

Table of Contents

16	Interactions	16-1
16.1	Introduction	16-1
16.2	Interactions of Effects	16-1
16.3	Residual Effects.....	16-22

List of Tables

Table 16-1: Interaction Matric: Potential for Interaction of Effects.....	16-3
---	------

16 INTERACTIONS

16.1 INTRODUCTION

The previous Chapters 6 to 15 of this remedial EIAR identify and outline the potential significant effects that may have occurred, and which are likely to occur into the future, in terms of Population and Human Health, Biodiversity, Land, Soils and Geology, Hydrology, Hydrogeology and Water Quality, Air Quality, Noise and Vibration, Landscape and Visual (LVIA), Cultural Heritage (Archaeological, Architectural and Cultural Heritage), Material Assets (including Traffic and Transport), and Climate as a result of the Project as described in Chapter 4 of this remedial EIAR.

This Chapter of the remedial EIAR presents the potential for interaction of environmental effects. The potential for interaction of effects has been assessed as part of the Impact Assessment process. While the work on all parts of the remedial EIAR were not carried out by TOBIN, the entire Project and all the work of all sub-consultants was managed and coordinated by TOBIN.

This remedial EIAR was edited and collated by TOBIN as an integrated report of findings from the relevant expert's impact assessments. The effects that potentially interact have been assessed in detail in the individual chapters of the remedial EIAR above and summarised in Section 16.2 below.

Where any potential negative effects have been identified during the assessment process, these effects have been avoided by design or reduced by the identified mitigation and control measures as presented throughout the remedial EIAR.

16.1.1 Statement of Authority

This chapter of the remedial EIAR has been prepared by Bertha Kasonde and reviewed by Orla Fitzpatrick of TOBIN.

Bertha Kasonde is a Project Manager with over 8 years of multidisciplinary experience in environmental consulting both in the Public and Private Sectors. She holds a Bachelor of Engineering in Environmental Engineering and M.Sc. in Climate Change, Agriculture and Food Security. She has contributed to EIAR chapters and conducted feasibility studies for various projects including Wind, Solar and Battery Energy Storage System (BESS) projects.

Orla Fitzpatrick is a Technical Director with over 20 years' experience working in the delivery of EIA projects in environmental consultancy. She is a Chartered Environmentalist and has considerable experience as technical approver of environmental deliverables for major infrastructure projects, including substitute consent applications.

16.2 INTERACTIONS OF EFFECTS

For any development with the potential for significant environmental effects there is also the potential for interaction to occur between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects, or improve them, or have a neutral effect. An interaction matrix is presented in Table 16-1 below. This identifies potential interactions between the various environment aspects assessed in this remedial EIAR.

The matrix highlights the occurrence of potential interaction (either positive or negative effects) during the Peat Extraction Phase, Current Phase, and Remedial Phase. The matrix is symmetric, with each environmental aspect addressed in Chapters 6 to 15 of this remedial EIAR placed on both axes of the matrix.

Table 16-1: Interaction Matrix: Potential for Interaction of Effects

Interaction Matrix (√ = Interaction)	Population and Human Health	Biodiversity	Land, Soils & Geology	Hydrology & Hydro-Geology	Air Quality	Noise & Vibration	Landscape & Visual	Archaeology & Cultural Heritage	Material Assets (inc. Traffic & Transport)	Climate
Population and Human Health			√	√	√	√	√		√	√
Biodiversity			√	√	√	√	√			√
Land, Soils & Geology	√	√		√	√		√	√		√
Hydrology & Hydrogeology	√	√	√							
Air Quality & Climate	√	√	√							
Noise & Vibration	√	√								
Landscape & Visual	√	√	√							
Archaeology, Architectural & Cultural Heritage			√							
Material Assets (inc. Traffic & Transport)	√									
Climate	√	√	√							

Interaction between Environmental Aspects (positive and negative) - √

White denotes No Potential for Interacting Effect, Blue denotes identified interactions (which are described in Section 16.2), while grey is used for blocking out part of the table to avoid duplication.



16.2.1 Population and Human Health

16.2.1.1 Population and Human Health and Noise and Vibration

The following interactions with Population and Human Health have been identified as having the potential to occur during the Peat Extraction, Current Phase and /or Remedial Phases of the Project. There are no further interactions anticipated beyond that already assessed in Chapter 11 – Noise & Vibration and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – June 2020)

Excessive noise levels can result in deficiencies in hearing and sleeping patterns. It can also contribute to hypertension, heart disease, and annoyance. All these effects can contribute to the decline of an individual's personal health and well-being. However, the noise impact assessment did not identify significant noise and vibration levels during the Peat Extraction Phase on nearby sensitive receptors given the distances between peat extraction activities and nearby noise sensitive properties. The assessment concluded that noise emissions and vibration generated during the Peat Extraction Phase were not significant. In respect of noise and vibration from additional traffic on public roads due to activity on site, the effects at the nearest noise sensitive locations were also long-term, negative, but not significant as outlined in Chapters 11 – Noise and Vibration and Chapter 14 – Material Assets.

Significant negative effects on the health of sensitive receptors in the local population during the Peat Extraction Phase are unlikely due to their distance from the peat extraction areas and the seasonal nature of the activity. As such, it is considered that activities during the Peat Extraction Phase were not significant, negative and long-term effects on human health, as described in Chapter 6 – Population & Human Health.

Current Phase (June 2020 – Present Day)

Peat extraction ceased in June 2020. Since then, activities at the Application Site continue to operate under the requirements of IPC Licence Reg. No. P0501-01. Due to decreased levels of activity and the corresponding reduced employee numbers at the Application Site, noise generating movements are at a much lesser volume than during the Peat Extraction Phase as outline in Section 11.5.2 of Chapter 11- Noise and Vibration. The Application Site has been in full compliance with the noise limits set out in the IPC Licence during the Current Phase. The noise emissions associated with the current onsite activities are considered less than the noise emissions associated with the Peat Extraction Phase. During the Current Phase, Noise is considered negative, not significant and short-term while Vibration is considered negative, not significant, long term, and additional traffic on public roads is considered neutral, not significant and long term.

The Noise and Vibration assessment concludes that the residual effects at the nearest noise-sensitive locations associated with the Current Phase are negative, but not significant.

Therefore, it is considered that negative, short-term and not significant effects on population and human health occurred during the Current Phase.

Remedial Phase (Future)

The Remedial Phase will involve the use of an excavator to facilitate drainage blocking works at any one location for less than a day as part of the draft Cutaway Bog Decommissioning and Rehabilitation Plans (see Appendix 4-3).

The noise emissions associated with the future rehabilitation works in the Remedial Phase are considered less than those associated with the Peat Extraction Phase. The Noise and Vibration assessment concludes that the potential of residual effects associated with the Remedial Phase are considered negative, but not significant.

Therefore, a negative, long-term, not significant effect on population and human health is predicted during the Remedial Phase.

Please see Chapter 11: Noise and Vibration and Appendix 4-3 Cutaway Bog Decommissioning and Rehabilitation Plans for further details.

16.2.1.2 Population and Human Health and Air Quality and Climate

There are no further interactions anticipated beyond that already assessed in Chapter 10 – Air Quality, Chapter 15 – Climate and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – June 2020)

Peat extraction activities and ancillary works would have generated dust effects within the vicinity of the Application Site, as identified in Chapter 10 (Air Quality) of this remedial EIAR. The milling, harrowing, ridging and extraction processes would have generated some dust emissions. Emissions from vehicles during the Peat Extraction Phase would have also affected air quality. However, the impact to air quality as a result of the Peat Extraction Phase was assessed as long-term, negative, localised and slight residual effect, which is overall not significant.

The peat extraction activities would have led to some dust emissions with the potential to cause soiling and human health effects at nearby sensitive receptors. It has been established that the peat extraction works had a low risk of dust soiling effects, a low risk of dust-related human health effects as outlined in Section 10.3.3 of Chapter 10 of this remedial EIAR.

As part of the IPC licence for the site a number of dust control measures were required to be implemented. In addition, dust monitoring was required to ensure dust emissions were not causing issue at nearby sensitive receptors. There have been a very small number (maximum of 3 in 2013 and 2018 respectively) of historic dust complaint issues from nearby sensitive properties in the area indicating that very infrequently there have been dust issues from site activities (See Table 10-5 OF Chapter 10 Air Quality). The Air Quality assessment concluded that the activities on site had a long-term, localised, direct, negative and slight impact on air quality which is overall not significant.

Therefore, it is considered that activities during the Peat Extraction Phase would have resulted in not significant, slight, negative, long-term effects on population and human health due to effects on air quality. Refer to Chapter 10 (Air Quality) for further details.

It is estimated that there was on average 39,693 tonnes of CO₂ per annum released from the Application Site over the 32-year period between June 1988 and June 2020. Please see



Appendix 15-1 (Carbon Calculations) for more details. See Chapter 15 (Climate) for further details and the assessment of climate effects resulting from Bord na Móna's historic peat extraction activities and ancillary activities at the Application Site.

The removal of the carbon store of the site and the subsequent release of CO₂ from peat extraction and ancillary activities during the Peat Extraction Phase resulted in a major significant adverse impact to climate, equating to long-term, direct, negative and significant effects. Please see Chapter 15 (Climate) for further details.

Current Phase (June 2020 – Present Day)

Peat extraction ceased in June 2020, carbon losses associated with peat extraction and the subsequent impact to climate are not relevant to this phase.

However, the degraded bogs will continue to act as sources of these GHG until they are either rewetted/revegetated, the peat is removed or all the remaining peat has oxidised. The effect on climate is long-term, direct, negative and not significant effects as per the EPA EIA terminology.

There is the potential for some minor GHG emissions associated with vehicles accessing the Application Site for removal of stockpiled peat, for decommissioning works or for monitoring works. However, the number of vehicles accessing the Application Site will be minimal and GHG emissions associated with these are not predicted to be significant.

Due to the negligible risk of dust impacts from the removal of the stockpiled peat from the Application Site, dust emissions are predicted to have had a short-term, negative and imperceptible impact on air quality which is overall not significant.

Air quality impacts from bog fires would have been short-term in nature and localised to the area in the immediate vicinity of the fire. Impacts would have occurred until the fire was brought under control and ceased burning. Due to the short-term and infrequent nature of the bog fires, air quality impacts are not predicted to have been significant.

With the implementation of the dust control measures stipulated within the IPC licence for the Application Site, dust emissions associated with the activities in the Current Phase will be short-term, negative and imperceptible which is overall not significant.

Due to the low volume of vehicles and machinery involved in the Current Phase (less than 2 HGV per day and less than 40 LGV per day), exhaust emissions are predicted to have a direct, short-term, neutral and not significant impact on air quality.

Please see Chapter 10 (Air Quality) and Chapter 15 (Climate) for further details.

Remedial Phase

There are minimal works involved in the Remedial Phase that have the potential to effect air quality. Noise and vibration effects have been assessed on population receptors in Chapter 11 (Noise and Vibration) of this remedial EIAR. There are no further interactions anticipated beyond that already assessed in Chapter 11.

Air quality effects from dust emissions during the Remedial Phase will be short-term, negative, localised and imperceptible.

Effects from vehicle emissions will be neutral and imperceptible due to the low number of vehicles required for the works.

Therefore, there will be a short-term, negative and imperceptible effect on population and human health due to air quality and climate. Please see Chapter 10 Air Quality and Chapter 15 Climate for further details.

16.2.1.3 Population and Human Health and Land, Soils and Geology

There are no further interactions anticipated beyond that already assessed in Chapter 8 – Land, Soils & Geology and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – June 2020)

Peat extraction activities by their very nature impact on peat and subsoils. A significant change to the land/soil environment will have occurred during the Peat Extraction Phase. The residual effect on soils/land of this natural revegetation in the Peat Extraction Phase can be classified as medium term and not significant. The residual effect on areas still in subject to peat extraction by 2020 is imperceptible.

For the reasons outlined above there are no significant effects on landcover and topography, but there is a significant positive impact on soils/land, having changed from industrial peat extraction to recovering peatland/scrub and wetland habitats

Accidental spillage during refuelling of machinery and plant (static and mobile) with petroleum hydrocarbons is a pollution risk. The accumulation of small spills of fuels and lubricants during routine plant use can also be a significant pollution risk over time.

No evidence of significant contamination was identified at the Application Site. Proven and effective measures to mitigate the risk of spills and leaks were implemented by Bord na Móna at the Application Site during the Peat Extraction Phase. These control measures break the pathway between the potential source and the receptor. The residual effect is considered to be negative, imperceptible, direct, short-term, unlikely effect on peat and subsoils and bedrock. Given the implementation of the control measures it can be concluded that there have been no significant effects on peat, subsoil and bedrock.

There were no significant long-term effects from peat extraction at the bogs on peat stability. There were no records of peat instability recorded in the Application Site. For the reasons outlined above, and with the application of the control measures outlined above, no significant effects on people, land and infrastructure have occurred.

Current Phase (June 2020 - Present Day)

The Current Phase has involved peat stockpiles and loose peat on the active peat extraction areas being removed and the area allowed to re-vegetate and benefit from natural recolonisation. There have been no significant effects on peat, subsoil and bedrock.

The management of fuel/chemicals/hydrocarbons on site is in accordance with the IPC Licence. These control measures break the pathway between the potential source and the receptor. The residual effect is considered to be imperceptible, direct, short-term, unlikely effect on peat and subsoils and bedrock. There have therefore been no significant effects on peat, subsoil and bedrock.

There were no records of peat instability recorded within the Application Site, therefore no significant effects on people, land and infrastructure.



Therefore, the effect on peat stability and failure as a result of the Current Phase is negligible as no instability has occurred.

Remedial Phase (Future)

The peatland stabilisation will be achieved primarily through natural colonisation of the former peat extraction activities and all ancillary works fields. The potential effect is considered to be not significant, positive, direct, long-term, certain effect on land use.

The Remedial Phase will involve minimal use of machinery. The management of fuels/chemicals/hydrocarbons and at the Application Site will be in accordance with the IPC Licence. The residual effect is considered to be, imperceptible, direct, short-term, unlikely adverse effect on peat and subsoils and bedrock.

There were no records of peat instability recorded within the Application Site, therefore no significant effects on people, land and infrastructure are anticipated during the Remedial Phase.

Overall, no significant effect on population and human health due to land, soils and geology is anticipated during the Remedial Phase.

Please see Chapter 8 (Land, Soil and Geology) for further details.

16.2.1.4 Population and Human Health and Hydrology and Hydrogeology

There are no further interactions anticipated beyond that already assessed in Chapter 9 – Hydrology, Hydrogeology & Water Quality and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – June 2020)

During the Peat Extraction Phase there would have been potential for pollutant pathways from the Application Site to receiving waterbodies from the storage of fuel and other pollutants. This would have had the potential to affect local water quality and possibly local water supplies. However measures were in place during the Peat Extraction Phase to prevent release of pollutants and silt from the Application Site and therefore reduce the potential for effects on human health from water sources. Drainage channels and silt ponds were in place by 1988. Activities at the Application Site have been regulated by IPC Licence (Reg. No. P0501-01) since 2000.

Due to the nature of the peat extraction process, combined with the control measures and environmental monitoring implemented at the site, water related effects on population and human health resulting from the Peat Extraction Phase are considered unlikely.

Please see Chapter 9 Hydrology, Hydrogeology and Water Quality for further details.

Current Phase (June 2020 - Present Day)

During the Current Phase some limited activity at the Application Site is required to comply with IPC Licence requirements. This involves the use of machinery and plant with which there is a risk of accidental spillage of hydrocarbons.

However, due to the cessation of peat extraction, combined with the control measures and environmental monitoring implemented at the Application Site, water related effects on population and human health resulting from the Current Phase are considered unlikely.

Please see Chapter 9 (Hydrology, Hydrogeology and Water Quality) for further details.



Remedial Phase

Following the application of the draft Cutaway Bog Decommissioning and Rehabilitation Plans (Appendix 4-3), the bogs will become wetter, retain more water, and gradually recolonise with vegetation. Over time, they will develop into a peatland / wetland mosaic with reduced silt and nutrient outputs.

Therefore, bog rehabilitation during the Remedial Phase will result in a long term, slight, positive residual effect on population and human health.

Please see Chapter 9 (Hydrology, Hydrogeology and Water Quality) for further detail.

16.2.1.5 Population and Human and Material Assets (including Traffic and Transport)

There are no further interactions anticipated beyond that already assessed in Chapter 14 – Material Assets and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – 2020)

Peat extraction activities and ancillary works at the Application Site would have generated additional traffic onto public roads through the transport of peat from the Application Site to various end users around the country. Vehicles and rail car transporting peat had the potential to emit dust and soil, effect traffic flow, cause traffic disruption / delays, or caused accidents. The addition of traffic on the road and potential for traffic disruption due to rail car passings during the Peat Extraction Phase is considered to have had a long term, slight, negative residual effect. The Peat Extraction Phase is considered to have had a long-term, slight, negative and not significant residual effect on population and human health in terms of traffic and transport between 1988 and June 2020.

Between 1988 and June 2020, waste management at the facility became more regulated with the introduction of IPC Licence P0501-01 in 2000, requiring an Environmental Management System (EMS) and specific waste handling procedures. Hazardous and non-hazardous waste were managed under the licence, with improved bunding, oil interceptors, and refuelling procedures. Peat extraction ceased in June 2020, leading to a reduction in both hazardous and non-hazardous waste volumes. Compliance with waste regulations, including the IPC Licence, ensured proper waste disposal and reporting through the AER. The Peat Extraction Phase had a long-term, slight, negative residual effect on population and human health due to waste management.

Refer to Chapter 14 Material Assets for further details.

Current Phase (2020 – Present Day)

Due to the cessation of peat extraction, traffic volumes generated by the Current Phase are significantly lower than during the Peat Extraction Phase. Control measures undertaken during the Current Phase are the same as those undertaken in the Peat Extraction Phase. The stockpile haulage component was temporary and ceased in 2021, while other Current Phase activities remain ongoing at a low level. In addition, as part of BnM's vision for a climate neutral Ireland by 2050, BnM encourages and promotes car sharing and cycle to work schemes where possible for its personnel. Therefore, there potential to reduce the daily LGV numbers travelling to and from at the Application Site even further. Having regard to the conservative peak staffing assumption, the temporary nature of stockpile haulage, the intermittent nature of other

Current Phase activities and the scale of traffic relative to the receiving road network, the Current Phase traffic effect is considered to be Slight Negative and not significant.

Decommissioning activities are underway in accordance with Condition 10 of the IPC Licence, which mandates the removal, disposal, or recovery of any materials, equipment, or substances that could result in environmental pollution. This includes decommissioning buildings, equipment, waste, and rail tracks, with specific actions detailed in the decommissioning plan. Waste management follows Condition 7 of the IPC Licence, ensuring waste is disposed of or recovered by licensed contractors and records are maintained. BnM aims to reuse or recycle waste where possible. Therefore, the Current Phase has had a short-term, slight, negative, residual effect on population and human health due to waste management.

Please see Chapter 14 Material Assets for further details.

Remedial Phase

Activity during the Remedial Phase will have a long-term, slight negative effect and not significant on population and human health in terms of traffic volumes, roads and road users.

During the Remedial Phase, waste generated will primarily be generated by environmental monitoring staff (e.g., food, paper etc.) which will be removed off site by each staff member and recycled where possible. The residual effect of the Remedial Phase activities on waste management is considered to be neutral and not significant.

Refer to Chapter 14 Material Assets for details.

16.2.1.6 Population and Human Health and Landscape and Visual

There are no further interactions anticipated beyond that already assessed in Chapter 12 – Landscape & Visual Assessment and Chapter 6 – Population & Human Health.

Peat Extraction Phase (1988 – June 2020)

In terms of landscape effects, there was a broad-scale and comprehensive physical landscape impact on the bog itself from the extraction operations. In combination with the extraction activities and associated transport infrastructure, this would have contributed to an industrialisation of the previously naturalistic bog landscape, but most of this had already occurred prior to 1988. For this reason, the effects on landscape due to the Peat Extraction Phase from 1988 to cessation in June 2020 are considered to be of a medium magnitude.

In terms of visual impacts, in 1988 peat extraction activities would have been at peak stage during the summer months and a considerable portion of the bog had been cutaway or drained and prepared for extraction. Visual impacts would have related to movement of workers and machinery, transport and transport infrastructure, as well as accommodation and welfare facilities. Dust plumes are also likely to have been associated with peat extracting areas. From most receptor locations, it is likely that the full extent of the cutaway peatland was not visible, so effects would have been more localised to the nearest fringes of the bog. Nonetheless, from some locations, such as sections of the R400 regional road that passes between the Drummin Drumman and Derryarkin bogs from Rochfortbridge to Rhode, there would have been notable visual impacts. Likewise, from the R446 that runs between the Kinnegad and Tyrellpass and from the local road that runs along the southern edge of the latter. However, given this busy baseline scenario and the fact that industrial scale peat extracting operations were a long



established feature of summer months, it is not likely that significant visual effects occurred between 1988 and the cessation of extraction activities in 2020.

The magnitude of visual effects is not considered to have been greater than Low. When combined with the Low visual receptor sensitivity judgement (see section 12.4.2 of Chapter 12 (LVIA)), the overall significance of effect is deemed to be slight.

Refer see Chapter 12 (LVIA) for details.

Current Phase (June 2020 - Present Day)

Decommissioning works of peat extraction at the Application Site commenced following the cessation of peat extraction in June 2020 in accordance with the draft Cutaway Bog Decommissioning and Rehabilitation Plans (see Appendix 4.3 of the remedial EIAR) put in place in accordance with IPC Licence requirements.

In landscape and visual terms, activity associated with the Current Phase of the site, which includes/included clean-up of remaining or unconsolidated waste or materials, cleaning of silt ponds and removal of peat stockpiles, removal of buildings, fuel tanks, pumps and compounds. These interventions comprise minor are subtle physical clean-up works within the baseline context of cutaway peatlands will result in positive landscape and visual effects. The resulting effects are assessed as being of a low magnitude and positive quality, giving rise to a slight positive significance.

Refer to see Chapter 12 (LVIA) for details.

Remedial Phase

The rehabilitation works will ultimately result in Positive effects from the restoration of natural landform patterns, reduction of visually intrusive features, and increased landscape diversity. Some residual visual contrasts will remain due to retained uses. The rehabilitation strategy will transform the bogs within the Application Site from degraded, industrial landscapes into dynamic semi-natural landscapes with biodiversity and amenity value as well as landscape and visual value. The long-term outcome will be a coherent and visually improved landscape consistent with peatland restoration objectives. For these reasons, the magnitude of medium- and long-term landscape and visual impact is deemed to be medium resulting in a slight-moderate and positive significance of effect.

Refer to Chapter 12 (LVIA) for details.

16.2.2 Biodiversity

16.2.2.1 Biodiversity and Land, Soils and Geology

Peat Extraction Phase (1988 – June 2020)

During the Peat Extraction Phase (June 1988 – June 2020), continued peat extraction and ancillary activities would have hindered the natural rehabilitation of raised bog habitats, while the altered hydrological conditions limited the habitats' capacity to rehabilitate. Habitat loss and fragmentation would have highly modified the natural state of bog habitats, replacing the original environment with large expanses of bare peat and cutover bog that supported relatively species impoverished flora and faunal community. From 1988 peat extraction activity

continued at the Application Site until June 2020 hindering natural habitat recovery. However, as peat extraction activity gradually declined from its peak in 1988, some abandoned or less intensively worked sections may have begun to recover, showing early signs of recolonisation and limited habitat rehabilitation.

Bord na Móna implemented standard operating procedures and best practices to manage environmental risks from peat extraction, particularly those relating to suspended solids and potential contamination. With these control measures in place, the predicted residual effect is assessed as Long-Term, Moderate, Negative.

In 2000, the EPA issued an Integrated Pollution Control (IPC) Licence (P0501-01), amended in 2012, to regulate peat extraction activities at the Derrygreenagh Bog Group, which included the Application Site. The IPC licence focuses on controlling and monitoring water emissions, addressing risks such as increased suspended solids due to soil disturbance, drainage, and sediment runoff, which can occur as peat surfaces are exposed and prone to erosion, particularly during heavy rainfall. With the implementation of standard operating procedures and IPC Licence control measures effects during the Peat Extraction Phase resulted in long-term, moderate negative impact on habitats and associated fauna.

Given the already degraded state of the site in 1988 and the lack of mitigation measures, the impacts on fauna during this Phase are considered to have been long term, moderate, and negative.

Please see Chapter 7 (Biodiversity) for details.

Current Phase (June 2020 - Present Day)

Since the cessation of peat extraction in 2020, activities at the Application Site have focused on decommissioning and rehabilitation activities that have not resulted in further loss or degradation of habitats. Access for machinery for decommissioning and peat stockpile removal carried has been restricted to areas previously affected by peat extraction, preventing disturbance to undisturbed habitat.

During the Current Phase of the Project, the impact on local fauna has remained relatively limited, with the primary concern being the potential degradation of habitats that support various species such as Otters, Badger, Irish Hare, and other species that rely on stable water quality and suitable habitat conditions.

With the cessation of peat extraction, the reduced levels of activity have allowed regeneration from the natural regrowth of vegetation on disturbed cutover bog areas now offering more diverse and structurally complex habitats, and so the Residual Effect are considered Long-term, Moderate, Positive.

Please see Chapter 7 (Biodiversity) for details.

Remedial Phase

The implementation of the draft Cutaway Bog Decommissioning and Rehabilitation Plans is a crucial step in restoring the ecological integrity of the peatland areas within the Application Site. The Rehabilitation Plans are designed to stabilise previously disturbed peatland, reducing erosion, preventing further habitat loss, and promoting the gradual recovery of ecosystem functions. Careful planning, including restricted machinery use, designated activity zones, and



ongoing environmental monitoring, will prevent habitat loss or degradation during the Remedial Phase. As outlined in the Biodiversity Chapter, these best practice measures will support peatland restoration, soil recovery, and long-term biodiversity enhancement, resulting in a permanent, significant, positive effect on habitats within the Application Site.

The expansion of habitats such as heath, scrub, and woodland, which have developed since peat extraction ceased, will provide increased cover and nesting opportunities for bird species, while also supporting local populations of foraging and commuting mammals, including bats, small mammals, and badgers. Although minor and temporary disturbances to fauna may occur, no significant long-term negative effects are anticipated. Instead, the rehabilitation measures are expected to have a long-term, moderate, positive impact on fauna by enhancing habitat availability and ecological connectivity.

During the Remedial Phase measures set in place will bring about stabilisation of the soils and habitats at the Application reducing vulnerability to erosion. This will improve conditions including water quality at the site and the quality of water flowing from the Application Site to the pNHAs and European sites.

Please see Chapter 7 (Biodiversity) for details

16.2.2.2 Biodiversity and Hydrology and Hydrogeology

Peat Extraction Phase (1988 – June 2020)

As outlined in the Biodiversity Chapter, while adverse effects on water and connected habitats had occurred by 1988, best practice control measures implemented by Bord na Móna helped mitigate impacts on water quality during peat extraction. These efforts were further reinforced by measures introduced following the issuance of the IPC Licence in 2000. Collectively, these measures not only protected water quality but also indirectly benefited surrounding habitats. However, despite these controls, peat extraction from 1988 onwards likely resulted in long term, moderate negative effects on aquatic habitats.

Water quality at the Application Site during this Phase also had indirect effects on terrestrial species, such as Otters and wetland birds, which rely on aquatic ecosystems for food and shelter. These impacts are considered to have been long-term, significant, and negative. Nevertheless, the implementation of best practices by Bord na Móna, alongside measures required under the IPC Licence, helped reduce the extent of these effects on both habitats and the species dependent on them.

During the Peat Extraction Phase, pNHAs were listed on a non-statutory basis in 1995, while two European sites relevant to the Project were designated in 1995 and 1996. Several pNHAs, and the two European sites have hydrological linkages to the Project. With the implementation of Bord na Móna's best practice control measures and the requirements of the IPC Licence, activities during this Phase would have ensured that hydrological effects on the sites were not significant. During this Phase of the Project, activities may have resulted in disturbance to mobile species from designated sites using the Application Site.

Current Phase (June 2020 - Present Day)

Since the cessation of peat extraction in June 2020, potential impacts on water quality have significantly decreased, including reduced risks of suspended sediment release and pollution



events affecting watercourses and groundwater. Protection measures in place help manage water quality, ensuring that adverse effects on aquatic species remain low. However, legacy effects of extraction activity on water quality may persist. Adopting a precautionary approach, the impacts on aquatic fauna and habitats during the Current Phase are considered to have long-term, slight, negative effects.

For terrestrial fauna, the primary concern during the Current Phase is the potential degradation of aquatic habitats that support species such as Otters and wetland birds, particularly in areas within and downstream of the Application Site. However, due to the water quality protection measures in place, the risks during this Phase are significantly lower than in previous Phases. As a result, the impacts on terrestrial fauna are assessed as long-term, slight, negative effects.

While several pNHAs and European sites are hydrologically connected to the Project, activities during this Phase are unlikely to have resulted to significant negative effects to the pNHAs and European sites. As the standard operation measures are focused on managing risk to water quality that will benefit the European and National Sites, the Residual Effects is reduced to Long-term, Not Significant, Negative.

The cessation of peat extraction activity in 2020 have resulted in a significant decrease in the potential for disturbance to species from European Sites using the Application Site.

Remedial Phase

The implementation of the proposed rehabilitation plans will enhance hydrological conditions, leading to long-term habitat improvement within the Application Site. This is expected to result in a permanent, significant, positive effect on existing habitats and associated fauna.

During the Remedial Phase, operations will be subject to required control measures, which, over time, have the potential to yield a long-term, significant, positive effect on water quality. As the restored peatlands become self-regulating, nutrient and sediment runoff to the surrounding watercourses will be significantly reduced.

Improvement in water quality at the site will, in turn, support the recovery of local habitats and aquatic fauna, enhancing the overall environmental condition of the site, and the quality of water flowing from the Application Site to designated sites. Additionally, the plans will improve downstream surface water hydrology, water quality, and aquatic habitats, benefiting downstream hydrologically linked European sites and National sites alike. The overall Residual Effect is a Long-Term, Moderate, Positive, Indirect Effect.

Please see Chapter 7 (Biodiversity) for details.

16.2.2.3 Biodiversity and Noise and Vibration

Peat Extraction Phase (1988 – June 2020)

Peat extraction and ancillary activities would have had resulted in disturbance to local bird populations utilising the site during this Phase. Noise from machinery, railway tracks, and human activity on site would have resulted in disturbance to species that may have been using the Application Site and nearby surrounding areas. The overall impact is considered to have had a long-term, moderate, negative effect on fauna.

Current Phase (June 2020 - Present Day)

Due to the lower volume of plant, machinery, and workers operating on site, the impact on fauna species as a result of disturbance and displacement are considered to be of a smaller magnitude than during the Peat Extraction Phase. Overall, the impacts on fauna during the Current Phase are assessed as having a long-term, slight, negative effect at the Application Site but also to mobile fauna from European sites that may be using the area

Remedial Phase

The rehabilitation activities are expected to result in minimal potential disturbance to fauna species as the works will involve only a short-term presence of machinery and personnel which will be much lower in volume compared to the past peat extraction activities. Whilst there may be some temporary disturbance to local fauna, and mobile fauna from European sites that may be using the Application Site, the overall outcome of the proposed rehabilitation plan has the potential to have long-term, moderate, positive effects on fauna (as described in more detail in the Biodiversity Chapter).

Please see Chapter 7 (Biodiversity) for detail

16.2.2.4 Biodiversity and Air Quality and Climate

Peat Extraction Phase (1988 – June 2020)

Peat extraction and ancillary activities during the Peat Extraction Phase would have generated dust impacts at nearby properties within the Study Area. The milling, harrowing, ridging and harvesting processes would have generated some dust emissions. However, it is noted that the stockpiled peat was typically covered once extracted in order to keep the peat dry until required for use, greatly reducing the potential for dust emissions from stockpiled peat. The Study Area is of low sensitivity to dust soiling. Peat extraction can be considered under the heading of 'Earthworks' and can be classified as 'large' within the IAQM Guidance. Therefore, combining the large dust magnitude with the sensitivity of the Study Area results in an overall low risk of dust soiling.

In relation to bog fires during the Peat Extraction Phase, these would have generated air quality impacts from ash. Based on the data in the AERs there is record of a bog fire at the Application Site in 2013. Due to the short-term and infrequent nature of the bog fires, air quality impacts are not predicted to have been significant

Due to the low level changes in traffic associated with the Peat Extraction Phase and the low background concentrations of pollutants, it can be concluded that the impact to air quality from traffic emissions in the Peat Extraction Phase was direct, long-term, negative and not significant.

It can be concluded that the activities on Application Site had a long-term, localised, negative and slight impact on air quality which is overall Not Significant.

Please see Chapter 10 (Air Quality) for further details.

As mentioned in Section 16.2.1.2 above, it is estimated that there was on average 39,693 tonnes of CO₂ per annum released from the Application Site over the 32-year period between June 1988 and June 2020. The removal of the carbon store of the site and the subsequent release of CO₂ from peat extraction and ancillary activities during the Peat Extraction Phase resulted in a



major significant adverse impact to climate, equating to long-term, direct, negative and significant effects.

Please see Appendix 15-1 (Carbon Calculations) and Chapter 15 (Climate) for further details and the assessment of climate effects resulting from Bord na Móna's historic peat extraction activities and ancillary activities at the Application Site.

Current Phase (June 2020 – Present Day)

During the Current Phase, the activity on the Application Site is much reduced due to the cessation of peat extraction. The activity included the removal and transportation off site of any remaining peat stockpiles which was completed in 2021. There was the potential for dust emissions associated with the removal of stockpiled peat. The dust control measures stipulated within the IPC licence for the Application Site are required to be in place to avoid potential dust issues. Dust emissions are predicted to have had a short-term, negative and imperceptible impact on air quality which is overall not significant.

In relation to bog fires during the Current Phase, these would have generated air quality impacts from ash. The most recent incident occurred at Drumman Bog in July 2026 following a period of exceptionally high temperatures. Corrective measures implemented to prevent the spread of the fire both within and beyond Bord na Móna lands included the establishment of fire breaks. Due to the short-term and infrequent nature of the bog fires, air quality impacts are not predicted to have been significant.

Traffic emissions from vehicles accessing the site during the Current Phase are not predicted to significantly impact air quality due to the low number of vehicles.

Please see Chapter 10 (Air Quality) for further details.

Despite peat extraction ceasing at the Application Site in June 2020, areas of degraded bogs will continue to act as sources of these GHG until they are either rewetted/revegetated, the peat is removed, or all the remaining peat has oxidised. The Current Phase of the Project has the potential to emit approximately 3,033 tCO₂e each year until the land is rewetted or revegetated or developed into an alternative land use.

The impact to climate from the Current Phase is considered minor adverse. This equates to a long-term, negative and not significant effects as per the EPA EIA terminology. Emissions from vehicles accessing the site will be minimal in nature.

Please see Chapter 15 (Climate) for further details.

Remedial Phase

There are minimal works involved in the Remedial Phase that have the potential to impact air quality. The impact to air quality from dust emissions during the Remedial Phase will be direct, long-term, localised, negative, and imperceptible which is overall not significant. Impacts from vehicle emissions will be long-term, neutral and imperceptible due to the low number of vehicles required for the works, which is overall not significant.

Please see Chapter 10 (Air Quality) for further details.

The rehabilitation phase will include re-wetting the bogs which will aid in restoring the carbon store function and promote the carbon sink potential of the land. The impact to climate is long-term, positive and not significant.

Please see Chapter 15 (Climate) for further details.

16.2.2.5 Biodiversity and Landscape and Visual

Peat Extraction Phase (1988 – June 2020)

During the Peat Extraction Phase (July 1988 – July 2020) the main activities at the Application Site included installation of drainage, vegetation clearance/stripping and peat extraction. At the commencement of this period, the Application Site was already substantially altered from its original condition as a raised bog system. Habitats within the site were predominantly associated with cutover peatland, areas of bare peat and limited remnants of raised bog habitat. Consequently, the additional habitat loss attributable to the period between 1988 and the cessation of extraction in 2020 was limited relative to the extensive habitat changes that had already taken place. These peat extraction activities and ancillary activities are considered to have had a Long-term, Moderate, Negative Effect on the bog habitats at the Application Site.

Please see Chapter 7 (Biodiversity) for details.

The physical landscape impact on the bog itself from the extraction operations in combination with associated transport infrastructure would have contributed to an industrialisation of the previously naturalistic bog landscape. As most of this had already occurred prior to 1988, the landscape impacts of the production phase are considered to be of a Medium magnitude. When combined with the Low landscape sensitivity judgement (see section 12.3.2 of Chapter 12 (LVIA)), the overall significance of effect is deemed to be Moderate-slight, which is not deemed to be a significant effect in EIA terms.

Please see Chapter 12 (LVIA) for details

Current Phase (June 2020 – Present Day)

Decommissioning works of peat extraction and ancillary activities at the Application Site commenced following the cessation of peat extraction activities from June 2020. This was required as part of the IPC Licence and agreed with the EPA. These interventions comprise minor physical clean-up works within the baseline context of cutaway peatlands. They will result in positive landscape and visual effects through the removal of historic infrastructure and waste materials. The works will also deliver ecological benefits, which contribute to the landscape character and visual amenity.

Please see Chapter 12 (LVIA) for details.

The removal of peat stockpiles has been carried out without contributing to further degradation, fragmentation, or loss of habitats. It is deemed that there have been no additional likely significant effects since cessation of extraction. While the reduction in extraction activity may have allowed some habitat recovery, adopting a precautionary approach, the potential effect to habitats have been assigned to be **Long-term, Moderate, Positive** to reflect the likely rehabilitation of habitats in smaller area of the Application Site.

Please see Chapter 7 (Biodiversity) for details.

Remedial Phase

Draft Cutaway Bog Decommissioning and Rehabilitation Plans have been prepared for Derryhinch, Derryarkin, Drumman, Ballybeg and Toar Bogs, which set out a coordinated programme of remedial interventions designed to achieve hydrological restoration and natural colonisation (see Table 4.7 of Chapter 4 – Project Description). The common principal measures comprise drain blocking, modification of outfalls, water level management and phased reduction of infrastructure. These measures represent a transition from a post-industrial and engineered peat extraction landscape within the Application Site, to more naturalistic wetland, scrub and woodland mosaics.

The dominant intervention is drain-blocking and water level control. This will reduce linear drainage patterns and increase surface water expression, resulting in a more naturalised terrain and reduced engineered character. In terms of revegetation, natural regeneration will lead to the development of fen, reedbeds, scrub and woodland. This will reduce exposed peat and introduce visual diversity, texture and seasonal variation. Different interventions across peat depths will create a varied landscape comprising wetlands, scrub and dry areas and contribute to a mosaic landscape structure. This, in turn, will enhance habitat complexity and visual interest.

The rehabilitation works will ultimately result in Positive effects from the restoration of natural landform patterns, reduction of visually intrusive features, and increased landscape diversity. Some residual visual contrasts will remain due to retained uses. The rehabilitation strategy will transform the bogs within the Application Site from degraded, industrial landscapes into dynamic semi-natural landscapes with biodiversity and amenity value as well as landscape and visual value. The long-term outcome will be a coherent and visually improved landscape consistent with peatland restoration objectives. For these reasons, the magnitude of medium- and long-term landscape and visual impact is deemed to be Medium resulting in a Moderate-slight and Positive significance of effect.

The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans is a crucial step in restoring the ecological integrity of the peatland areas within the Application Site. These plans are designed to stabilise previously disturbed peatland, reducing erosion, preventing further habitat loss, and promoting the gradual recovery of ecosystem functions. By re-wetting and re-vegetating cutaway bogs, the rehabilitation efforts will help enhance hydrological stability, reduce carbon loss, and support the regeneration of semi-natural habitats.

Overall, the implementation of these rehabilitation efforts is expected to result in a Long-term, Significant, Positive effect on the habitats within the Application Site. These improvements will support biodiversity recovery, facilitate the return of key species, and contribute to the broader environmental sustainability of the area.

16.2.3 Lands, Soils and Geology

There are no further interactions anticipated beyond that already assessed in Chapter 8 – Land, Soils & Geology and Chapter 9 – Hydrology, Hydrogeology and Water Quality.

16.2.3.1 Land, Soils and Geology and Hydrology and Hydrogeology

Peat Extraction Phase (1988 – June 2020)

The effects of drainage may have accelerated peat decomposition and reduced dissolved and particulate organic carbon retention within the peat. The Application Site has been moderate in terms of water quality since regular monitoring commenced. The waters of the catchment area are also of moderate quality. There has not been any significant deterioration or changes in water quality since 1988 and the overall water quality of the region is moderate.

Please see Chapter 8 (Land, Soil and Geology) and Chapter 9 (Hydrology, Hydrogeology and Water Quality) for further details.

Current Phase (June 2020 – Present Day)

Decommissioning of the peat extraction activities associated with the IPC Licence are currently underway across the Application Site. During the Current Phase some limited activity at the Application Site is required to comply with the IPC Licence requirements. This involves the use of machinery and plant with which there is a risk of accidental spillage of hydrocarbons. The Derrygreenagh Works remains occupied and discharges from wastewater systems (septic tanks) etc. have the potential to cause surface water and groundwater contamination. These risks are the same as those in the Peat Extraction Phase, albeit to a lesser extent due to lower site activity and lower volumes of plant, machinery and workers operating at the site during the Current Phase.

Please see Chapter 8 (Land, Soil and Geology) and Chapter 9 (Hydrology, Hydrogeology and Water Quality) for further details.

Remedial Phase

Monitoring data show that downstream water quality is not significantly altered since the cessation of peat extraction. The effect on downstream surface water quantity is unlikely to be significant, as drainage systems were designed to limit runoff to greenfield rates.

Following the implementation of the draft Cutaway Bog Decommissioning and Rehabilitation Plans (Appendix 4-3), the bogs will become wetter, retain more water, and gradually recolonise with vegetation. Over time, they will develop into a peatland / wetland mosaic with reduced silt and nutrient outputs.

As a result, the residual effects of these plans are expected to have a moderate, positive, indirect, and long-term effect on downstream surface water hydrology and water quality.

Please see Chapter 8 (Land, Soil and Geology) and Chapter 9 (Hydrology, Hydrogeology and Water Quality) for further details

16.2.3.2 Land, Soils and Geology and Archaeology and Cultural Heritage

There are no further interactions anticipated beyond that already assessed in Chapter 8 – Land, Soils & Geology and Chapter 13 – Archaeology & Cultural Heritage.

Peat Extraction Phase (1988 – June 2020)

It is possible that significant negative effects could have taken place to sub-surface finds and features. This negative effect would have been mitigated by Peatland Surveys from 1988



onwards as well as the introduction of the 2012 Code of Practice between the Department of Arts, Heritage and the Gaeltacht, the National Museum of Ireland and Bord na Móna. Over the course of the Peat Extraction Phase a total of 606 previously unrecorded archaeological sites were identified during Peatland Surveys with many subsequently added to the RMP or SMR. Numerous archaeological artefacts have also been recorded in the Application Site. Peat extraction activities and all ancillary works, including drains, milling, and extraction had a direct, permanent negative impact (of high or very high magnitude) on the cultural heritage resource within the Application site. It is likely that the significance of effect varied from significant to very significant. However, with the mitigation measures implemented the works have had a direct positive effect on the cultural heritage.

Whilst there has been an increase in the level and understanding of the archaeological and historical landscape as a result of archaeological assessments, subsequent excavations and preservation works, these investigations were not applied across the entire Application Site, with archaeological remains identified during surveys at Derryhinch, Drumman and Derryarkin, not subject to any further archaeological investigations. It is noted that following the initial survey, no further archaeological works took place in Derryhinch, Drumman and Derryarkin Bogs. In this regard it is considered that that residual effects on sub-surface finds and features from 1988 to 2020 were direct, permanent and negative, varying from slight to significant. The various acts (National Monuments Acts, Turf Development Acts 1946 - 1998 (section 56) and the 2012 Code of Practice) have afforded appropriate protection for the environment and archaeological heritage.

Please see Chapter 13 (Cultural Heritage) for further details.

Current Phase (June 2020 - Present Day)

In terms of cultural heritage, whilst peat extraction has ceased, it is possible that decommissioning works may result in impacts on recorded monument OF011-059 (Ballybeg Bog), and any other previously unrecorded archaeological features that may survive within the Application Site. Following the implementation of Control Measures, the residual effect is determined to be direct, permanent and positive, and of moderate significance.

Remedial Phase

Remedial activities such as drain blocking or tracking over peat fields may have a negative effect on any sub-surface archaeological finds or features that may be present on or beneath the surface of the peat, along with recorded stone enclosure OF011-059. This may result in a permanent, negative and significant effect. Following the implementation of Mitigation Measures, the residual effect is determined to be direct, permanent and positive, and of moderate significance.

Please see Chapter 13 (Cultural Heritage) for further details.

16.2.3.3 Land, Soils and Geology and Landscape and Visual

There are no further interactions anticipated beyond that already assessed in Chapter 8 – Land, Soils & Geology and Chapter 12 – Landscape & Visual Assessment.

Peat Extraction Phase (1988 – June 2020)

The landscape effects of the Peat Extraction Phase from 1988 to the cessation of peat extraction in 2020 are considered to be of a medium magnitude. When combined with the low landscape sensitivity judgement (see section 12.3.2 of Chapter 12 (LVIA)), the overall significance of effect is deemed to be moderate-slight.

The magnitude of visual effects is not considered to have been greater than Low. When combined with the low visual receptor sensitivity judgement (see section 12.3.2 of Chapter 12 (LVIA)), the overall significance of effect is deemed to be slight.

Please see Chapter 12 (LVIA) for full details.

Current Phase (June 2020 - Present Day)

As discussed above in Section 16.2.1.6. whilst ongoing, the activities in the Current Phase are considered to generate a low magnitude of landscape effect and a low magnitude of visual effect, giving rise to a slight positive significance. Please see Chapter 12 (LVIA) for full details.

Remedial Phase

Bord na Móna are required under Condition 10.2 of the IPC Licence to prepare and implement, a Cutaway Bog Decommissioning and Rehabilitation Plan. The long-term outcome will be a coherent and visually improved landscape consistent with peatland restoration objectives. For these reasons, the magnitude of medium- and long-term landscape and visual impact is deemed to be medium resulting in a slight-moderate and positive significance of effect.

16.2.3.4 Land, Soils and Geology and Air Quality and Climate

There are no further interactions anticipated beyond that already assessed in Chapter 8 – Land, Soils & Geology, Chapter 10 – Air Quality and Chapter 15 - Climate.

Peat Extraction Phase (1988 – June 2020)

Historic peat extraction activities would have generated dust effects at nearby properties. The activities on Application Site had a long-term, localised, direct, negative and slight effect on Air quality and Climate.

Current Phase (June 2020 - Present Day)

There are minimal works involved in the Remedial Phase that have the potential effect on air quality. No interactions are anticipated during this phase.

Remedial Phase

There are minimal works involved in the Remedial Phase that have the potential effect on air quality. No interactions are anticipated during this phase.

16.2.4 Vulnerability to Natural Disasters

During the Peat Extraction and Current Phases of the Project from 1988 to the present day, there have been no major accidents and/or natural disasters recorded.

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 which may originate on-site. This Procedure shall include provision for



minimising the effects of any emergency on the environment. As the IPC licence is still active, this procedure is still in place.

16.3 RESIDUAL EFFECTS

Where any potential interactive negative effects have been identified in the above, a full suite of appropriate control measures and mitigation measures has already been included in the relevant sections (Chapters 6–15) of the remedial EIAR and are detailed in Chapter 17 (Schedule of Mitigation) of this remedial EIAR.

The implementation of control and mitigation measures have been reduced, will reduce or remove the potential for their effects. Information on potential residual effects and the significant of effects, is also presented in each relevant chapter.

