</p> <p>As such, it can be determined that there is some ‘opportunity, reason or means’ for a vehicle collision to occur on site, ‘at some time.’ An unlikely risk is therefore predicted.</p> | | | |
| M | Contamination Event | <p>Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).</p> <p>A vehicular incident on the public road involving fuel, wastewater or</p> | <p>Illness or loss of life.</p> <p>Damage to, or depletion of habitats and species.</p> <p>Impacts on ambient air quality.</p> | 2 | <p>As outlined in Chapter 4: Description of the Proposed Project, it is not envisioned that fuel will be stored on-site post construction. Therefore, contamination events are very unlikely to occur.</p> | 2 | <p>The risk of a fuel spillage or impact on surrounding drainage during the operational stage will result in a limited consequence in that there would be ‘a limited number of people affected’ with ‘localised effects of short duration’.</p> <p>‘Simple contamination’ of environment (e.g., watercourses), ‘localised effects of short duration’.</p> | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|--|-------------------|--|--------------------|---|---------------------------------------|
| | | sewage transportation in the operational phase. | | | | | | |
| N | Major Fire | <p>Equipment or infrastructure failure.</p> <p>Electrical problems.</p> <p>Employee negligence.</p> | <p>Injury or loss of life.</p> <p>Structural damage.</p> <p>Air Pollution.</p> <p>Damage to, or depletion of habitats and species.</p> <p>Contamination.</p> | 2 | <p>As outlined in Chapter 4: Description of the Proposed Project, it is not envisioned that fuel will be stored on-site post construction. Therefore, the risk of fire due to fuel is considered to be very unlikely.</p> <p>In accordance with Chapter 19 of the Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project shall be subject to a fire safety risk assessment which would assist in the identification of any major risks of fire on site.</p> <p>Therefore, contamination events</p> | 2 | <p>Should a major fire occur at the site, a limited consequence in that there would be ‘a limited number of people affected’ with ‘localised effects of short duration’ due to the nature of the project and the lack of infrastructure or fuel storage during operation that would result in any such incident. There will be ‘normal community functioning’ in the area with ‘some inconvenience’.</p> <p>‘Simple contamination’ of environment, ‘localised effects of short duration’.</p> | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|--|---|-------------------|---|--------------------|---|---------------------------------------|
| | | | | | are very unlikely to occur. | | | |
| O | Bog Fire | Lowered water tables, Extreme dry weather events. | Illness or loss of life. Damage to, or depletion of habitats and species. Impacts on ambient air quality. | 3 | Peatland rehabilitation measures in the form of bog rewetting reduces the potential for bog fires considerably. Spontaneous bog fires/bog fire spread is unlikely (7 small, contained fire occurrences over the 23 years when the site was under industrial peat extraction). Please note, an indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plan) is the potential for fire outbreak is considerably reduced. | 1 | Peatland rehabilitation measures in the form of bog rewetting reduce the potential for bog fires considerably. Bog fires caused by autoignition or due to spread from adjacent lands tend to be small in nature and can be contained much more easily than fires caused by explosion. 'Negligible contamination' of environment, 'localised effects of temporary duration'. | 3 |
| P | Peat Stability | Extreme weather conditions. | Movement of peat within the site. | 1 | Lemanaghan Bog, within which the majority of the Proposed Project site is located, has | 2 | The risk of peat instability during the operational phase will result in a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration'. | 2 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|------------------------------|----------------------------|---|---|-------------------|---|--------------------|---|---------------------------------------|
| | | | <p>Sedimentation of nearby watercourse.</p> <p>Damage to, or depletion of aquatic habitats and species.</p> | | <p>undergone extensive drainage and peat extraction over an extended period of time and significant volumes of peat have been removed from the site</p> <p>The Proposed Project has been designed to minimise the potential for peat instability and failure, with peat instability considered extremely unlikely. Refer to Appendix 8-1: Geotechnical and Peat Stability Assessment Report for further detail.</p> | | <p>‘Simple contamination’ of environment (e.g. watercourses), ‘localised effects of short duration’.</p> | |
| Decommissioning Phase | | | | | | | | |
| Q | Adverse weather conditions | Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds. | <p>Illness or loss of life.</p> <p>Sedimentation of nearby watercourse.</p> | 3 | The risk of severe weather is unlikely when considering the assessment in Chapter 11: Climate and weather conditions detailed for the future | 1 | The risk of severe weather conditions during the decommissioning phase will result in a minor consequence in that ‘small number of people would be affected’ should a severe weather occur, with ‘no fatalities and a small number of minor injuries with first aid treatment’. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|--|-------------------|---|--------------------|---|---------------------------------------|
| | | | Damage to, or depletion of aquatic habitats and species. | | environment (Section 11.3). | | localised effects'. | |
| R | Flooding | Extreme weather-periods of heavy rainfall, taking into account climate change and strong winds. | Illness or loss of life. Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | 3 | Based on CFRAM and NIFM mapping, the risk of surface water flooding is considered likely in some areas of the site. However, the FRA states that the Lemanaghan stream has been heavily modified and concludes that based on site observations and the high drainage density within the site, the entire site should be mapped in Flood Zone C. The risk of contributing to downstream flooding is very low, when taking into account the baseline assessment in Chapter 9: Water of this EIAR. | 1 | The risk of flooding during the decommissioning phase will result in a minor consequence in that a 'small number of people would be affected' should a flood event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. 'No contamination' of environment (e.g., watercourses), 'localised effects'. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|-----------------------------|--|-------------------------|-------------------|--|--------------------|---|---------------------------------------|
| S | Major Road Traffic Incident | <p>Driver negligence or failure of vehicular operations on site roads.</p> <p>Traffic Management Plan not implemented.</p> <p>Result of other proposed works.</p> <p>Not following best practice for transporting hazardous materials.</p> | Injury or loss of life. | 3 | <p>The Traffic Management Plan included as Appendix 15-2 details proposals for traffic movements entering and leaving the site, and within the internal access roads.</p> <p>The internal road network within the Proposed Wind Farm has been designed to allow for 2 vehicles to pass on the road, and/or in passing bays, which will reduce the likelihood of a traffic incident or collision occurring within the Proposed Wind Farm. There will also be a speed limit imposed on the internal Proposed Wind Farm internal road network, which will also reduce the likelihood of any traffic incident or collision. A limited number of vehicles</p> | 1 | A minor consequence is predicted. Having regard to on-site speed limits and vehicular movements, a 'small number of people would be affected' should a vehicular collision occur, with 'no fatalities and small number of minor injuries with first aid treatment.' | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|---------------------|--|-------------------------|-------------------|---|--------------------|--|---------------------------------------|
| | | | | | <p>will be permitted on the site as part of the decommissioning phase.</p> <p>As such, it can be determined that there is some 'opportunity, reason or means' for a vehicle collision to occur on site, 'at some time.' The risk of vehicle collision is therefore considered to be unlikely.</p> | | | |
| T | Contamination Event | <p>Fuel emissions, leakages and spillages could occur at SEVESO sites nearest to the Proposed Project (Potential Vulnerability to Disaster Risks).</p> <p>Accidental fuel spillage during delivery to site.</p> <p>Failure of fuel storage tank or</p> | Injury or loss of life. | 2 | <p>As outlined in Chapter 4: Description of the Proposed Project, fuel will be stored on-site but in a bunded area to ensure containment and prevent spillages of fuel. No fuels, chemicals or solvents will be stored outside of the confines of the site.</p> <p>Setback distances from sensitive</p> | 2 | <p>The risk of a fuel spillage or impact on surrounding drainage during the decommissioning stage will result in a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration' through the use of bunded containment areas during operation.</p> <p>'Simple contamination' of environment (e.g., watercourses), 'localised effects of short duration'.</p> | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|---|-------------------|--|--------------------|---|---------------------------------------|
| | | tanks in plant and machinery and vehicles. Erosion of sediment from emplaced site drainage channels. | | | hydrological features means that adequate room is maintained for the proposed drainage measures as detailed in Chapter 9: Water. Therefore, contamination events are very unlikely to occur. | | | |
| U | Major Fire | Equipment or infrastructure failure, Electrical problems, Employee negligence, Extreme dry weather events. | Injury or loss of life. Structural damage. Air pollution. Damage to, or depletion of habitats and species. Contamination. | 2 | As outlined in Chapter 4: Description of the Proposed Project, fuel stored onsite during the decommissioning phase of the Proposed Project will be stored in bunded areas. Therefore, fuel leakage/spillage is considered to be a very unlikely risk. In accordance with Chapter 19 of the Safety, Health and Welfare at Work Act 2005 (the 2005 Act), the Proposed Project | 2 | Should a fire/explosion occur at the site, a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration' on people and environmental receptors due to the nature of the Proposed Project. Should a fire occur, there will be 'normal community functioning' in the area with 'some inconvenience'. Furthermore, the emergency response elements detailed in the Offaly Fire Major Emergency Plan work to reduce the consequence (both on people and the environment) of potential risk of major fire at the site. | 4 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|--|---|-------------------|---|--------------------|--|---------------------------------------|
| | | | | | shall be subject to a fire safety risk assessment which would assist in the identification of any major risks of fire on site, and mitigation of the same during decommissioning. | | | |
| V | Bog Fire | Lowered water tables. Extreme dry weather events. | Illness or loss of life. Damage to, or depletion of habitats and species. Impacts on ambient air quality. | 3 | Peatland rehabilitation measures in the form of bog rewetting reduce the potential for bog fires considerably. Spontaneous bog fires/bog fire spread is unlikely (7 small, contained fire occurrences over the 23 years when the site was under industrial peat extraction). Please note, an indirect benefit of the peatland rehabilitation measures (under the Draft Rehabilitation Plan) is the potential | 1 | Peatland rehabilitation measures in the form of bog rewetting reduce the potential for bog fires considerably. Bog fires caused by autoignition or due to spread from adjacent lands tend to be small in nature and can be contained much more easily than fires caused by explosion. Negligible contamination of environment (e.g., watercourses), localised effects of temporary duration. | 3 |

| Risk ID | Potential Risk | Possible Cause | Environmental Effect | Likelihood Rating | Basis of Likelihood | Consequence Rating | Basis of Consequence | Risk Score (Consequence x Likelihood) |
|---------|----------------|---|---|-------------------|--|--------------------|--|---------------------------------------|
| | | | | | for fire outbreak is considerably reduced. Best Practice measures as detailed in the CEMP will be implemented during the decommissioning phase. | | | |
| W | Peat Stability | Mismanagement of excavated material on site, Extreme weather conditions. | Movement of peat within the site. Sedimentation of nearby watercourse. Damage to, or depletion of aquatic habitats and species. | 1 | The Proposed Project has been designed to minimise the potential for peat instability and failure, with peat instability considered extremely unlikely. Refer to Appendix 8-1: Geotechnical and Peat Stability Assessment Report for further detail. | 2 | The risk of peat instability during the decommissioning phase will result in a limited consequence in that there would be 'a limited number of people affected' with 'localised effects of short duration'. 'Simple contamination' of environment (e.g. watercourses), 'localised effects of short duration'. | 2 |

The risk assessment for each of the potential risks identified are consolidated in Table 16-8 which provides their risk score. A corresponding risk matrix is provided in Table 16-9, which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in Section 16.2.5.2.2 the red zone represents ‘high risk’ scenarios, the amber zone represents ‘medium risk’ scenarios and the green zone represents ‘low risk’ scenarios.

Table 16-8 Risk Scores

| Risk ID | Potential Risk | Likelihood Rating | Consequence Rating | Risk Score |
|------------------------------|---------------------------------|-------------------|--------------------|------------|
| Construction Phase | | | | |
| A | Adverse Weather Conditions | 3 | 1 | 3 |
| B | Flooding | 3 | 1 | 3 |
| C | Loss of Critical Infrastructure | 1 | 1 | 1 |
| D | Major Road Traffic Incident | 3 | 1 | 3 |
| E | Contamination Event | 2 | 2 | 4 |
| F | Major Fire | 2 | 2 | 4 |
| G | Bog Fire | 3 | 1 | 3 |
| H | Peat Stability | 1 | 2 | 2 |
| Operational Phase | | | | |
| I | Adverse Weather Conditions | 3 | 1 | 3 |
| J | Flooding | 3 | 1 | 3 |
| K | Loss of Critical Infrastructure | 1 | 2 | 2 |
| L | Major Road Traffic Incident | 3 | 1 | 3 |
| M | Contamination Event | 2 | 2 | 4 |
| N | Major Fire | 2 | 2 | 4 |
| O | Bog Fire | 3 | 1 | 3 |
| P | Peat Stability | 1 | 2 | 2 |
| Decommissioning Phase | | | | |
| Q | Adverse weather conditions | 3 | 1 | 3 |
| R | Flooding | 3 | 1 | 3 |
| S | Major Road Traffic Incident | 3 | 1 | 3 |

| Risk ID | Potential Risk | Likelihood Rating | Consequence Rating | Risk Score |
|---------|---------------------|-------------------|--------------------|------------|
| T | Contamination Event | 2 | 2 | 4 |
| U | Major Fire | 2 | 2 | 4 |
| V | Bog Fire | 3 | 1 | 3 |
| W | Peat Stability | 1 | 2 | 2 |

Table 16-9 presents the potential risks identified during the construction, operation and decommissioning of the Proposed Project, all of which can be classified as ‘low-risk’ scenarios.

Table 16-9 Risk Matrix

| | | Consequence Rating | | | | |
|-------------------|-----------------------|------------------------------------|------------------|------------|-----------------|-----------------|
| | | 1. Minor | 2. Limited | 3. Serious | 4. Very Serious | 5. Catastrophic |
| Likelihood Rating | 5. Very Likely | | | | | |
| | 4. Likely | | | | | |
| | 3. Unlikely | A, B, D, G, I, J, L, O, Q, R, S, V | | | | |
| | 2. Very Unlikely | | E, F, M, N, T, U | | | |
| | 1. Extremely Unlikely | C | K, H, P, W | | | |

The scenarios with the highest risk score in terms of a major accident and/or natural disaster during the construction, operation and decommissioning phase of the Proposed Project are identified below:

Contamination Events During Construction, Operation and Decommissioning

There is a potential risk of contamination from site activities during the construction, operation and decommissioning phases from potential release of hydrocarbons. Hydrocarbons, in the form of fuel, hydraulic fluids, lubricants, oils etc. may result from improper storage or activities such as refuelling. The risk of contamination was given a risk score of 4 on a precautionary basis. However, as outlined in Chapter 8: Land, Soils and Geology Section 8.5, and Chapter 9: Water, Section 9.5, measures are proposed and will be put in place to reduce the risk of accidental spillage and contamination of pollution risk to groundwater, surface water and associated ecosystems, and to terrestrial ecology.

The risk of contamination is ‘very unlikely’ to occur and will have ‘limited’ consequences should it do so, representing a ‘low-risk scenario’ during the construction, operation and decommissioning phases.

It is therefore considered that there will be temporary, moderate, negative effects, which is Not Significant associated with contamination events during the construction, operation and decommissioning of the Proposed Project.

Major Fire During Construction, Operation and Decommissioning

There is a potential risk of fire at the Proposed Project site. However, as outlined in Section 16.3.3.4, the scope of this assessment has been based on the understanding that the Proposed Project will be designed, built and operated in line with current best practices in wind energy development. Further, in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, the Proposed Project shall be subject to a fire safety risk assessment which will assist in the identification of any major risks of fire on site.

Therefore, the risk of fire occurring at the Proposed Project resulting in a major accident and/or disaster was given a risk score of 4 on a precautionary basis. This indicates a scenario that is 'very unlikely' to occur and having 'limited' consequences should it do so, representing a 'low-risk scenario' during the construction, operational and decommissioning phases.

It is therefore considered that there will be temporary, moderate, negative effects, which is Not Significant associated with major fire during the construction, operation and decommissioning of the Proposed Project.

16.4.3 Mitigation Measures

As outlined in Section 16.4.1 and Section 16.4.2 above, the scenarios with the highest risk scores in terms of the occurrence of major accident and/or disaster during construction, operation and decommissioning were identified as 'Contamination Events' and 'Major Fire' risk.

The Proposed Project will be designed and 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*"¹⁶, a Risk Management Plan (RMP) will be prepared and implemented on site to ensure an effective response to disasters or the risk of accidents. The RMP will include sufficient preparedness and emergency planning measures.

16.4.3.1 Contamination Events

Potential effects associated with contamination during construction, operation and decommissioning are addressed fully in Section 9.5 of Chapter 9: Water. The mitigation measures outlined in Chapter 9: Water to protect environmental receptors as well as the procedures and measures described in the CEMP will ensure that the risk from these sources is low.

A CEMP has been prepared for the Proposed Project and is included in Appendix 4-4 of this EIAR. The above Major Accidents and Natural Disaster Risk Assessment forms the basis of the Emergency Response Plan (ERP) which is contained within the CEMP. Upon a grant of planning permission for the Proposed Project, the CEMP will be updated to reflect the conditions stipulated in the consent prior to the commencement of the development. The CEMP will be a live document, maintained by the contractor, that will work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 4-4 for the CEMP that sets out the minimum standards to be employed by the contractor.

All mitigation measures proposed as part of this project are also listed in Chapter 18: Schedule of Mitigation and Monitoring Measures.

¹⁶ European Commission, 2017. *Guidance on the preparation of Environmental Impact Assessment Reports*. Available at: <https://op.europa.eu/en/publication-detail/-/publication/2b399830-cb4b-11e7-a5d5-01aa75ed71a1>

16.4.3.2 Major Fire

The Proposed Project will also be subject to a fire safety risk assessment in accordance with Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2021, which will assist in the identification of any major risks of fire on site, and mitigation of the same during construction, operation and decommissioning. The ERP includes hazard identification procedures and mitigation measures which the site Supervisor/Construction Manager will carry out in case of a fire/explosion at the site. Refer to Appendix 4-4 for an outline CEMP that sets out the minimum standards to be employed by the contractor.

All mitigation measures proposed as part of this project are also listed in Chapter 18: Schedule of Mitigation & Monitoring Measures.

16.4.4 Residual Effects

In accordance with the Risk Evaluation process outlined in Section 16.2.5.2.2, and considering the Risk Matrix in Table 16-9, the risk of a major accident and/or disaster during the construction, operation and decommissioning of the Proposed Project is considered 'low' in accordance with the "*Guide to Risk Assessment in Major Emergency Management*" (DoEHLG, 2010)¹⁷.

It is considered that when the mitigation and monitoring measures outlined in the CEMP are implemented and adhered to there the residual effects associated with the construction, operation and decommissioning of the Proposed Project will be unlikely, temporary, slight, negative effects, which are Not Significant.

16.4.5 Monitoring

16.4.5.1 Monitoring During Construction

The CEMP will be prepared/revised prior to the commencement of any works and will be a live document maintained by the contractor that will work to ensure that potential risks of major accident and/or disaster are identified, avoided and mitigated, as necessary. Refer to Appendix 4-4 for the CEMP that sets out the minimum standards to be employed by the contractor.

16.4.5.2 Monitoring During Operation

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

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

16.4.5.3 Monitoring During Decommissioning

A Decommissioning Plan has been prepared (Appendix 4-8) the detail of which will be agreed with the local authority prior to any decommissioning. The Decommissioning Plan will be updated before the end of the 35-year operational period of the Proposed Wind Farm, in line with best practice decommissioning methodologies that are in place at the time of decommissioning and will be agreed with the competent authority prior to implementation. The Decommissioning Plan includes mitigation

¹⁷ Department of Environment, Heritage and Local Government, 2010. *A Guide to Risk Assessment in Major Emergency Management*. Available at: <https://assets.gov.ie/117528/e06a7ca8-a634-4f70-a9a7-b405ee08429a.pdf>

and monitoring measures that will be in place during the decommissioning phase. These can also be found in a Chapter 18: Schedule of Mitigation and Monitoring Measures which sets out all proposed Mitigation and Monitoring Measures for all three phases of the Proposed Project.

16.4.6 Assessment of Cumulative Effects

A search in relation to plans and projects that may have the potential to result in a cumulative impact with the Proposed Project on the environment has been carried out as part of the EIAR. The Proposed Project has been considered, in combination with existing, permitted and proposed projects and plans (wind energy or otherwise), as set out in Section 2.10 in Chapter 2: Background to the Proposed Project of this EIAR.

All elements of the Proposed Project were assessed in order to identify any cumulative effects.

A wind farm including all of its various components including cabling, substation, roads, turbines, etc., is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other EPA environmental regulatory consent. Should a major accident or natural disaster occur, the potential sources of pollution onsite during the construction, operational 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 Proposed Project and causing environmental damage.

There is low potential for significant natural disasters to occur at the Proposed Project site. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited and these have been assessed in the context of the whole project, cumulatively in this chapter and in the wider EIAR.

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 Proposed Project is not regulated or connected to, or close to, any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations, i.e., SEVESO sites. As described in Section 16.3.3.3, the nearest SEVESO site is Electricity Supply Board., a lower tier SEVESO site located c. 15.1 km from the Proposed Project at its closest point, i.e., Site Entrance 1. Therefore, there are no potential effects from these sources. There is no real likelihood of significant environmental effects cumulatively associated with major accidents.

The Proposed Project has low potential to cause natural disasters or major accidents. The site has been subject to industrial peat extraction from 1960 to 2020 and is relatively flat so there is low/no potential for peat slides or landslides. Any risks associated with flooding, impacts on infrastructure, accidents, etc., are addressed in the sections above. There is no real likelihood of significant cumulative environmental effects associated with the Proposed Project's potential to cause accidents or natural disasters.

As mentioned, bog fires are a rare occurrence but can occur on peatlands due to spread from adjacent lands, human interference and autoignition. The implementation of peatland rehabilitation under IPC rehabilitation can reduce the potential for this to occur due to the rewetting measures which raise the water table and encourage a bog skin reformation on the site. As the permanent infrastructure only takes up approximately 3% of the Proposed Project site, there is a reduced potential for a fire outbreak as the majority of the site will undergo bog rehabilitation measures as detailed in Appendix 2-4, Draft Rehabilitation Plans.

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 Chapter 2: Background to the Proposed Project, with

mitigation measures in place, was found to have no potential for significant in-combination or cumulative increase in the vulnerability of the Proposed Project or adjacent areas to major accidents and/or natural disasters. This is based on the low risk associated with the Proposed Project described in this Chapter of the EIAR and a review of the nature of the adjacent land uses and projects existing or intended in the adjacent areas.

16.5

EIA Classification Summary

Please see the below table for a summary of all identified impacts for the Proposed Project relating to major accidents and natural disasters.

Table 16-10 Assessment Classification Summary

| Topic | Pre-Mitigation Effect | Mitigation Section Reference | Residual Effect | Significance |
|------------------------------|-------------------------------|------------------------------|-----------------------------|-----------------|
| Construction Phase | | | | |
| Contamination | Temporary, Moderate, Negative | Section 16.4.3.1 | Temporary, Slight, Negative | Not Significant |
| Major Fire | Temporary, Moderate, Negative | Section 16.4.3.2 | Temporary, Slight, Negative | Not Significant |
| Operational Phase | | | | |
| Contamination | Temporary, Moderate, Negative | Section 16.4.3.1 | Temporary, Slight, Negative | Not Significant |
| Major Fire | Temporary, Moderate, Negative | Section 16.4.3.2 | Temporary, Slight, Negative | Not Significant |
| Decommissioning Phase | | | | |
| Contamination | Temporary, Moderate, Negative | Section 16.4.3.1 | Temporary, Slight, Negative | Not Significant |
| Major Fire | Temporary, Moderate, Negative | Section 16.4.3.2 | Temporary, Slight, Negative | Not Significant |