

15. MAJOR ACCIDENTS AND NATURAL DISASTERS

15.1 Introduction

This chapter of the rEIAR considers the effects, if any, of the Project on the environment as a result of its vulnerability to, or introduction of, risks of major accidents and/or disasters. Vulnerability of major accidents and natural disasters arising from historic peat extraction and ancillary activities, during the Peat Extraction Phase, the Current Phase and the Remedial Phase at the Application Site. The potential impact of Major Accidents and Disasters on Population and Human Health is considered in Chapter 5 Population and Human Health.

The assessment of the risk of major accidents and/or disaster considers all factors defined in the EIA Directive that have been considered in this rEIAR, i.e., population and human health, biodiversity, land, soil (peat stability), water, air, climate, material assets, cultural heritage, and the landscape.

The full description of the Peat Extraction Phase, Current Phase and Remedial Phase is provided in Chapter 4 Description of the Development of this rEIAR.

15.1.1 Statement of Authority

This section of the rEIAR has been prepared by Susan Doran and reviewed by Ellen Costello and Sean Creedon, all of MKO. Susan Doran is an Environmental Scientist with MKO with over 3 years' experience in consultancy and conservation. Susan holds BSc (Hons) in Ecology and Environmental Biology from University College Cork. Prior to her role as Environmental Scientist, Susan was an Ornithologist and Coordinator for the MKO Ornithology Team. Susan has been involved with several large-scale onshore wind farms as assistant Project Manager through the EIA process.

Ellen Costello is a Senior Environmental Scientist with MKO with over 5 years' 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 large scale infrastructure projects including that of housing, tourism and recreation, renewable energy infrastructure and substitute consent applications for peat extraction and ancillary activities. In her role as a senior 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 has worked on the planning and environmental impact elements within all stages of wind farm project delivery. He is a member of the MKO senior management team responsible for developing the business, mentoring team members, fostering a positive culture and promoting continuous employee professional development. Sean has over 23 years' experience in program and project development, holds an MSc from NUI Galway and a Diploma in Project Management from Institute of Project Management Ireland.

15.1.2 Difficulties Encountered

Difficulties encountered in the production of this chapter include the following limitations:

- While most peat extraction and ancillary activities have remained operationally consistent over the decades, some of the activities, such as the construction of infrastructure and operational decisions were initiated many decades ago, with relevant detail and documentation unavailable due to the passage of time. Therefore, reasonable and logical estimates have been based on aerial photography, planning drawings associated with relevant planning applications, and current onsite infrastructure. Aerial photographs referenced throughout can be found in Appendix 4-4. Where uncertainty exists, a precautionary approach has been adopted with regards the potential for environmental effects; and
- Records of peat extraction volumes before 1971 and from 1986 to 1991 inclusive are not available.

The information gaps are not considered to be such as to affect the robust assessment of the environmental effects of the Project.

15.2 Assessment Methodology

15.2.1 General

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

- Regional Planning Guidelines for the Midland Region 2010-2022;
- Regional Spatial and Economic Strategy (RSES) 2020-2032, published by the Northern and Western Regional Assembly on 23 January 2020;
- Offaly County Development Plan 2021 – 2027;
- Historic County Development Plans for County Offaly dated from 1967 onwards (details of which are provided for in Section 2.2.3 in Chapter 2 Background of this rEIAR);
- Offaly County Council Website;
- European Commission. (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of Environmental Impact Assessment Reports;
- Environmental Protection Agency (EPA). (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports;
- Department of Environment, Heritage and Local Government (2010) *A Guide to Risk Assessment in Major Emergency Management*;
- Environmental Protection Agency (2014) *Guidance on Assessing and Costing Environmental Liabilities*;
- Department of Defence (2020) *A National Risk Assessment for Ireland*;
- Offaly County Council – Major Emergency Plan 2019;
- Health Service Authority advice for Health and Safety in the Renewable Sector. Available at: https://www.hsa.ie/eng/your_industry/renewable_energy/; and,
- National Risk Assessment: Overview of Strategic Risks.

15.2.2 Legislative Context

15.2.2.1 Legislation

As outlined in Chapter 4, the baseline environment for this Application Site is established as July 1988, the date of the required transposition of the EIA Directive (Directive 85/337/EEC) into Irish Law. Prior to this required transposition date, there is no legal obligation to conduct an EIA for any activities undertaken at the Application Site. Nonetheless, in this rEIAR an overview of activities at the Application Site from 1950, including the commencement of site preparation works, up until 1987 is provided in Section 4.3 in Chapter 4.

An evaluation of the following key aspects was conducted in accordance with the EIA Directive (2014/52/EU):

- The susceptibility of the Project to potential accidents and disasters; and,
- The potential of the Project to cause significant accidents or disasters that could endanger the environment.

The details pertaining to major accidents and/or disasters to be incorporated in the rEIAR are outlined 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”.

15.2.3 Impact Assessment Methodology

15.2.3.1 Introduction

This evaluation focuses on the assumption that the Peat Extraction Phase, Current Phase and Remedial Phase will adhere to the methodologies, and control and mitigation measures outlined in this rEIAR and in particular the methodologies, and control and mitigation measures outlined in Chapter 4 Description of Development, Chapter 7 Land, Soils and Geology, Chapter 8 Hydrology and Hydrogeology and Chapter 14 Material Assets. Contemporary EIA practices already incorporate evaluations of certain potential accidents and disaster scenarios, such as pollution incidents affecting ground and watercourses, along with assessments of flooding events and peat instability. These are elaborated upon in detail in the respective chapters of the rEIAR assessment (Refer to Chapters 5 to 14 for further detail).

While the activities assessed in this rEIAR have occurred over the past decades, impacts have been assessed against the most recently published guidance and policies which are likely more stringent than historical policies from previous years. Therefore, if it can be determined that, based on the most recent standards as outlined in policies and guidance that no significant effects occurred as a result of the Project, then it is unlikely that significant impacts occurred based on historical standards.

15.2.3.2 Site-Specific Risk Assessment Methodology

There is no record of a risk assessment carried out for the Application Site in 1988. However, this chapter retrospectively implements a contemporary risk plan to the operations dating back to the 1980s. A site-specific risk assessment identifies and quantifies risks focusing on unplanned, but possible and plausible events occurring during the Peat Extraction Phase, Current Phase and Remedial Phase. The approach to identifying and quantifying risks associated with the above phases by means of a site-specific risk assessment is derived from the EPA's '*Guidance on Assessing and Costing Environmental Liabilities*' document¹. The following steps were taken as part of the site-specific risk assessment:

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

15.2.3.2.1 Risk Identification

Risks have been reviewed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this rEiAR (refer to *Statements of Authority* in Chapters 5 to 14 of this rEiAR). The identification of risks has focused on plausible incidents that could have occurred at or as a result of the Peat Extraction Phase and Current Phase (up to present day) or could occur at or as a result of the Current Phase (from present day onwards) or Remedial Phase. The review of these risks has been in accordance with European Commission guidance.

In accordance with the European Commission *Environmental Impact Assessment of Projects – Guidance on the preparation of Environmental Impact Assessment Reports* (2017), risks are identified in respect of the Project's:

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

15.2.3.2.2 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 environmental controls applied (with respect to activities and works undertaken during the Peat Extraction Phase and Current Phase (up to present day) and proposed environmental controls (with respect to activities and works planned to be undertaken during the Current Phase (from present day onwards) and Remedial Phase) was considered when estimating likelihood of identified potential risks occurring. Table 15-1 defines the classification of likelihood ratings, sourced from the DoEHLG '*Guide to Risk Assessment in Major Emergency Management 2010*', that have been applied.

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

¹ EPA (2014) *Guidance on assessing and costing environmental liabilities*. Available at https://www.epa.ie/publications/compliance-enforcement/licensees/reporting/financial-provisions/EPA_OEE-Guidance-and-Assessing-WEB.pdf

Table 15-1 Classification of Likelihood (Source: DoEHLG Guide to Risk Assessment in Major Emergency Management, 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 organisation's worldwide; some opportunity, reason or means to occur; may occur once per 10-100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years
5	Very Likely	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

Classification of Consequence

The impact rating assigned to each risk has assumed that all implemented control measures, proposed mitigation measures, and/or safety procedures have failed to prevent the major accident and/or disaster. Further, where relevant, the Offaly County Council Major Emergency Plan (2010 with updates in 2019) 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 15-2.

Table 15-2 Classification of Impact (Source: DoEHLG, Guide to Risk Assessment in Major Emergency Management 2010)

Ranking	Likelihood	Impact	Description
1	Minor	Life, Health, Welfare	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment.
		Environment	
		Infrastructure	No contamination, localised effects
		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 Environment	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated.

		Infrastructure	Very heavy contamination, widespread effects of extended duration.
		Social	>€25M Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Risk Evaluation

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

The risk matrix sourced from the DoEHLG *Guide to Risk Assessment in Major Emergency Management* 2010 (and as outlined in Table 15-3) indicates the critical nature of each risk. This risk matrix has therefore been applied to evaluate each of the risks associated with the Peat Extraction Phase, Current Phase and Remedial Phase. 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 15-3 Classification of Impact (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					

15.3

Establishing The Baseline Conditions (July 1988)

A desk study has been completed to establish the 1988 baseline environment against which the effects, if any, of the Project on the environment as a result of its vulnerability to, or introduction of, risks of major accidents and/or disasters assessment is being carried out. This will influence and inform both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

Before 1988, there are no recorded instances of natural disasters occurring at the Application Site. The preventive and containment measures implemented to address such incidents in 1988 are outlined, detailing their integration into the daily operations and management of the Application Site.

Common potential hazards associated with activities at the Application Site include bog fires, flooding, and landslides.

15.3.1 Flooding

No recurring or historic flood incidents were identified within the Application Site from the OPW's Past Flood Events Map (Please see Appendix 8-1 Flood Risk Assessment for more detail). However, 1 no. recurring flood incidence has been recorded along the R436 at Lemanaghan (Flood ID: 2906), approximately 500m from the Application Site where low lying flat land is noted to flood annually following heavy rainfall. A second recurring flood event is also mapped approximately 1km west of the Application Site at Derrica Beg (Flood ID: 2907). Here low-lying land and roads flood annually following heavy rain. In addition, several historic and recurring flood events have been recorded by the GSI along the Brosna River to the south of the Application Site.

The primary flood risk at the Application Site is pluvial flooding due to the low permeability of peat soils and subsoils. However, the extensive network of drains throughout the Application Site and associated surface water outflows were largely present in 1988 and would have reduced this risk accordingly. Despite this drainage system, localized surface water ponding may have occurred following intense or prolonged rainfall. Additionally, the existing topography of the Application Site allows for significant rainwater storage, mitigating any flood risk associated with pluvial flooding. Two reoccurring flood events have been identified within 2km of the Application Site, one south of the Application Site in the townland of Lemanaghan (OPW identified Lemanaghan Recurring (ID-2906)) and the second to the west of the Application Site in the townland of Derrica (OPW identified Derrica Beg Recurring (ID-2907)). Section 8.6.8 in Chapter 8 Hydrology and Hydrogeology assesses the potential for Major Accidents and/or Disasters and concludes that there's been no risk of flooding downstream of the Application Site as a result of the historic and/or proposed activities at the Application Site due to the low-lying nature of the Application Site and the attenuation provided by the on-site drainage system, in particular the presence of the settlement ponds.

15.3.2 Telecommunications, Aircraft and Collision/Loss

There were no known telecommunications links established across the Application Site by 1988. In 1988, the Application Site was not located in an area which would significantly impact aviation operations.

15.3.3 Water Contamination

By 1988, the land use at the Application Site was well established as industrial peat extraction. The Application Site was fully drained, milled peat extraction was underway, and railway infrastructure was in place. The Application Site included 9 no. artificial silt ponds, 9 no. surface water discharge points and 8 gravity flow surface water outflows which remain *insitu* today. These surface water outfall locations discharge directly into the Lemanaghan Stream and Brosna waterbody (Please see Appendix 8-1 Flood Risk Assessment for more detail). Surface water flows and discharge was managed in a controlled manner. Water contamination (primarily silt discharge) of the surrounding rivers and streams could have occurred during extreme rainfall events.

Disturbance of a large area of peat has the potential to create a peat slide and subsequently significant levels of water contamination in the surrounding streams and rivers. The Application Site is flat and heavily modified and therefore has an inherently low risk of peat slides that might result in significant

water contamination. Geological Survey Ireland (GSI) does not have any records of historic landslides within the Application Site or in the surrounding lands from 1988 to present day. The closest recorded landslide event (1954) is mapped at Pollagh, Offaly, approximately 3km southwest of the Application Site. “No Apparent Impact” is recorded for this event. A peat stability risk assessment has been carried out for the Application Site as part of the proposed Lemanaghan Wind Farm application and is included as Appendix 7-1. Please see Chapter 7 Land Soil and Geology for further details. Section 8.6.8 of Chapter 8 Hydrology and Hydrogeology states with respect to the risk of peat slides that due to the low-lying and flat nature of the Application Site, slope stability has posed no risk at the Application Site during any phases of the Project.

Accidental spillage of petroleum hydrocarbons during machinery and plant refuelling could have posed a pollution risk, with the potential for significant impacts on the environment due to its high toxicity and persistence. The accumulation of small spills over 1988 from routine plant use also could contribute to pollution risks. While activities associated with peat extraction and ancillary activities, such as construction plant operations and wastewater discharges, could have potentially contaminated surface waters.

15.3.4 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. In some cases, peat stockpiles can catch fire by self-heating ignition which is a type of spontaneous initiation of fire that can take place at ambient temperatures without an external source. Furthermore, bog fires can also result from fires spreading from neighbouring landholdings into the bog areas. There is record of bog fires at the Application Site in 2009, 2011 and 2020. The first record of a bog fire on the Application Site was one incident in 2009. Further detail on the ignition of the bog fire at the Application Site is not available. In 2011, five incidents of bog fires were recorded at Lemanaghan and Bellair bogs. The number of bog fires that occurred within the Application Site only is not identified; therefore, all five fires are assumed to have occurred at the Application 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 Application Site that started in May 2020 and continued into June 2020. The bog fire was spread to the Application Site from a fire on third party lands and was started by a farmer burning vegetation waste on their own land.

15.3.5 Major Road Traffic Accident

Volumes of peat extracted from the Application Site are noted in Tables 14-1, 14-2 and 14-3 in Chapter 14 Material Assets. Peat extracted at the Application Site during the year 1988 was transported via internal private rail network to ESB Ferbane Power Station. Peat-loaded wagons had the potential to release dust and soil roads, while railcars carrying peat-loaded wagons needed to cross public roads, possibly affecting traffic flow and posing accident risks. By 1988, a network of permanent and temporary railways were present across the Application Site facilitating transport of peat to the Lemanaghan Works, adjacent to the Application Site. As part of the rail network in 1988, one underpass under the R436 (Designated in 1993) was granted in 1985 (Offaly County Council Pl. Ref 85/57). An assessment of the impact of Bord na Móna's additional rail and traffic movements resulting as a consequence of the Project is discussed in Chapter 14 Material Assets. Significant peat extraction and ancillary activities occurred during 1988 so therefore there is potential for road traffic accidents at that time.

15.3.6 Natural Gas Explosion

There were and are no gas pipelines located within or adjacent to the Application Site and therefore there is no potential for a natural gas explosion at the Application Site in 1988.

15.4 Peat Extraction Phase (July 1988 – June 2020)

15.4.1 Flooding

Since 1988, all areas of the Application Site experienced decreased elevation. After the initial drainage of the bogs, there were minor yearly alterations in local bog hydrology and hydrogeology across the Application Site, primarily associated with peat removal and drain deepening as required. Between 1988 to 2020, approximately 4,021,498m³ of peat were extracted from the Application Site, averaging 125,672m³ per year. Peat acts as a water storage medium, so its removal potentially reduces the water storage capacity of the bogs. However, when peat water levels were initially reduced through drainage, the storage capacity of the top layer of peat (approximately 0.5 – 1m deep, depending on drain depth) was essentially eliminated. The primary flood risk on the Application Site is pluvial flooding due to the low permeability of peat soils. However, the extensive network of peat drains on the cutover and cutaway bog surface has diminished this risk considerably.

Despite this drainage system, localized surface water ponding may have happened following intense or prolonged rainfall such as was seen in the winter of 2015/2016 where pluvial flooding along the Pollagh Tributary of the Brosna river occurred and was mapped by the GSI as medium probability (occurring once in every 100 years). The existing topography of the bog basin allows for significant rainwater storage, mitigating some flood risk associated with pluvial flooding. This stored rainwater after rainfall events posed no additional flood risk offsite. Two recurring flood events can be seen to occur south of the Application Site (Flood Summary ID 2906) and west of the Application Site (Flood Summary ID 2907); no historical floods are recorded within the Application Site.

15.4.2 Telecommunications, Aircraft and Collision/Loss

Telecommunications scoping for the Project was undertaken originally in September 2022 and again, due to the passage of time, in June 2024. The scoping exercises found no fixed telecommunication masts within the Application Site.

A telecommunications scoping exercise has also been undertaken for the proposed Lemanaghan Wind Farm application, first in November 2020 and again in March 2025 to account for the time elapsed. In November 2020, 10 no. links were identified crossing the proposed Lemanaghan Wind Farm. In March 2025, 6 no. new links were identified (i.e. 16 no. total links), with 5 no. links previously identified in 2020 considered obsolete, leaving a total of 11 no. telecommunication links traversing the Application Site in 2025, along with one telecommunications mast within 1.2km of the Application Site. Both scoping exercises took place during the Current Phase (June 2020 – Present Day) though the 10 no. links first identified in November 2020 have been assumed to be present in June 2020.

The first of these links was established in 1996 (i.e. during the Peat Extraction Phase) and since then these links have been continuously maintained and upgraded, indicating their compatibility with peat extraction and ancillary activities over the years. Additionally, scoping exercises with the Department of Defence and the Irish Aviation Authority revealed no potential assets in the area that might be affected by activities associated with the Peat Extraction Phase at the Application Site. Further details can be found in Chapter 14 Material Assets and in Appendix 14-1 in relation to the scoping responses provided by telecommunication operators, the Department of Defence, and the Irish Aviation Authority.

15.4.3 Water Contamination

The Peat Extraction Phase of the Project includes all works undertaken from 1988 to the cessation of peat extraction and ancillary activities in June 2020. Accidental spillage of petroleum hydrocarbons during machinery and plant refuelling could have posed a pollution risk, with the potential for significant impacts on the environment due to its high toxicity and persistence. The accumulation of small spills over time from routine plant use also contributes to pollution risks. While activities ancillary to peat extraction, such as construction plant operations and wastewater discharges, could have potentially contaminated surface waters, available Annual Environmental Reports (AERs), Appendix 4-3, submitted to the EPA indicate no significant pollution events or spills to groundwater have occurred since 2000. These reports also highlight the risk posed by hydrocarbon spills to surface waters and associated ecosystems, emphasizing their high toxicity to aquatic organisms and the potential for oxygen depletion. Despite these risks, no significant pollution events have been reported for surface water since 2000.

Silt ponds and drains were established on the Application Site by 1988. Two pumps were active at the Application Site during the Peat Extraction Phase. It is estimated the first pump was set up in 2009 with the second pump installed by 2019. These two pumps were installed to supplement the drainage on site where additional dewatering was deemed necessary. Discharges from the pumps would have been to the drainage on site and eventually to the silt ponds for treatment before eventually discharging off site. Surface water flows and discharge was managed in a controlled manner. Water contamination (primarily silt discharge) of the surrounding rivers and streams could have occurred during extreme rainfall events.

Disturbance of a large area of peat has the potential to create a peat slide and subsequently significant levels of water contamination. The Application Site is flat and heavily modified and therefore has an inherently low risk of peat slide that might result in significant water contamination. Geological Survey Ireland (GSI) does not have any records of historic landslides within the Application Site. The closest recorded landslide event (1954) is mapped by GSI at Pollagh, Offaly, approximately 3km southwest of the Application Site. "No Apparent Impact" is recorded for this event and there has not been another recorded landslide since. A peat stability assessment has been carried out for the Application Site as part of the proposed Lemanaghan Wind Farm application and is included as Appendix 7-1. Please see Chapter 7 Land, Soils and Geology for further details.

15.4.4 Fire

Bog fires occurred at the Application Site during the Peat Extraction Phase in 2009, 2011 and 2020. The first record of a bog fire on the Application Site was one incident in 2009. Further detail on the ignition of the bog fire at the Application Site is not specified in the AER. In 2011, five incidents of bog fires were recorded at Lemanaghan and Bellair bogs. Similarly, the number of bog fires that occurred within the Application Site only is not identified. It is noted in Section 5 of the 2011 AER that the fire originated from the spread of gorse fires due to challenging dry and windy weather conditions. There was one record of fire at the Application Site that started on the 29th May 2020 and continued until 17th June 2020. The bog fire was spread to the Application Site from a fire on third party lands and was started by a farmer burning vegetation waste on their own land. In all cases, the EPA was contacted, and corrective measures were put in place and the fires were brought under control. No Bord na Móna staff were involved in the outbreak of the fires and the fires were contained by Bord na Móna staff within the Application Site.

The bog fires would have generated air quality impacts from ash and smoke. The 2009 dust monitoring results collected from the dust monitor located at Pollagh on that year exceeded the emission limit of 350mg/m²/day by reaching a maximum recording of 653mg/m²/day in the months July-September inclusive. The 2011 dust monitoring results collected from the dust Monitor at Pollagh on that year remained under the emission limit of 350mg/m²/day. The 2020 dust monitoring results collected from the dust Monitor at Pollagh on that year remained 100% compliant. Since 2000, it has been a condition of the

IPC Licence that fires are reported to the EPA in the Annual Environmental Reports. No additional bog fires were recorded at the Application Site during the 1988 to 2020 period.

15.4.5 Major Road Traffic Accident

During the Peat Extraction Phase, peat extraction and ancillary activities areas were served by a dynamic network of narrow-gauge rail tracks, laid down at the Application Site. The temporary railway infrastructure was moved around using the methods described in Section 4.2.3.5 as areas of bog came in and out of production.

All peat extracted from the Application Site between 1988 and June 2020 was delivered to end users via Bord na Móna's private rail network. No HGVs were used for peat deliveries during this time. Present in 1988 was a single underpass under the R436 regional road to facilitate rail movements that occurred due to the Project. Over the period 1991 to 2003, 2 no. underpasses and 2 no. level crossings were consented and constructed within and adjacent to the Application Site. One rail underpass is under the N62 to the west of the Application Site was granted in 1993 (Offaly Coco. Pl. Ref. 93/367) and one rail underpass is to the L7001 to the north of the Application Site granted in 2002 (Offaly Coco. Pl. Ref. 02/1305). Three level crossings were granted under the one application in 1991 (Offaly Coco. Pl. Ref. 91/220), One across the L7002 in the North of the Application Site, one across the R436 Ballycumber Road in the South of the Application Site and a third level crossing that was ultimately not constructed.

At the level crossing locations, road users were required to stop to allow rail cars cross. Standard level crossing lamps with light sensors that switched to light on when daylight faded were fitted across all Bord na Móna crossing gates. Catch points are also fitted into railway tracks on either side of level crossing gates as a standard safety practice to de-rail any runaway trains before reaching the level crossing. The underpasses allowed road users and the rail movements to take place independently without interaction.

Bord na Móna's movable railway infrastructure allowed peat transportation to Lemanaghan Works, with tracks relocated as needed, resulting in changes to the layout over time. Utilising the rail network, peat was transported directly to end users via Bord na Móna's internal private rail network until 2023, when the remaining peat stockpiles were delivered by HGV on the public road network. Large volumes of peat were transported during this period with potential for road traffic accidents at operational level crossings. An assessment of the impact of Bord na Móna's internal rail movements occurring within the Application Site as a consequence of the Project is discussed in Chapter 14 Material Assets.

15.4.6 Natural Gas Explosion

There are no gas pipelines located within or adjacent to the Application Site and therefore there was no potential for a natural gas explosion at the Application Site during the Peat Extraction Phase.

15.5 Current Phase (June 2020 – Present Day)

15.5.1 Flooding

The Current Phase of the Project encompasses the period of time between the cessation of peat extraction and ancillary activities at the Application Site in June 2020 to the present day. The primary flood risk on the Application Site is pluvial flooding due to the low permeability of peat soils. However, the extensive network of peat drains on the cutover and cutaway bog surface has diminished this risk considerably. The drainage infrastructure, silt ponds and surface water discharge locations continue to be in operation and to be maintained as per the IPC Licence requirements.

Despite this drainage system, recent flood modelling conducted in 2024 for the proposed Lemanaghan Wind Farm indicates localised shallow pluvial flooding is very likely after heavy or prolonged rainfall. Despite this, site walkover surveys have revealed that the EPA mapped Lemanaghan Stream has been modified within the Application Site and now forms part of the bog drainage infrastructure. A large arterial drain was noted to flow along the course of the EPA mapped Lemanaghan Stream. This drain receives water from field drains which drain the adjacent peat fields. 2 no. pumping stations, operated by Bord na Móna, were also noted along this large drain, and the operation of these pumping stations would have removed water from the lower lying parts of the bog and raised, and discharged, that water to the outfalls along the Lemanaghan Stream.

In general, pumping stations and flood protection embankments are not used in flood modelling, and the risk of flooding is defined (by creating flood zones/maps) in the absence of flood defence such as the pump stations and modified watercourses mentioned above.

The OPW have not identified any reoccurring flood events within the Application Site. There are 2 no. reoccurring flood events that have been identified within 2km of the Application Site, one south of the Application Site in the townland of Lemanaghan and the second west of the Application Site in the townland of Derrica (Flood Event IDs: 2627 and 2643)

CFRAM (Catchment Flood Risk Assessment and Management) mapping identifies a medium risk fluvial flooding present within the Application Site. This fluvial flooding is along the Pollagh tributary of the Brosna River within the Application Site. This mapped area is the same area that flooded during the winter of 2015/2016 and has since been identified as a low to medium risk flood area (occurs once every 100 years). The risk of flooding is addressed further in Chapter 8: Hydrology and Hydrogeology and Appendix 8-1 Flood Risk Assessment.

15.5.2 Telecommunications, Aircraft and Collision/Loss

Telecommunications scoping for the Project was undertaken originally in September 2022 and again, due to the passage of time, in June 2024. The scoping exercises found no fixed telecommunication masts within the Application Site.

A telecommunications scoping exercise has also been undertaken for the proposed Lemanaghan Wind Farm application, first in November 2020 and again in March 2025 to account for the time elapsed. In November 2020, 10 no. links were identified crossing the proposed Lemanaghan Wind Farm. In March 2025, 6 no. new links were identified (i.e. 16 no. total links), while 5 no. links were considered obsolete, leaving a total of 11 no. telecommunication links traversing the Application Site in 2025, along with one telecommunications mast within 1.2km of the Application Site.

During all of the above scoping exercises, the Department of Defence and the Irish Aviation Authority revealed no potential assets in the area that might be affected by activities associated with the Current Phase at the Application Site. Further details can be found in Chapter 14 Material Assets and in Appendix 14-1 in relation to the scoping responses provided by telecommunication operators, the Department of Defence, and the Irish Aviation Authority.

15.5.3 Water Contamination

The Current Phase of the Project encompasses the period of time between the cessation of peat extraction and ancillary activities at the Application Site in June 2020 to the present day. Since the cessation of peat extraction and ancillary activities in June 2020, no significant effects on bog hydrogeology have been observed. By that time, drainage infrastructure had been in place across the Application Site for up to 70 years, resulting in a well-established hydrogeological regime. No additional installation of drainage or deepening of drains has occurred since the cessation of peat extraction and ancillary activities. The only activities undertaken have been minor maintenance and repairs to the drainage network and silt ponds as needed. GSI does not have any records of historic landslides within

the Application Site or in the surrounding lands from 2020 to the present day. The closest recorded landslide event (1954) is mapped by GSI at Pollagh, Co. Offaly, approximately 3km southwest of the Application Site. “No Apparent Impact” is recorded for this event and there has not been another recorded landslide since. A peat stability risk assessment has been carried out for the Application Site as part of the proposed Lemanaghan Wind Farm application and is included as Appendix 7-1. Please see Chapter 7 Land, Soils and Geology for further details.

15.5.4 Fire

During the Peat Extraction Phase at the Application Site, there was an elevated risk of fire outbreak due to the volume of vehicles and regular use of locomotives across the bogs. However, peat extraction and ancillary activities ceased in June 2020, with peat extraction and ancillary activities during the Current Phase being greatly reduced when compared to the volume of activity observed during the Peat Extraction Phase. During the Current Phase, activities primarily involve onsite management, environmental monitoring, wind measurement, and the removal of existing peat stockpiles as mandated by the IPC Licence (the removal of stockpiles was completed in 2024). Consequently, due to the reduced level of activity on site, the likelihood of human-induced fire outbreaks at the Application Site has reduced.

No bog fires were recorded at the Application Site since June 2020.

15.5.5 Major Road Traffic Accident

The assets described for the Peat Extraction Phase in Section 15.4.5 above are considered the same for the Current Phase. There have been no onsite changes or new applications in the surrounding landscape that could be impacted by the Current Phase at the Application Site. All 3 no. railway underpasses, 2 no. level crossings and other railway infrastructure have been and are still subject to biannual inspection as per Condition 9.1.15 of the IPC Licence (Licence no. P500-01), and remained in use until 2024, when the removal of the remaining stockpiled peat from the Application Site transitioned to delivery by HGV. Since the completion of the removal of stockpiles from the Application Site during 2024, traffic movements to and from the Application Site have considerably reduced and therefore the risk of an offsite traffic accident has also reduced.

15.5.6 Natural Gas Explosion

There are no gas pipelines located within or adjacent to the Application Site and therefore there is no potential for a natural gas explosion at the Application Site.

15.6 Remedial Phase

15.6.1 Flooding

As outlined in Chapter 8, it is currently proposed to implement a Cutaway Bog Decommissioning and Rehabilitation Plan for the Application Site. These plans are necessary to meet the requirements of Condition 10.2 of IPC Licence No. P0500-01. Attached as Appendix 4-2, the Draft Bord na Mona Cutaway Bog Decommissioning and Rehabilitation Plan will be agreed with the EPA before its implementation at Lemanaghan Bog. The rehabilitation plan aims to transition the bog toward being a natural functioning peatland. Currently, the drainage system was designed to facilitate peat extraction and ancillary activities by lowering the local water table, which does not support typical bog communities. To achieve the rehabilitation goals, alterations to the existing drainage regime are necessary. Areas chosen for rewetting will undergo significant changes in bog hydrogeology. This process involves measures such as drain blocking to encourage natural re-vegetation with typical bog communities. Drain blocking intensity will vary based on the existing habitats, with more intensive

measures in bare peat areas. Monitoring in other rehabilitated sites has shown relatively quick groundwater level recovery, typically within 2-5 years after rewetting.

While the only recorded flood event at the Application Site was a surface water flooding event in winter of 2015/2016, the Application Site still includes a fluvial flood zone designated by the Office of Public Works (OPW) and the Geological Survey of Ireland (GSI) along the Pollagh Tributary of the Brosna River, though these are recorded as low to medium risk areas. The primary flood risk across the Application Site is pluvial flooding due to the low permeability of peat soils, but the extensive network of peat drains reduces this risk. Despite the drainage network, recent flood modelling conducted in 2024 for the proposed Lemanaghan Wind Farm indicates localised shallow pluvial flood is very likely after heavy or prolonged rainfall.

Site walkover surveys have revealed that the EPA mapped Lemanaghan Stream has been modified within the Application Site and now forms part of the bog drainage infrastructure. A large arterial drain was noted to flow along the course of the EPA mapped Lemanaghan Stream. This drain receives water from field drains which drain the adjacent peat fields. 2 no. pumping stations, operated by Bord na Móna, were also noted along this large drain, and the operation of these pumping stations would have removed water from the lower lying parts of the bog and raised, and discharged, that water to the outfalls along the Lemanaghan Stream.

Based on the information gained through the flood identification process, the majority of the Application Site is mapped within Flood Zone C (CFRAM), with some areas in the Application 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 8-1), reveal that the EPA-mapped Lemanaghan Stream has been heavily modified within the Application Site to facilitate the historic peat extraction and ancillary activities. In general, pumping stations and flood protection embankments are not used in flood modelling, and the risk of flooding is defined (by creating flood zones/maps) in the absence of flood defence. Therefore, the FRA concludes that based on site observations and the high drainage density within the Application Site at this location, that the actual fluvial flood risk is the same across the entire Application Site and it should be mapped in Flood Zone C.

Further details on flood risk mitigation can be found in Chapter 8 and Appendix 8-1 of the rEIAR.

15.6.2 Telecommunications, Aircraft and Collision/Loss

Telecommunications scoping for the Project was undertaken originally in September 2022 and again, due to the passage of time, in June 2024. Further scoping was also conducted for the proposed Lemanaghan Wind Farm in November 2020 and again in March 2025. From all scoping exercise, we can conclude that the currently operating 11 no. telecommunications links across the Application Site will remain and no interaction with these assets are foreseen.

Similarly, it is expected that there will continue to be no interaction with assets belonging to the Department of Defence and the Irish Aviation Authority.

15.6.3 Water Contamination

There is potential for contamination and pollution of groundwater and surface water to occur from potential release of hydrocarbons, earthworks and excavations on the Application Site. These impacts are addressed in detail in the Chapter 8 of this rEIAR. The absence of mitigation measures during the proposed Remedial Phase of the Project could lead to potential effects on groundwater and surface water quality and quantity. This could cause a temporary decline in the Water Framework Directive (WFD) status of surface water bodies near the Application Site. This short-term impact is expected during the initial actions phase of the rehabilitation plans, which includes drain blocking and increased risk of hydrocarbon spills and suspended solids in watercourses. However, even without mitigation measures, the long-term effects of the rehabilitation plans are expected to positively impact the WFD

status of nearby surface water bodies. This is due to the improved quality of surface water discharge from the Application Site and enhanced water attenuation within the Application Site.

15.6.4 Fire

The IPC Licence conditions the production of Cutaway Bog Decommissioning and Rehabilitation Plans, detailing measures for permanent rehabilitation of the cutaway boglands within the Licenced area, which will be achieved primarily through rewetting via drain blocking to encourage natural bog vegetation recolonization. The management of water levels within the Application Site will reduce the potential for bog fires.

15.6.5 Major Road Traffic Accident

The potential for Major Road Traffic accidents described in the Peat Extraction Phase and the Current Phase are considered to be reduced in the Remedial Phase due to the ceased use of level crossings. The Remedial Phase will comprise drainage blocking, and routine environmental monitoring carried out as part of the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plan. There will be a short-term increase in vehicle movements to the Application Site during the Remedial Phase.

15.7 General Health and Safety

As one of the country's largest and longest established industrial employers, Bord na Móna have long standing health and safety protocols in place across all their sites. Below is a list of training that was in place across all Bord na Móna landholdings including the Application Site since the 1940s and were part of the day-to-day training and operations during the year 1988 and in the years up to 2000.

- Fire safety;
- First Aid;
- Operation and maintenance of plant & machinery;
- Manual Handling;
- Use of hand & power tools;
- Site Safety;
- Road Safety;
- Safe Workshop Operation Procedures;
- Transport Operation Procedures;
- Hazard Identification, Risk Assessment; and,
- Working at Heights.

Since 2000, the Application Site has been operating under IPC Licence. Condition 13 of the IPC Licence states that it is the responsibility of the licence holder (Bord na Móna) to ensure that a documented Emergency Response Procedure is in place which shall address any emergency situation which may originate on-site. This Procedure includes provision for minimising the effects of any emergency on the environment. As part of Bord na Móna's obligation to submit Annual Environmental Reports, Bord na Móna must include the time, location, description and frequency of incidents such as explosions, contaminations, fires, uncontrolled releases and complaints to the EPA and all incidents must be investigated.

Bord na Móna recognises the proper management of safety, health and welfare as a core business value. It acknowledges its obligations, both legal & moral, as an employer to manage and protect the safety, health and welfare of its employees and others who may be affected by its activities, and in doing so, commits to achieving and maintaining the highest standards of Health & Safety reasonably practicable. Please see Appendix 5-2 for a copy of Bord na Móna's Safety Statement which sets out arrangements to secure & manage safety, health and welfare at places of work within Bord na Móna peat operations. Through implanting the Safety Statement, Bord na Móna comply, as a minimum, with

all statutory requirements, common law duties, codes of practice and best industry practice relating to peat operations activities, including the Safety Health & Welfare at Work Act 2005, the SHWW (General Application) Regulations 2007, as amended, and the SHWW Construction Regulations, 2013.

All employees working in peat extraction and ancillary activities receive training and instruction to ensure that they fully understand the hazards of their work area, the control measures put in place to minimise the risks and the emergency procedures at the facility. Training is coordinated by an in-house training specialist in conjunction with management and health & safety personnel. The services of competent persons / organisations are employed, where necessary, to carry out all other required training. Training is repeated periodically as appropriate. Training provided to all employees working in peat extraction and ancillary activities included:

- > Fire safety;
- > First Aid;
- > Operation of plant & machinery;
- > Manual Handling;
- > Chemical Safety;
- > Machine Guarding;
- > V.D.U. Safety;
- > Use of hand & power tools;
- > Site Safety;
- > Road Safety;
- > Use of Equipment;
- > Safe Workshop Operation Procedures;
- > Transport Operation Procedures;
- > Hazard Identification, Risk Assessment;
- > Work at Height;
- > Legislation;
- > Confined Space Entry; and,
- > Office safety.

Additional training is provided in the following circumstances as necessary:

- > A change in work practices;
- > The introduction of new systems of work;
- > A change in equipment / machinery; and,
- > The introduction of new technology.

15.8

Risk Assessment

This section outlines the possible risks associated with Peat Extraction Phase, Current Phase, and Remedial Phase.

These risks have been assessed in accordance with the relevant classification as outlined in Table 15-1 and Table 15-2.

As outlined above, 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.

15.8.1 Likely Significant Effects and Mitigation Measures

15.8.1.1 'Do-Nothing' Option

As outlined in the EPA Guidelines (May 2022), the description of 'Do-Nothing Effects' relates to the environment as it would be in the future should the project not be carried out. As discussed in Section 3.2.1 in Chapter 3 Consideration of Reasonable Alternatives, the assessment period of this rEiAR commenced in 1988, a time at which peat extraction and ancillary activities was already well-established at the Application Site. In the context of this rEiAR, the Project has been ongoing since the baseline assessment year of 1988. As outlined in Section 3.2.1 in Chapter 3, peat extraction and ancillary activities commenced at the Application Site in 1950 with the installation of drainage.

The 'Do-Nothing' option is defined as the Project (as described in Section 3.3.1 of Chapter 3) having ceased at the Application Site in 1988.

In the event of the cessation of the Project at the Application Site in 1988, it is assumed that those lands which by that point had not been subject to the installation of drainage and peat extraction and ancillary activities would have remained as a relatively intact raised bog with varying raised bog habitats (such as bog woodland, fen, sphagnum mosses).

Subsequently, other land-use practices may also have taken place on the Application Site such as agricultural or commercial forestry, or other commercial or non-commercial uses. Alternative land uses are discussed in Chapter 3. Under this 'Do-Nothing' option, the IPC licence and associated ongoing decommissioning and planned rehabilitation would not have occurred.

For those lands which as of 1988 had been subject to the installation of drainage in preparation for peat extraction and ancillary activities but not peat extraction itself, it is assumed in the 'do-nothing' scenario that drainage would have remained in situ. Maintenance works to keep established drainage channels clear would have ceased as of 1988 in the 'Do-Nothing' scenario. It is likely that these areas would have been subject to natural recolonisation of the bog surface. Minor third party turbary activities likely would have occurred along the intact bog edges as was common practise at sites such as the Application Site.

Peat extraction and ancillary activities was underway at the Application Site prior to the required date for the transposition of the EIA Directive in 1988. If peat extraction and ancillary activities ceased from 1988 onwards, then the various residual effects, described throughout this rEiAR, would not have occurred.

However, consideration must be given to the following:

- The legislative mandate given to Bord na Móna in the form of the Turf Development Act 1946, as amended) to acquire and develop peatlands; and
- The uncertainty with respect to the planning status of the activity did not arise until 2019 and was not evident in 1988.

Therefore, this 'Do-Nothing' option was not the chosen option. Peat extraction and ancillary activities have occurred at the Application Site from July 1988 onwards. A decision to cease peat extraction and ancillary activities at the Application Site was taken in 2020 and the Application Site needs to be considered in the context of regularising (without prejudice) the planning status of the lands to facilitate future development (subject to planning consent as required). The Application Site has and will continue to revegetate, and there will be a change from areas of cutover peatland to revegetated peatland. These are described in the individual chapters of the rEiAR.

In the event that Substitute Consent is not granted in effect, the 'Do-Nothing' option represents the current situation as at the date of the application for Substitute Consent. As part of Bord na Móna's

statutory obligations under IPC licence requirements, Cutaway Bog Decommissioning and Rehabilitation Plans will continue to be implemented for the Application Site separate to, and independent of, the Substitute Consent application. The implementation of the plans is included in the impact assessment below.

The role of cutaway/cutover peatlands such as the Application Site as a significant potential resource for amenity, tourism, biodiversity enhancement and conservation, improvement in air quality, climate mitigation, renewable energy development and education are part of Bord na Móna's vision for the Application Site. The regularisation of the planning status of the Application Site is a significant facilitator in ensuring the sustainable use and management of these peatlands. If this does not occur, the opportunity to continue employment and alternative use of the Application Site for the potential resources and activities mentioned above will be significantly restricted.

15.8.1.2 Peat Extraction Phase (July 1988 to June 2020)

A risk register has been developed which contains all potentially relevant risks identified during the Peat Extraction Phase. Six risks specific to the Peat Extraction Phase have been identified and are presented in Table 15-4.

Table 15-4 Risk Register – Peat Extraction Phase (July 1988 to June 2020)

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
A	Severe Weather Risk to peat extraction and ancillary activities on site	Extreme weather- periods of heavy rainfall and strong winds
B	Flooding High levels of surface water on site	Extreme weather- periods of heavy rainfall and strong winds
C	Peat Stability Movement of peat within the Application Site during extraction	Mismanagement of excavated material on site Severe weather conditions- storm, flooding
Potential to cause accidents and / or disasters.		
D	Traffic Incident Collisions onsite and offsite with vehicles involved in peat extraction and ancillary activities.	Driver negligence or failure of vehicular operations on internal machine passes and/or external road network.

Risk ID	Potential Risk	Possible Cause
E	Contamination Discharge or spillage of peat, fuel, chemical solvents into watercourse or percolated to groundwater	Fuel spillage during delivery to site. Failure of fuel storage tank or tanks in plant and machinery and vehicles. Stockpiled peat providing a point source of exposed sediment; Erosion of sediment from emplaced site drainage channels.
F	Industrial Accident - Fire	➤ Equipment or infrastructure failure; ➤ Electrical problems; ➤ Spontaneous combustion and ➤ Employee negligence.

Bog Fires

The possibility of bog fires resulting from peat extraction and ancillary activities existed due to a variety of factors, including potential improper on-site bog management, external influences, and natural events exacerbated by dry weather conditions. These fires pose significant risks to both the environment and human health. Sources of pollution that have the potential to cause substantial environmental harm and negative health impacts include the improper storage of hydrocarbons or chemicals in bulk, as well as the storage of various types of waste materials.

Moreover, the risk of workplace accidents is heightened in industrial and large-scale settings associated with peat extraction and ancillary activities. These accidents can occur due to a range of factors, such as negligence in safety protocols, equipment malfunctions, or human error. The consequences of such accidents extend beyond the immediate safety of workers, impacting the surrounding environment and communities.

Bog fires occurred at the Application Site during the Peat Extraction Phase in 2009, 2011 and 2020. The first record of fires was one incident in 2009. Detail relating to the ignition of the bog fires at the Application Site is unavailable. In 2011, five incidents of bog fires were recorded at Lemanaghan and Bellair bogs. The number of bog fires that occurred within the Application Site only is not identified but the ignition source of these fires was noted as spread from gorse fires in lands adjacent to the Application Site. There was one record of fire at the Application Site that startedⁱⁿ May 2020 until June 2020, that was spread to the Application Site from a fire on third party lands. This fire was started by a farmer burning vegetation waste on their own land. In all cases, the EPA was contacted, and corrective measures were put in place and the fires were brought under control. No Bord na Móna staff were involved in the outbreak of the fires and the fires were contained by Bord na Móna staff within the Application Site.

Addressing these challenges necessitated a comprehensive approach that encompassed effective bog management practices, stringent pollution control measures, and robust workplace safety protocols. Implementing thorough risk assessment procedures, providing adequate safety training to workers, and regularly evaluating and updating safety measures are crucial steps in mitigating the risks associated with bog fires, environmental pollution, and workplace accidents. Additionally, fostering awareness and promoting responsible practices among all stakeholders are essential for creating safer and healthier environments for both people and ecosystems.

In the absence of control measures, bog fires during the Peat Extraction Phase are considered to have an effect that would be negative, moderate, short term and likely.

The pre-mitigation impact for the remaining risks (Severe Weather, Contamination (spillages) and Traffic Incidents) is not significant, neutral imperceptible and unlikely.

15.8.1.3 Current Phase (June 2020 to Present Day)

Five risks specific to the Current Phase (June 2020 to Present Day) have been identified and are presented in Table 15-5.

Table 15-5 Risk Register – Current Phase (June 2020 – present day)

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
G	Severe Weather Risk to decommissioning activity on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
H	Flooding High levels of surface water on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
Potential to cause accidents and / or disasters.		
I	Traffic Incident Collisions onsite and offsite with vehicles involved in construction of the Project	Driver negligence or failure of vehicular operations on internal machine passes and/or external road network.
J	Contamination Discharge or spillage of peat, fuel, chemical solvents into watercourse or percolated to groundwater	Fuel spillage during delivery to site. Failure of fuel storage tank or tanks in plant and machinery and vehicles. Stockpiled peat providing a point source of exposed sediment; Erosion of sediment from emplaced site drainage channels.
K	Industrial Accident - Fire	> Equipment or infrastructure failure; > Electrical problems; > Spontaneous combustion and > Employee negligence.

Bog Fires

As discussed in Section 15.5.4 there is potential for occurrences of fires on industrial peatlands where water tables have been lowered due to the presence of drainage to facilitate peat extraction and ancillary activities, either through human interference such as improper machinery use or accidents involving fuels and locomotives, or through the autoignition of scrub leading to fires spreading onto bogs from nearby lands.

There was one record of fire at the Application Site during the Current Phase in that started on the 29th May 2020 until the 17th June 2020, that was spread to the Application Site from a fire on third party lands. This fire was started by a farmer burning vegetation waste on their own land. The incident was reported to the EPA, corrective measures were put in place and the fire was brought under control. No Bord na Móna staff were involved in the outbreak of the fire and the fire was contained by Bord na Móna staff within the Application Site. The 2020 dust monitoring results collected from the dust Monitor at Pollagh on that year remained 100% compliant. Since 2000, it has been a condition of the IPC Licence that fires are reported to the EPA in the Annual Environmental Reports. No additional bog fires were recorded at the Application Site since June 2020.

During the Current Phase, peatland decommissioning and rehabilitation measures as required by the IPC Licence were implemented across all bogs in the Boora Bog Group. Additionally, PCAS rehabilitation measures are ongoing at nearby Curraghalassa Bog and Derrynagun Bog in 2025, focusing on rewetting bogs through drainage blocking to facilitate the recolonization of bog vegetation, with efforts continuing throughout the Current Phase to restore natural conditions and reduce the potential for fire outbreaks.

Since June 2020, there has been no peat extraction and ancillary activities at the Application Site, resulting in no significant changes in landscape or drainage patterns, thus minimizing the risk of peat failure. Furthermore, a notable decrease in activities such as hot works, refuelling, and potential staff negligence has occurred following the cessation of peat extraction and ancillary activities, further reducing the likelihood of internal source fires. While the potential for bog fires due to dry weather conditions remains, such incidents are exceptionally rare.

In the absence of control measures, bog fires during the Current Phase are considered to have a n effect that would be negative, slight, unlikely and short-term.

The pre-mitigation impact for the remaining risks (Severe Weather, Contamination (spillages) and Traffic Incidents) is not significant, neutral not significant and unlikely

15.8.1.4 Remedial Phase

Five risks specific to the Remedial Phase have been identified and are presented in Table 15-6.

Table 15-6 Risk Register – Remedial Measures Phase

Risk ID	Potential Risk	Possible Cause
Potential vulnerability to disaster risks		
L	Severe Weather Risk to rehabilitation activity on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds

M	Flooding High levels of surface water on site	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds
Potential to cause accidents and / or disasters.		
N	Traffic Incident Collisions onsite and offsite with vehicles involved in rehabilitation plans	Driver negligence or failure of vehicular operations on internal machine passes and/or external road network.
O	Contamination Discharge or spillage of fuel, chemical solvents into watercourse or percolated to groundwater	Fuel spillage during delivery to site. Failure of fuel storage tank or tanks in plant and machinery and vehicles. Stockpiled peat providing a point source of exposed sediment. Erosion of sediment from emplaced site drainage channels.
P	Industrial Accident - Fire	> Equipment or infrastructure failure; > Electrical problems; > Spontaneous combustion and > Employee negligence.

During the Remedial Phase, there will be limited works at the Application Site. There will be minimal machinery present to carry out drainage blocking, and no hot works or railcar movements are planned.

The full benefit of the Draft Cutaway Bog Decommissioning and Rehabilitation Plan and associated measures is not expected until pioneer habitats have developed on the majority of bare peat after 10 years. Consequently, the potential for bog fires during the Remedial Phase will continue to decrease over that period. These measures reflect a proactive approach to mitigate risks and ensure the safety and environmental well-being of the Application Site during this phase. By reducing activity on Application Site and implementing rehabilitation measures, the overall risk profile of the Application Site is expected to improve, benefiting both the local environment and the safety of personnel working in the area.

The risk assessment in Section 15.8 clearly identifies Severe Weather, Flooding, Traffic Incident and Contamination as the key risks that could result in a Major Accident or Disaster during the Remedial Phase. The probability for each of these risks is very low. It is stated in Section 8.6.8 of Chapter 8 Hydrology and Hydrogeology that there is no risk of downstream flooding and that there is no risk of peat slides that might lead to contamination. Therefore, these elements have a neutral, not significant unlikely pre-mitigation effect.

The pre-mitigation impact for the remaining risks (Severe Weather, Contamination (spillages) and Traffic Incidents) is not significant, neutral and unlikely.

15.8.2 Risk Assessment Summary

The risks have been assessed in accordance with the relevant classification (Refer to Table 15-1 and Table 15-2) and the resulting risk analysis is given in Table 15-8 and Table 15-9 below.

The risk register is based upon possible risks associated with the Peat Extraction Phase, Current Phase, and Remedial Phase. As outlined in Section 15.2.3.2, 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.

15.8.2.1 Assessment of Effect – Summary

Table 15-7 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)
Peat Extraction Phase (1988 to 2020)								
A	Severe Weather	Extreme weather- periods of heavy rainfall, and strong winds	Illness or loss of life; Sedimentation of nearby watercourse Damage to, or depletion of aquatic habitats and species;	2	The risk of severe weather was unlikely when considering the assessment in Section 10.3.2 Chapter 10 - Climate relating to the Met Éireann meteorological data recorded for the 30-year period from 1979-2008 in the area.	1	The risk of severe weather conditions during the Peat Extraction Phase may have resulted 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'.	2
B	Flooding	Extreme weather- periods of heavy rainfall, and strong winds	Illness or loss of life; Sedimentation of nearby watercourse Damage to, or depletion of aquatic habitats and species;	2	The risk of flooding is considered unlikely when taking into account the baseline assessment in Chapter 8 Hydrology and Hydrogeology and due to no recurring flooding	1	The risk of flooding during the Peat Extraction Phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					events and 1 no. historic flood incidents being recorded within the Application Site, and two recurring flood events within 2km. To note, with the inclusion of pump stations and other flood defence that is not considered when flood mapping, this likelihood rating is reduced to 'very unlikely'.		occur, with 'no fatalities and a small number of minor injuries with first aid treatment'.	
C	Peat Stability	Mismanagement of excavated material on site Extreme weather conditions	Movement of peat within the Application Site; Sedimentation of nearby watercourse; Damage to, or depletion of aquatic habitats and species;	1	The only recorded landslides which relate to peat instability on raised bogs have occurred during the initial stages of bog drainage. The GSI or Bord na Móna records do not document the occurrence of any peat slides within the	2	Peat instability during the Peat Extraction Phase would have resulted 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)
					Application Site. And only one within the surrounding area in 1954		Simple contamination of environment (e.g. watercourses), localised effects of short duration.	
D	Traffic Incident	. Traffic Management not implemented or not adhered	Injury or loss of life.	3	Due to the large number of rail movements within the Application Site that occurred due to the project, it can be determined that there was some ‘opportunity, reason or means for a vehicle collision to occur off site, ‘at some time’. Despite the large amount of rail movements during the Peat Extraction Phase, the rail network would have interacted with the public road network at two locations. These locations were well managed with an array of control measures in place to minimise the	1	A minor consequence is predicted. Having regard to off-site vehicular movements and rail movements across level crossings, a ‘small number of people would be affected’ should a vehicular or vehicle - locomotive 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)
					chance of an incident. An unlikely risk is therefore predicted.			
E	Contamination	Fuel spillage during delivery to the Application Site. Failure of fuel storage tank or tanks in plant and machinery and vehicles. Stockpiled excavated material providing a point source of exposed sediment; Erosion of sediment from emplaced site	Damage to, or depletion of aquatic habitats and species. Release of suspended solids to surface watercourses and could result in an increase in the suspended sediment load, resulting in increased turbidity which in turn could affect the water quality and fish stocks of downstream water bodies	2	There was potential for impacts on groundwater and surface water through accidental leaks and spills of hydrocarbons during the refuelling process, during this phase. Similarly, discharges from the Works and welfare facilities would have had the potential to cause surface water and groundwater contamination.	2	The risk of a fuel spillage or impact on surrounding drainage during peat extraction and ancillary activities would have resulted 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 and proposed drainage mitigation measures during construction. Simple contamination of environment (e.g. watercourses), localised effects of short duration.	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		drainage channels						
F	Industrial Accident - Fire	Spontaneous combustion Spread of fire from neighbouring lands	Illness or loss of life; Damage to, or depletion of habitats and species; and Impacts on ambient air quality.	4	Spontaneous bog fires/bog fire spread was somewhat common with 7 small, contained fire occurrences in 23 years). To note, in 2011, five incidents of bog fires were recorded at Lemanaghan and Bellair bogs. The number of bog fires that occurred within the Application Site only is not identified, so for the purposes of assessment, under the precautionary scenario, is assumed that all 5 fire events took place in Lemanaghan Bog.	2	Bog fires caused by autoignition or due to spread from neighbouring lands tend to be small in nature and can be contained much more easily than fires caused by explosion. Simple contamination of environment (e.g. watercourses), localised effects of temporary duration.	8
Current Phase (June 2020 – present day)								
G	Severe Weather	Extreme weather- periods	Illness or loss of life;	2	The risk of severe weather is unlikely when	1	The risk of severe weather conditions	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		of heavy rainfall, taking into account climate change and strong winds	Damage to, or depletion of aquatic habitats and species;		considering the assessment in Section 10.3.2 Chapter 10 - Climate relating to the Met Éireann meteorological data recorded for the 30-year period from 1979-2008 in the area.		during the Current Phase will result in a minor consequence in that 'small number of people would be affected' should a severe weather event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'. Decommissioning and Rehabilitation will not require significant excavations works. There is no real likelihood of any impact on any environmental receptors	
H	Flooding	Extreme weather- periods of heavy rainfall, taking into account climate change and strong winds	Illness or loss of life; Groundwater Flooding; Flooding to surrounding properties Damage to, or depletion of aquatic habitats and species.	2	The risk of flooding is considered very likely, though when taking into account the assessment in Chapter 8 Hydrology and Hydrogeology of the rEiAR, the use of pump stations and other	1	Flooding during the implementation of the Draft Cutaway Bog Decommissioning and Rehabilitation Plans phase will result in a minor consequence in that 'small number of	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					flood defences are not considered when flood mapping is conducted , therefore this likelihood rating is reduced to 'very unlikely'.		people would be affected' should a severe weather event occur, with 'no fatalities and a small number of minor injuries with first aid treatment'.	
I	Traffic Incident	Traffic Management not implemented	Injury or loss of life.	3	A limited number of vehicles will be permitted on the Application Site as part of the Current Phase. 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. Due to the ongoing number of rail movements within the Application Site due to the Project, it can be determined that there was some 'opportunity,	1	A minor consequence is predicted. Having regard to on-site speed limits and off-site vehicular movements and rail movements across level crossings, a 'small number of people would be affected' should a vehicular or vehicle - locomotive 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)
					reason or means for a vehicle collision to occur off site at the 2 non-level crossings 'at some time'. Despite the amount of rail movements that would have interacted with the public road network at two level crossings, these locations were well managed with an array of control measures in place to minimize the chance of an incident. An unlikely risk is therefore predicted.			
J	Contamination	Fuel spillage during delivery to the Application Site. Failure of fuel storage tank or	Damage to, or depletion of aquatic habitats and species. Discharge to groundwater.	2	Despite the cessation of peat extraction and ancillary activities at the Application Site, there is limited activity at the Application Site involving machinery and	1	With the cessation of peat extraction and ancillary activities, there is less potential for disturbance of peat and elevated concentrations of suspended sediments	2

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.	Accidental spillage during refuelling onto subsoils		plant with which there is always a risk of accidental spillage of hydrocarbons. Similarly, the office buildings at the Lemanaghan Works (which is adjacent to the Application Site) remain in place and discharges from wastewater systems (septic tanks) etc. have the potential to cause surface water and groundwater contamination		entering surface watercourses. Similarly, the activity of machinery and plant has been reduced, therefore lowering the potential occurrence of accidental spillages of hydrocarbons. This 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'. There is no real likelihood of any impact on any environmental receptors	
K	Industrial Accident - Fire	Spontaneous combustion Spread of fire from	Illness or loss of life; Damage to, or depletion of habitats and species; and	2	The potential for bog fires due to dry weather conditions remains but this occurrence is very rare. However, the	2	Should a fire occur at the Application Site, a limited consequence in that there would be 'a limited number of	4

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		neighbouring lands	Impacts on ambient air quality.		cessation of peat extraction and ancillary activities has resulted in a significant reduction in hot works, vehicle use and other potential sources of ignition within the Application Site. All peat stockpiles have been removed from the Application Site reducing the potential for auto ignition events. The Application Site has started to naturally revegetate reducing the area of bare peat. Rehabilitation has commenced in certain parts of the sites leading to an elevation in the water table and rewetting.		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'. Simple contamination of environment (e.g. watercourses), localised effects of short duration.	

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
Remedial Phase								
L	Severe Weather	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;	2	The risk of severe weather is unlikely when considering the assessment in Chapter 10 - Climate and weather conditions recorded in the wider area.	1	The risk of severe weather conditions during the remedial 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'. No contamination of environment (e.g. watercourses), localised effects. There is no real likelihood of any impact on any environmental receptors	2
M	Flooding	Extreme weather- periods of heavy rainfall, taking into	Illness or loss of life; Sedimentation of nearby watercourse	2	The risk of flooding is considered very unlikely when taking into account the baseline	1	The risk of flooding during the Remedial Phase will result in a minor consequence in	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
		account climate change and strong winds	Damage to, or depletion of aquatic habitats and species;		assessment in Chapter 8 Hydrology and Hydrogeology and due to no recurring or historic flood incidents are recorded within the area.		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'. No contamination of environment (e.g. watercourses), localised effects. There is no real likelihood of any impact on any environmental receptors	
N	Traffic Incident	Driver negligence or failure of vehicular operations. Traffic Management not implemented	Injury or loss of life.	2	A limited number of vehicles will be permitted on the Application Site during the initial stages of the Remedial Phase. A very low level of vehicles will access the Application Site during the monitoring stage of the Remedial Phase.	1	A minor consequence is predicted. Having regard to off-site 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.'	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
					As such, it can be determined that a traffic accident is not expected to occur and therefore a very unlikely risk is therefore predicted.			
O	Contamination	Failure of fuel storage tank or tanks in plant and machinery and vehicles.	Damage to, or depletion of aquatic habitats and species Release of fuel spillages to surface watercourses and groundwaters	2	The Draft Cutaway Bog Decommissioning and Rehabilitation Plan stipulates drain blocking. This will require the use of plant and machinery and will be completed over a short period of time by a limited number of machines on site at any one time.	1	The risk of a fuel spillage or impact on surrounding drainage during the Remedial stage 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'. No contamination of environment (e.g. watercourses), localised effects. There is no real likelihood of any impact	2

Risk ID	Potential Risk	Possible Cause	Environmental Effect	Likelihood Rating	Basis of Likelihood	Consequence Rating	Basis of Consequence	Risk Score (Consequence x Likelihood)
							on any environmental receptors.	
P	Industrial Accident - fire	Spontaneous Spread from neighbouring lands	Illness or loss of life; Damage to, or depletion of habitats and species; and Impacts on ambient air quality.	1	Peatland rehabilitation measures in the form of revegetation and bog rewetting reduce the potential for bog fires.	1	Bog fires caused by autoignition or due to spread from neighbouring lands tend to be small in nature and can be contained much more easily than other types of fires such as those caused by explosion. No contamination of environment (e.g. watercourses), localised effects. There is no real likelihood of any impact on any environmental receptors	1

The risk assessment for each of the potential risks identified are consolidated in Table 15-8 which provides their 'risk score.' A corresponding risk matrix is provided in Table 15-9, which is colour coded to provide an indication of the critical nature of each risk. As outlined in Section 15.2.3.2, the red zone represents 'high risk' scenarios', the amber zone represents 'medium risk' scenarios, and the green zone represents 'low risk' scenarios.

Table 15-8 Risk Scores

Risk ID	Potential Risk	Likelihood Rating	Consequence Rating	Risk Score
Peat Extraction Phase (July 1988 - June 2020)				
A	Severe Weather	2	1	2
B	Flooding	2	1	2
C	Peat Stability	1	2	2
D	Traffic Incident	3	1	3
E	Contamination	2	2	4
F	Industrial Accident - Fire	4	2	8
Current Phase (June 2020 - present day)				
G	Severe Weather	2	1	2
H	Flooding	2	1	2
I	Traffic Incident	2	1	2
J	Contamination	2	1	2
K	Industrial Accident - Fire	2	2	4
Remedial Phase				
L	Severe Weather	2	1	2
M	Flooding	2	1	2
N	Traffic Incident	2	1	2
O	Contamination	2	1	2
P	Industrial Accident - Fire	1	1	1

Table 15-9 Risk Matrix

		Consequence Rating				
		1. Minor	2. Limited	3. Serious	4. Very Serious	5. Catastrophic
Likelihood Rating	5. Very Likely					
	4. Likely		F			
	3. Unlikely	D				
	2. Very Unlikely	A,G,I,J,L,M,N,O	E,K			
	1. Extremely Unlikely	P	C			

Table 15-9, presents the potential risks identified during the Peat Extraction Phase, Current Phase, and Remedial Phase, all of which can be classified as 'low risk scenarios.'

The scenarios with the highest risk score in terms of a major accident and/or natural disaster during the Peat Extraction Phase, Current Phase, and Remedial Phase, are identified and detailed below:

Peat Extraction Phase – Industrial Accident - Fire

Between 1988 and 2020, the peat extraction and ancillary activities at the Application Site did not cause significant changes to land cover or additional land take, following initial operations such as drainage and vegetation removal which occurred primarily before 1988. Minor topographic changes were observed due to peat removal. Peat fires were recorded on a total of seven occasions in years 2009, 2011 and 2020 within the Application Site during the Peat Extraction Phase. During the 1988 to 2020 period, there was potential for further bog fires at the Application Site due to the relatively high level of activity arising from extraction of peat by machinery, movement of peat within the Application Site by rail, the presence of peat stockpiles, maintenance of the drainage network and the movement of employees within the Application Site.

Peat Extraction Phase – Industrial Accident - Contamination

During the Peat Extraction Phase, accidental spillage of petroleum hydrocarbons during machinery and plant refuelling could have posed a pollution risk, with the potential for significant impacts on the environment due to its high toxicity and persistence. Though posing a risk, available Annual Environmental Reports (AERs), Appendix 4-3, submitted to the EPA indicate no significant pollution events or spills to groundwater have occurred since 2000. Therefore, contamination would be a lower risk in reality.

Peat Extraction Phase – Traffic Incident

The potential for Traffic Accidents was also relatively high due to the transportation of peat by rail from the Application Site that would interact with the public road network at 2 no. level crossings and the number of employees travelling to and from the Application Site at the beginning and end of the working day.

Peat Extraction Phase – Flooding

Between 1988 and 2020, the peat extraction and ancillary activities at the Application Site did not cause significant changes to land cover or additional land take, following initial operations such as drainage and vegetation removal which occurred primarily before 1988. Minor topographic changes were observed due to peat removal. One recorded flood event occurred within the Application Site during the Peat Extraction Phase as a result of prolonged intensive rainfall, which resulted in one of the most extensive groundwater flooding ever witnessed across the country. This event was pluvial flooding along the Pollagh Tributary to the Brosna River which occurred during the winter of 2015/2016. The area has remained as flood zone, designated and mapped by the OPW and GSI and a low to medium risk zone. In general, pumping stations and flood protection embankments are not used in flood modelling, and the risk of flooding is defined (by creating flood zones/maps) in the absence of flood defence. Therefore, this area would be a lower risk zone in reality.

Current Phase – Industrial Accident – Fire

Peat extraction and ancillary activities ceased at the Application Site in June 2020 and both the level of activity on-site and the number of employees accessing the Application Site began to reduce from that point to the present day. Peat stockpiles continued to be present on the Application Site up until the end of 2024 and therefore activities such as peat movement, the presence of peat stockpiles, drainage network maintenance and employee movement were evident. These activities combined would have lowered the probability of a peat bog fire. Although less probable there remained a risk that a bog fire could occur. There has been no record of fire occurring at the Application Site during the Current Phase.

Current Phase – Traffic Incident

Traffic levels from the Application Site would have reduced significantly once the peat stockpiles had been fully removed during 2024 and therefore Traffic incidents became less probable.

Remedial Phase – Severe Weather/Flooding/Traffic Incident/Contamination

During this phase and specifically after the drain blocking works have been completed, the potential for any Major Accident or Disaster as discussed above to occur at the Application Site is very low. Activity levels at the Application Site will be reduced to occasional site visits as part of monitoring the outcome of the Draft Cutaway Bog Decommissioning and Rehabilitation Plan and compliance with the IPC Licence requirements.

15.8.3 Mitigation Measures

As discussed in this chapter, the key types of major accidents and potential natural disasters that could happen at the Application Site are bog fires, flooding and contamination. The key risk to the Application Site during both the Peat Extraction Phase and Current Phase were and are bog fires. Control measures implemented at the Application Site during the Peat Extraction Phase and Current Phase, and proposed mitigation measures to be implemented during the Remedial Phase are outlined below.

15.8.3.1 Peat Bog Fires

The key control/mitigation measures for this potential risk are outlined in detail in Appendix 5-1 Fire Prevention & Fire Fighting Procedures for Peat Production Bogs, summarised below and included in Section 5.3.9.4.1 of Chapter 5 Population and Human Health.

Bord na Móna's focus when it comes to the prevention and management of bog fires is:

- Protection and safety of employees and members of the public;
- Protection of external property;
- Protection of Bord na Móna property; and,
- Protection of habitats and biodiversity.

At present, fire safety and awareness training is provided as part of Bord na Móna's general safety induction with reoccurring refresher training every three years.

To ensure no instances of internal fire sources, all Bord na Móna staff:

- Receive fire training and refresher training provided periodically. Bord na Móna Fire Safety Training includes the following:
 - General Fire safety awareness and fire detection / prevention;
 - Use of fire extinguishers;
 - Use of machinery in firefighting;
 - Use of pumps, floatation pumps and fire rollers;
 - Fire prevention for machinery, including washing and blowing down;
 - Use and maintenance of PPE used in firefighting;
 - Dealing with small fires; and,
 - General Health and Safety, including Hazard Identification and Risk Assessment.

Bord na Móna Resource Managers designate control persons for firefighting. Their responsibilities include:

- Management of persons (including members of the public) entering and leaving sites under control;
- Co-ordination of persons on sites under their control;
- Liaison with Fire and other emergency services as necessary;
- Organisation of welfare facilities;
- Establish and maintain frequent contact with relevant external organisations and local fire services; and,
- Each Bog Area operation leader / team leader / supervisor must ensure the following:
 - Firefighting machinery is available and ready for use if required;
 - Minimum of one fire roller unit (Tractor with attached roller) is available and ready for use in each area;
 - Lights are working on all machines;
 - Flashing beacons are ready and are placed on all relevant machines during firefighting activities;
 - All machines have appropriate numbers of fire extinguishers;
 - Fire extinguishers checked daily, and a reserve number are kept;
 - All tractors have fire buckets and shovels, and all dozers have a fire bucket;
 - Water sources on or adjacent to bog are appropriate, maintained, and available for use during firefighting;
 - Fire signs are in place and maintained;
 - Maps and aerial photographs provided to areas are in place and maintained;
 - and,
 - Emergency contact numbers for each area in place.

15.8.3.2 Contamination

Control/Mitigation measures that are and have been applied to minimise contamination of peat, subsoil and bedrock are outlined in Section 7.5.2.1.3 of Chapter 7 Land, Soils and Geology. This section outlines the control measures that were in place from 1988 to 2000 and range from machinery inspections/servicing, spill control measures, waste oil management and disposal of waste oils. This

section also describes in detail the control measures that are in place from 2000 to the present day that arise from the implementation of the IPC Licence. These control measures include, replacement of all underground tanks, storage of all tanks/drums in bunded areas, bund testing, use of oil interceptors and regular inspections and monitoring.

15.8.3.3 Flooding

Section 8.6.8 of Chapter 8 Hydrology and Hydrogeology chapter addresses the potential for flooding to result in downstream Major Accidents and Disasters and concludes that there is some risk of flooding downstream. Due to the peat extraction and ancillary activities over the course of 70 years, the storage capacity of Lemanaghan Bog has been reduced. Despite the presence of a comprehensive drainage system onsite, in the event of prolonged or intense rain, flooding both onsite and flooding downstream of the Application Site during the Peat Extraction and Current Phases was considered likely. There is low flood risk during the Remedial Phase due to the low lying nature of the Application Site and the attenuation provided by the on-site drainage system, in particular the presence of the settlement ponds. Should the proposed Lemanaghan Wind Farm be granted permission, water is more likely to be held on-site, and this will have a positive impact on downstream flooding events. Therefore, aside from the control measures proposed as part of the Draft Cutaway Bog Decommissioning and Rehabilitation Plan, no additional control/mitigation measures are proposed.

15.9 Residual Effects

15.9.1 Peat Extraction Phase (July 1988 – June 2020)

The risk assessment in Section 15.8 clearly identifies Industrial Accident – Fire as the key risk that could result in a Major Accident or Disaster. As previously stated, a total of seven bog fire incidents were recorded in years 2009, 2011 and 2020 at the Application Site. No other bog fires were recorded during the 1988 to 2020 period. A range of control measures were in place during this period and the application of these measures ensured that the residual effect was negative, slight, short term and likely.

The second key risk identified in Section 15.8 is Flooding that could result in a Major Accident or Disaster. As previously stated, one flood event has been recorded within the Application Site as the result of prolonged and intense rainfall which resulted in flooding across the country. A range of control measures were in place during this period and the application of these measures ensured that the residual impact was negative, not significant, long-term and unlikely.

Other potential risks identified during this phase have an imperceptible residual impact.

15.9.2 Current Phase (June 2020 – Present Day)

The risk assessment in Section 15.8 clearly identifies Industrial Accident – Fire as the key risk that could result in a Major Accident or Disaster during this phase. No fire was recorded during this phase in 2020. A range of control measures were in place during this period and the application of these measures ensured that the residual impact is negative, not significant, unlikely and short-term.

15.9.3 Remedial Phase

The risk assessment in Section 15.8 clearly identifies Severe Weather, Flooding, Traffic Incident and Contamination as the key risks that could result in a Major Accident or Disaster during this phase. The probability for each of these risks is very low. There are a range of control/mitigation measures that are in place or proposed as part of existing Bord na Móna site management, the IPC Licence requirements and within the Draft Cutaway Bog Decommissioning and Rehabilitation plans. It is stated in Section 8.6.8 of Chapter 8 Hydrology and Hydrogeology that there is no risk of downstream flooding and that

there is no risk of peat slides that might lead to contamination. Therefore, these elements have a long-term, neutral, imperceptible unlikely residual effect.

The application of proposed mitigation measures will ensure that the residual impact for the remaining risks (Severe Weather, Contamination (spillages) and Traffic Incidents) is a not significant, neutral imperceptible, unlikely and temporary residual effect. For more details, please see chapters 7 Land, Soils and Geology, 8 Hydrology and Hydrogeology, 10 Climate and 14 Traffic and Material Assets.

15.10 Assessment of Cumulative Effects and In Combination Impacts

15.10.1 Peat Extraction Phase (1988 to 2020)

When considering the Peat Extraction Phase (July 1988 - June 2020) with peat extraction and ancillary activities on the Application Site from 1950-1988, cumulative effects are not possible as there is no temporal overlap between the phases. No Major Accidents or Disasters occurred during the 1988 to 2020 period, aside from peat bog fires on Lemanaghan in 2009, 2011 and 2020, and 1 no. onsite flood event in the winter of 2015/2016. The residual effect of those fires and flood event were considered to slight and not significant respectively. In any case there are no record of major accidents or disasters that occurred during the 1950 to 1988 period and therefore there is no cumulative effect with peat extraction and ancillary activities prior to 1988. Similarly, there were no Major Accidents or Disasters in proximity to the Application Site during the 1988 to 2020 period aside from two reoccurring flood events to the south and west of the Application Site. The recurring event to the west of the Application Site (OPW ID 2907) is not connected to the Application Site by any known watercourse. The recurring flood event south of the Application Site (OPW ID 2906) is close to the Pollagh tributary connecting the Application Site to the River Brosna. Both the onsite flood event and recurring flood events have not been considered significant and have minimal cumulative and in combination impact.

15.10.2 Current Phase (2020 to Present Day)

During this phase there were no Major Accidents or Disasters and therefore there is no potential for cumulative or in combination impacts with other projects or plans.

15.10.3 Remedial Phase

It is intended to utilise the Application Site for both peatland rehabilitation, wind energy infrastructure and to facilitate environmental stabilisation and the optimisation of climate action benefits.

Lemanaghan Wind Farm DAC, a joint venture between SSE Renewables and Bord na Móna (i.e the Applicant), are proposing a wind energy development consisting of 15 turbines with an overall blade to tip height of 220m² at the Application Site. A separate EIAR and accompanying NIS are being undertaken for the proposed Lemanaghan Wind Farm development. At the time of writing, the planning application for this development has not yet been submitted to An Coimisiún Pleanála

Despite its significant potential, the overall footprint of the wind farm will likely be less than 3% of the total area of the Application Site. To address environmental concerns, decommissioning and rehabilitation plans for each affected incorporates this infrastructure. These plans incorporate the wind farm infrastructure while focusing on key objectives such as rewetting and revegetation, especially around and between the proposed wind farm infrastructure.

² <https://www.lemanaghanwindfarm.ie/>

Regarding risk management, the main concerns revolve around peat stability and flooding. Fortunately, due to the flat and low-lying nature of the Application Site, slope stability is not foreseen to be an issue during any development phases. Whilst there was extensive flooding experienced across the county in the winter of 2015/2016, there has been no significant risk of flooding downstream from the Application Site, thanks to both historical conditions and the proposed on-site drainage system, including settlement ponds which help attenuate water flow.

There is low potential for natural disasters to occur at the proposed Lemanaghan Wind Farm. 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 rEIR.

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 Application Site of the accident. The proposed Lemanaghan Wind Farm 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 and so there are no potential effects from this source. There is no real likelihood of significant environmental effects cumulatively associated with major accidents.

Similarly, when factoring in the existing Leabeg Wind Farm, Cloghan Wind Farm, Derrinlough Wind Farm, the proposed Umma More Wind Farm, and any other listed plans or projects, cumulative effects are not expected to occur.

15.11

Conclusion

The 1988 baseline and subsequent Peat Extraction Phase, Current Phase and Remedial Phase of the Project have been described in detail in Sections 15.3, 15.4, 15.5 and 15.6. Utilising the impact assessment methodology described in Section 15.2.3 the key Major Accident and/or Disaster scenarios were identified for each phase and a risk assessment for each scenario was conducted. All scenarios identified and assessed in Section 15.8 for each of the three phases were determined to be low risk scenarios, aside from bog fires (Industrial Accident – Fire) in the Peat Extraction Phase which was determined as medium risk. The risk assessment assumes that all proposed mitigation measures and safety procedures have failed. The potential for Major Accidents or Disasters has reduced since peat extraction and ancillary activities ceased in June 2020 and reduced further when the last volumes of peat were transported offsite in 2024. The potential for a Major Accident or Disaster during the Remedial Phase is very low and the residual impact is determined to be imperceptible during this phase. Finally there was no potential for significant cumulative or in combination impact with other plans or projects identified during each of the three phases.