FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

LONGFORDPASS, LITTLETON, LANESPARK AND DERRYVELLA BOGS – APPLICATION FOR SUBSTITUTE CONSENT

Remedial Environmental Impact Assessment Report

Chapter 15 – Interactions

Prepared for:

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BnM

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15.1 Introduction

The preceding Chapters 5 to 14, Volume 2, of this rEIAR, set out and evaluate the potential significant environmental effects that have arisen, and those likely to occur in the future, in relation to 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 described in Chapter 4 - Development of the Description, Volume 2, of this rEIAR.

This chapter considers the potential interactions between these environmental effects, assessed as part of the overall Impact Assessment process. Although not all components of the rEIAR were prepared directly by Fehily Timoney and Company, the entire project and the work of all sub-consultants were managed and coordinated by Fehily Timoney and Company.

Fehily Timoney and Company also edited and compiled this rEIAR into a single integrated report, drawing together the findings of the relevant expert assessments. Potentially interacting effects have been examined in detail within the individual chapters and are summarised in Section 15.2 below. Where adverse effects were identified during the assessment process, they have either been avoided through design or mitigated by the control measures and proposed mitigation methods outlined throughout the rEIAR.

15.1.1 Statement of Authority

This chapter has been prepared by Ida Wulff and Evan Rossiter and reviewed and approved by Jim Hughes, all of Fehily Timoney and Company.

Ida Wulff is a Graduate Planner with Fehily Timoney and Company and holds a Masters' degree in Planning and Sustainable Development, and a Bachelor's degree in International Development from University College Cork. She has 1 year of experience and has prepared EIAR chapters for large-scale renewable energy developments, grid infrastructure, and LDES/BESS projects.

Evan is a Senior Project Planner with a BSc in City Planning and Environmental Policy and a Masters in Regional and Urban Planning (MRUP) from University College Dublin. Evan has 4 years' experience and has prepared EIAR Chapters for a range of development types, including renewable energy developments, throughout Ireland.

This chapter has been reviewed and approved by Jim Hughes. Jim holds a BA in Public Administration from the University of Limerick, an MSc in Town Planning from Queen's University Belfast and a Higher Diploma (H.Dip) in Environmental Impact Assessment from University College Dublin and has over 20 years of experience. Jim has led major Irish projects in the planning, environmental assessment and permitting disciplines including many wind farm developments.

15.2 Interaction of Effects

For any development with the potential to generate significant environmental effects, there is also the possibility of interactions occurring between these effects. Such interactions may intensify the overall impact, lessen it, or result in a neutral outcome.

Table 15-1, below, presents an interaction matrix that illustrates potential relationships between the environmental aspects assessed in this rEIAR. The matrix highlights where interactions, whether positive or negative, may arise during the Peat Extraction Phase, the Current Phase, and the Remedial Phase. It is structured symmetrically, with each environmental aspect addressed in Chapters 5 to 14, Volume 2, positioned along both axes.

Table 15-1: Matrix of Interaction Between Key Environmental Aspects

	Population and Human Health	Biodiversity	Land, Soils, and Geology	Hydrology, Hydrogeology, and Water Quality	Air Quality	Noise and Vibration	Landscape and Visual	Cultural Heritage	Material Assets	Climate
Population and Human Health										
Biodiversity										
Land, Soils, and Geology										
Hydrology, Hydrogeology, and Water Quality										
Air Quality										
Noise and Vibration										
Landscape and Visual										
Cultural Heritage										
Material Assets										
Climate										

15.2.1 Population and Human Health and Noise and Vibration

15.2.1.1 Peat Extraction Phase (1988 - 2017)

Excessive noise can lead to hearing impairment, disrupted sleep, hypertension, cardiovascular disease, and general annoyance, all of which may negatively affect individual health and well-being. As described within Table 10-13, Chapter 10 Noise and Vibration, Volume 2, given that rail movements occurred infrequently, the speed of vehicles is low, the distance to vibration sensitive locations is high, and vibration reduces significantly with distance from the source, the likelihood of vibration impacts is low. In addition, Bord na Móna have confirmed that there is no record of noise or vibration complaints from operation of the Application Site. Therefore, vibration from potential activities including peat excavation works, HGV movements and rail movements are likely have been low.

Considering the Application Site as a whole, during peat extraction works, noise generated by peat extraction activities have the potential to exceed the site licence noise limit and therefore have an impact at up 34 properties, if peat extraction activities occur within 300m of the properties (please refer to section 5.4.2.2 in Chapter 5 - Population and Human Health, Volume 2). As detailed in 10.5.1 (Chapter 10 - Noise and Vibration, Volume 2), the noise impact of peat extraction and ancillary activities during the Peat Extraction Phase ranges from an imperceptible effect at properties furthest from site activities to a slight negative effect that is long term in nature, closer to site activities. .

By 1988 peat extraction was well established at the Application Site. Drainage was installed in all bogs and railway infrastructure was laid on all bogs as required. In 1988, different types of machinery were in use on the Application Site during different seasons of the year, for the purposes of peat extraction and ancillary activities are listed in Chapter 4 - Description of the Development, Volume 2, of this rEIAR.

In absence of baseline noise data from 1988, the baseline noise data from the 2021 survey has been used to assess Noise, as at the time of the survey peat extraction at the Application Site had ceased. It has been gathered that the main noise sources in the area are noise from the M8 motorway to the north of the Application Site, other noise sources would typically include road traffic on local roads, and agricultural machinery and activities on adjacent land.

Overall, significant adverse effects on the health of sensitive receptors in the local population during the Peat Extraction Phase are considered unlikely, given their distance from the extraction areas and the seasonal nature of operations. Accordingly, the noise impact of peat extraction and ancillary activities during the Peat Extraction Phase ranges from an imperceptible effect at properties furthest from site activities to a slight negative effect that is long term in nature, closer to site activities.

15.2.1.2 Current Phase (2017 - Present Day)

Peat extraction activities ceased in 2017. Since that time, operations at the Application Site have continued in accordance with IPC Licence P0499-01. These operations are further detailed in Chapter 4 - Description of the Development, Volume 2, and entail peatland rehabilitation plans (Rehabilitation Phase 1). During the Current Phase, reduced activity levels have resulted in significantly fewer noise-generating movements compared to the Peat Extraction Phase.

Chapter 10 - Noise and Vibration, Volume 2, of this rEIAR presents the noise assessment for the Current Phase. Based on the predicted noise levels, the Application Site has been in full compliance with the noise limits set out in the IPC Licence during the Current Phase.

Noise emissions in this phase primarily arise from onsite machinery associated with stock-pile removal and the seeding of nursery crop for rehabilitation, staff vehicles associated with monitoring, and occasional truck movements. These are detailed in the Appendix 4.2 Cutaway Bog Decommissioning and Rehabilitation Plans, Volume 3. As for the peat extraction phase, when decommissioning works occur the IPC noise level has the potential to be exceeded at the nearest noise sensitive locations. This has the potential to affect a northern and southern sliver of the Longfordpass Bog, the northern section of Derryvalla Bog, and the western and southwest section of the Lanespark Bog.

In summary, during the Current Phase, with both decommissioning and Rehabilitation Phase 1 works, the predicted noise is within the Application Site IPC Licence noise limits of 55 dB $L_{Aeq,30min}$ +2dB at the closest NSLs to the site.

Overall, noise emissions associated with current onsite activities are lower than those recorded during the Peat Extraction Phase. The noise impact is predicted to have a range of effects between an imperceptible effect at properties furthest from site activities to a slight negative effect that is long term in nature, closer to site activities. .

15.2.1.3 Remedial Phase

The remedial works are more likely to occur near the drainage channels, and where the infrastructure elements are to be decommissioned. It is likely to involve less intensive use of plant than during the peat extraction and decommissioning phases and is likely to be spread out more around the bogs.

Noise emissions associated with these rehabilitation works are expected to be lower than those recorded during the Peat Extraction Phase. The Noise and Vibration assessment concludes that residual effects during the Remedial Phase are negative but not significant.

For Remedial works, Rehabilitation Phase 2 works are predicted to have a range of effects between an **imperceptible effect** at properties furthest from site activities to a **slight negative effect** that is long term in nature, closer to Rehabilitation Phase 2 site activities..

This is further detailed in Chapter 10 - Noise and Vibration, Volume 2, and Appendix 4.2 Cutaway Bog Decommissioning and Rehabilitation Plans, Volume 3.

15.2.2 Population and Human Health and Air Quality

15.2.2.1 Peat Extraction Phase (1988 - 2017)

Peat extraction and ancillary activities generated dust emissions within the vicinity of the Application Site, as outlined in Chapter 9 - Air Quality, Volume 2, of this rEIAR. Processes such as milling, harrowing, ridging, and harvesting contributed to dust generation, while vehicle movements during the Peat Extraction Phase also affected local air quality.

The Air Quality assessment determined that the worst-case impact from traffic emissions during peat extraction was direct, negative, long-term, and imperceptible. Dust emissions from extraction activities had the potential to cause soiling and minor health effects at nearby sensitive receptors. The assessment identified a low risk of dust soiling impacts, and a low risk of dust-related human health and ecological impacts, based on IAQM criteria.

Under the IPC licence, a range of dust control measures and monitoring requirements were implemented to ensure emissions did not adversely affect sensitive receptors. Dust monitoring results from the AER reports from 2002 to 2017 indicated that dust limits set out in the IPC licence conditions were exceeded on many occasions. Nevertheless, there are no dust-related complaints ever received by the Application Site. 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. The overall Air Quality assessment concluded that Application Site activities resulted in long-term, localised, direct, negative, but slight effects on air quality.

Accordingly, activities during the Peat Extraction Phase are considered to have resulted in long-term, negative, but not significant effects on population and human health due to air quality impacts. Further detail is provided in Chapter 9 - Air Quality, Volume 2.

15.2.2.2 Current Phase (2017 - Present Day)

Peat extraction ceased in 2017. Since then, emissions have been limited to staff vehicles associated with monitoring, and occasional truck movements associated with the removal of stock-piling. With the dust control measures required under the IPC licence in place and given the limited scope of works and the small number of receptors within the highest impact zone, dust emissions during this phase are assessed as direct, long-term, localised, negative, and imperceptible.

Given the reduced volume of vehicles and machinery, exhaust emissions are also predicted to have an imperceptible impact on air quality.

Accordingly, the Current Phase is considered to have resulted in short-term, imperceptible, neutral residual effects on population and human health in relation to air quality.

This is further detailed in Chapter 9 - Air Quality within Volume 2.

15.2.2.3 Remedial Phase

The Remedial Phase will involve limited activities with potential to affect air quality. Key works include site re-vegetation, drain blocking, and re-wetting of bogs where feasible. Ongoing monitoring will be undertaken to ensure site stabilisation and full re-vegetation.

Dust emissions during the Remedial Phase are expected to result in direct, long-term, localised, negative, but imperceptible effects on air quality. Vehicle emissions will be neutral and imperceptible, reflecting the low number of vehicles required for the works. Accordingly, the Remedial Phase is predicted to result in long-term, neutral, and not significant residual effects on population and human health in relation to air quality.

This is further detailed in Chapter 9 - Air Quality within Volume 2.

15.2.3 Population and Human Health and Climate

15.2.3.1 Peat Extraction Phase (1988 - 2017)

It is estimated that an average of 161,452 tonnes of CO_2eq per annum was released from the Application Site over the 30-year period between 1988 and 2017. Appendix 14.1 - Carbon Calculations, Volume 3, provides details on how this figure was derived, while Chapter 14 - Climate, Volume 2, presents the assessment of climate impacts associated with Bord na Móna's historic peat extraction and ancillary activities.

The release of CO_2 during the Peat Extraction Phase is assessed as a direct, long-term, negative, and significant residual effect on population and human health due to climate impacts. This is further detailed in Chapter 14 - Climate, Volume 2.

15.2.3.2 Current Phase (2017 - Present Day)

There are no carbon losses associated with peat removal on-site during the Current Phase as peat extraction has ceased. Vehicle emissions and embedded emissions from the mining and processing of the fertilisers are not significant and are likely to be offset by carbon sequestration of vegetation growth. The effect on climate is short-term, imperceptible and neutral.

15.2.3.3 Remedial Phase

The primary focus of the Cutaway Bog Decommissioning and Rehabilitation Plans is re-wetting the bogs which will aid in restoring the ability of the Application Site to act as a carbon sink. With the restoration of the carbon sink potential of the land, albeit, to a lesser extent than the potential prior to the historic removal of the peat, the Application Site will aid in Ireland's trajectory towards net zero by 2050. Vehicle emissions and embedded emissions from the mining and processing of the fertilisers are not significant and are likely to be offset by carbon sequestration of vegetation growth. The effect on climate is considered long-term, neutral and not significant. This is further detailed in Chapter 14 - Climate, Volume 2.

15.2.4 Population and Human Health and Land, Soils and Geology

15.2.4.1 Peat Extraction Phase (1988 - 2017)

Peat extraction activities inherently affect peat layers and underlying subsoils, resulting in a substantial alteration of the land and soil environment during the extraction phase. The use and storage of hydrocarbons, along with small quantities of chemicals, present a common risk across many types of development, including potential accidental spills, pollution, and contamination. No evidence of contamination was identified at the site. Bord na Móna implemented proven and effective measures to mitigate the risk of spills and leaks during the peat extraction phase. These controls effectively interrupted the pathway between potential sources and receptors. The residual impact is assessed as negative, imperceptible, direct, short-term, unlikely and reversible, affecting peat, subsoils, and bedrock.

The potential for soil contamination is considered to have posed a negative, imperceptible, short-term, unlikely and reversible effect on population and human health during the peat extraction phase.

15.2.4.2 Current Phase (2017 - Present Day)

The Current Phase has involved the removal of peat stockpiles and loose peat from active extraction areas, allowing the site to re-vegetate naturally through recolonisation. No instances of peat instability have been recorded within the application site. No intrusive works are being undertaken, and the management of fuels, chemicals, and hydrocarbons complies with the IPC Licence requirements. Consequently, the likelihood of soil contamination or peat instability is considered low.

Overall, this phase is associated with a short-term, imperceptible, negative effect on population and human health in relation to land, soils, and geology.

15.2.4.3 Remedial Phase

The remedial phase will involve limited use of machinery. Management of fuels, chemicals, and hydrocarbons on-site will remain in full compliance with IPC Licence requirements. As a result, the potential for soil contamination or peat instability is considered unlikely.

This phase is expected to have a short-term, imperceptible, negative effect on population and human health in relation to land, soils, and geology. This is further detailed in Chapter 7 - Land, Soil and Geology, Volume 2.

15.2.5 Population and Human Health and Water

15.2.5.1 Peat Extraction Phase (1988 - 2017)

During the Peat Extraction Phase, there was potential for pollutant pathways from the Application Site to nearby waterbodies due to the storage of fuel and other substances, which could have impacted local water quality and, potentially, water supplies. However, measures were implemented during this phase to prevent the release of pollutants and silt from the site, thereby reducing any risk to human health from water sources. Drainage channels and silt ponds were established by 1988, and activities at the site have been regulated under IPC Licence (Reg. No. P0499-01) since 2001.

Given the nature of the peat extraction process, combined with the control measures and environmental monitoring in place, water-related effects on population and human health during this phase are considered unlikely.

This is further detailed in Chapter 8 - Hydrology, Hydrogeology, and Water Quality, Volume 2.

15.2.5.2 Current Phase (2017 - Present Day)

During the Current Phase, limited activity is required at the application site to maintain compliance with IPC Licence requirements. This includes the use of machinery and plant, which carries a risk of accidental hydrocarbon spills.

However, with peat extraction ceased and control measures and environmental monitoring in place, water-related effects on population and human health during this phase are considered unlikely.

This is further detailed in Chapter 8 - Hydrology, Hydrogeology and Water Quality, Volume 2.

15.2.5.3 Remedial Phase

Following the implementation of the proposed Cutaway Bog Decommissioning and Rehabilitation Plans (Appendix 4.2, Volume 3), the bogs will become wetter, retain more water, and gradually recolonise with vegetation. Over time, they will evolve into a peatland/wetland mosaic, resulting in reduced silt and nutrient outputs.

Consequently, bog rehabilitation during the remedial phase is expected to deliver a long-term, slight, positive residual effect on population and human health through improved water quality.

This is further detailed in Chapter 8 - Hydrology, Hydrogeology and Water Quality, Volume 2.

15.2.6 Population and Human Health and Material Assets

15.2.6.1 Peat Extraction Phase (1988 - 2017)

Peat extraction and ancillary activities at the Application Site generated additional traffic on public roads due to the transportation of peat to various end users nationwide. Vehicles had the potential to emit dust, soil roads, affect traffic flow, cause delays, or contribute to accidents. The effects of Peat Extraction Phase of the Application Site are assessed to have had a long-term, slight, negative effect on traffic and the surrounding road network.

During the same period, waste management at the facility became increasingly regulated following the introduction of IPC Licence P0499-01 in 2001, which required an Environmental Management System (EMS) and specific waste handling procedures. Both hazardous and non-hazardous waste were managed under the licence, supported by improved bunding, oil interceptors, and refuelling protocols. Peat extraction ceased in 2017, resulting in a reduction in waste volumes. Compliance with waste regulations, including the Waste Management Act 1996 (as amended), ensured proper disposal and reporting through the Annual Environmental Report (AER). The Peat Extraction Phase is considered to have had a long-term, imperceptible to slight, negative residual effect on population and human health due to waste management.

This is further detailed in Chapter 13 - Material Assets (including traffic and transport), Volume 2.

15.2.6.2 Current Phase (2017 - Present Day)

With the cessation of peat extraction, traffic volumes during the current phase are significantly lower than in the extraction phase. Control measures remain consistent with those previously implemented. Additionally, in line with Bord na Móna's vision for a climate-neutral Ireland by 2050, the applicant promotes car-sharing and cycle-to-work schemes for personnel, further reducing daily LGV numbers traveling to and from the site. Traffic generated during the ongoing decommissioning phase, including peat stockpile transport, is considered to have a short-term, imperceptible, negative effect on population and human health in relation to traffic volumes, roads, and road users.

Decommissioning activities are being carried out in accordance with Condition 10 of the IPC Licence, which requires the removal, disposal, or recovery of materials, equipment, and substances that could pose an environmental risk. This includes decommissioning buildings, equipment, waste, remaining peat stockpiles, and rail tracks, as outlined in the decommissioning plan. Waste management complies with Condition 7 of the IPC Licence, ensuring disposal or recovery by licensed contractors and maintaining appropriate records. Bord na Móna prioritizes reuse and recycling where feasible. Consequently, the current phase is assessed as having a short-term, slight, negative residual effect on population and human health due to waste management.

This is further detailed in Chapter 13 - Material Assets (including traffic and transport), Volume 2.

15.2.6.3 Remedial Phase

Activities during the remedial phase are expected to have a short- to long-term, imperceptible, negative effect on population and human health in relation to traffic volumes, roads, and road users.

Waste generated during this phase will primarily consist of minor items from environmental monitoring staff (e.g., food packaging, paper), which will be removed off-site by personnel and recycled where possible. The residual effect of remedial phase activities on waste management is considered to be a short-term, slight negative effect.

This is further detailed in Chapter 13 - Material Assets (including traffic and transport), Volume 2.

15.2.7 Population and Human Health and Landscape and Visual

15.2.7.1 Peat Extraction Phase (1988 - 2017)

Landscape Effects

Peat extraction operations resulted in broad-scale physical changes to the bog landscape. Combined with associated transport infrastructure, these activities contributed to the industrialisation of what was previously a naturalistic bog environment. However, most of this transformation had occurred prior to 1988. Consequently, the landscape effects of the peat extraction phase from 1988 until cessation in 2017 are assessed as Medium in magnitude. When considered alongside the **Low** landscape sensitivity (see Section 11.5.2 of Chapter 11 - Landscape and Visual, Volume 2), the overall significance of effect is determined to be **Moderate-slight**. In Environmental Impact Assessment (EIA) terms, this does not constitute a significant effect.

Visual Effects

By the baseline year of 1988, peat extraction within the Application Site had already been ongoing for approximately four decades. Two distinct peat products were extracted at the Application Site: sod peat and milled peat. Sod peat was extracted at the Application Site from 1952 to 1984.

As part of the development of the Application Site for peat extraction, parallel surface water drains were created by machine excavators at specific intervals, depending on whether milled or sod peat was being extracted. The strips of bog between these drains were retained to form peat extraction 'fields'. By 1988 drainage channels, silt ponds, outfalls and pumps were extant at the Application Site. The Planning Drawing Pack which shows the detailed drainage across the Application Site.

By 1988, a substantial portion of the bog had already been cutaway, drained, and prepared for extraction, with peat harvesting ongoing across the Application Site since 1952. The associated visual impacts primarily related to the presence and movement of workers, machinery, transport infrastructure, and accommodation or welfare facilities. Dust plumes were also likely to have been visible in active extraction areas.

From most receptor locations within approximately 1-2 km of the Application Site - including roads, settlements, and residences - the full extent of the Application Site was unlikely to have been visible. This was due to limited open views across the bogs and the screening effect of intervening vegetation. As a result, visual effects were generally confined to the immediate fringes of the bog.

Given this established baseline and the long-standing presence of industrial-scale peat extraction, predominantly during the summer months, it is unlikely that significant visual impacts arose between 1988 and the cessation of activities in 2017.

This distinction highlights the difference between landscape and visual impacts. Landscape impacts were large-scale, direct, and physical, resulting in a marked alteration of the landscape fabric and character. By contrast, visual impacts were less apparent, limited to discrete receptor locations, and therefore not directly comparable in significance. For these reasons, the magnitude of visual effects is assessed as **Low**. When combined with the **Low** visual receptor sensitivity rating (see Section 11.4.2 of Chapter 11 - Landscape and Visual, Volume 2), the overall significance of effect is determined to be **Slight**, which does not constitute a significant effect in EIA terms.

This is further detailed in Chapter 11 - Landscape and Visual, Volume 2.

15.2.7.2 Current Phase (2017 - Present Day)

Decommissioning at the Application Site commenced following the cessation of peat extraction in 2017, in accordance with the Cutaway Bog Decommissioning and Rehabilitation Plans (see Appendix 4.2, Volume 3, of the rEIAR) and IPC Licence requirements (see Appendix 4-1, Volume 3, of the rEIAR).

In landscape and visual terms, activities during the current phase, including removal of unused buildings and features, cleaning of silt ponds, and removal of peat stockpiles, are assessed as having a low magnitude effect on the physical landscape and land cover. These actions will facilitate regeneration through remedial phase measures once complete. Similarly, visual impacts are considered low in magnitude, particularly as many features being removed are located at a considerable distance from the public realm.

While ongoing, these activities are regarded as generating a low magnitude of landscape and visual effect, which is marginally negative. When combined with the low landscape sensitivity rating (see Section 11.5.2 of Chapter 11 - Landscape and Visual, Volume 2), the overall significance of effect for the Current Phase is deemed Slight / Neutral-Negative.

However, upon completion, works associated with Decommissioning within the Current Phase will have a positive landscape and visual effect, as the Application Site will exhibit less evidence of human influence compared to the operational baseline years (1988–2017).

Further, upon completion, works associated with Phase 1 Rehabilitation within the Current Phase are assessed as having **low-magnitude**, positive effects, resulting in a **slight/positive significance** in landscape and visual terms.

This is further detailed in Chapter 11 - Landscape and Visual, Volume 2.

15.2.7.3 Remedial Phase

Under Condition 10.2 of the IPC Licence, Bord na Móna is required to prepare and implement Cutaway Bog Decommissioning and Rehabilitation Plans (see Appendix 4-2, Volume 3).

Key measures relevant to the landscape and visual setting include rewetting of bogs through drain blocking, construction of berms, and reprofiling of fields. The remedial phase also incorporates grassland establishment and the development of birch-dominated scrub. These interventions are relatively subtle within the context of the existing cutaway peatland baseline and will deliver positive outcomes for biodiversity while creating a more naturalistic wetland appearance across the site.

The resulting effects are assessed as Low in magnitude and Positive in quality, leading to an overall significance of Slight / Positive.

This is further detailed in Chapter 11 - Landscape and Visual, Volume 2.

15.2.8 Biodiversity and Land, Soils and Geology

15.2.8.1 Peat Extraction Phase (1988 - 2017)

By 1988, the Application Site had already undergone extensive land stripping due to peat extraction and associated activities, significantly altering its soil composition. The landscape was largely characterised by cutover bog and exposed peat, with only small remnants of intact raised bog remaining. Peat extraction continued until 2017, preventing natural habitat recovery. However, as extraction activity gradually declined from its peak in 1988, some abandoned or less intensively worked areas may have begun to show early signs of recolonisation and limited habitat rehabilitation.

Bord na Móna implemented standard operating procedures and best practices to manage environmental risks, particularly regarding suspended solids and contamination, effectively protecting water quality in surrounding areas. In 2001, the EPA issued an Integrated Pollution Control (IPC) Licence (P0499-01), to regulate peat extraction activities at the Littleton Group, which includes Longfordpass, Littleton, Lanespark, and Derryvella bogs. The licence focused on controlling and monitoring water emissions, addressing risks such as increased suspended solids from soil disturbance, drainage, and sediment runoff, particularly during heavy rainfall.

Despite these measures, the Peat Extraction Phase resulted in a **positive, long-term** effects of **slight significance** on habitats and associated species. Overall, the increase in habitat diversity and structure across the Application Site resulting from the regrowth of pioneer vegetation (scrub, heath, ponds and lakes etc) which gradually develops from 1988 to 2017, particularly in areas where peat extraction has declined or ceased, is considered to be beneficial, from the baseline in 1988 comprising primarily cutover bog and marginal remnant bog and associated mosaics habitats, which provided little habitat or floral species diversity and generally poor habitats to support any species of note. Control measures relating to the protection of water quality implemented in 2001 would also indirectly benefit species that utilise downstream waterbodies such as Otter and fish.

This is further detailed in Chapter 6 - Biodiversity, Volume 2.

15.2.8.2 Current Phase (2017 - Present Day)

Since peat extraction ceased in 2017, activities at the Application Site have focused on decommissioning and rehabilitation, without causing further habitat loss or degradation. Machinery access for decommissioning and peat stockpile removal has been restricted to areas previously impacted by extraction, thereby avoiding disturbance to undisturbed habitats.

As with the assessment of habitats for the peat extraction phase, habitats will have been allowed to continue to develop across the Application Site, now offering more diverse and structurally complex natural habitats as opposed to primarily cutover bog (bare peat) at the baseline in 1988. Most importantly, as works have ceased, and as measures outlined in the rehabilitation plans for the Application Site have been implemented utilising existing access points within the Application Site, no habitat loss or fragmentation will have occurred during this Phase. Thus, the residual effects on habitats during this Phase are thus assigned as being **positive, long-term** and of **moderate significance**.

This is further detailed in Chapter 6 - Biodiversity, Volume 2.

15.2.8.3 Remedial Phase

The rehabilitation plans for the Application Site aim to restore and enhance the ecological integrity of the peatland through a combination of active measures and natural recolonisation. Careful planning, including restricted machinery use, designated activity zones, and ongoing environmental monitoring, will ensure that habitat loss or degradation does not occur during the remedial phase.

As outlined in the Chapter 6 - Biodiversity, Volume 2, these best-practice measures will promote peatland restoration, soil recovery, and long-term biodiversity enhancement, resulting in a permanent, significant, positive effect on habitats within the 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, rehabilitation measures are expected to deliver a long-term, moderate, positive impact on fauna by improving habitat availability and ecological connectivity.

Additionally, remedial measures will stabilise soils and habitats, reducing vulnerability to erosion. This will enhance site conditions, improve water quality, and benefit downstream water bodies, including pNHAs and European sites.

This is further detailed in Chapter 6 - Biodiversity, Volume 2.

15.2.9 Biodiversity and Water

15.2.9.1 Peat Extraction Phase (1988 - 2017)

As outlined in the Chapter 6 - Biodiversity, Volume 2, while adverse effects on water and connected habitats had already 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 strengthened following the issuance of the IPC Licence in 2001. Collectively, these measures not only safeguarded water quality but also indirectly benefited surrounding habitats.

Considering the assimilative capacity of the intervening waters between the bogs and the SAC and the implementation of primarily water quality protection control measures, residual impacts on designated sites, specifically Lower River Suir SAC, are thus assessed as being **neutral, long-term** and of **slight significance.**

The water quality protection measures implemented at the Application Site in 2001 would have managed some of the environmental risks related to water quality deterioration including suspended solids and other contaminants, however, water quality by this stage within the Application Site was already likely quite Poor and no enhancement measures to improve water quality were proposed. Results suggest that increased regulation under the IPC Licence did not lead to significant downstream water quality improvements. The effects on water quality during this phase after the implementation of control measures are thus assessed as being **neutral, long-term** and of **slight significance.**

15.2.9.2 Current Phase (2017 - Present Day)

Since the cessation of peat extraction in 2017, potential impacts on water quality have significantly decreased, including reduced risks of suspended sediment release and pollution events affecting watercourses and groundwater. This allows for the slow recovery of water quality that may have deteriorated as a result of peat extraction and ancillary activities. Water quality control measures outlined in the IPC Licence also continue to apply at the Application Site, while Phase 1 of the Rehabilitation Plans for the four bogs within the Application Site have been implemented, further reducing any potential for water quality deterioration at and downstream of the Application Site. Thus, the residual effects on water quality and associated aquatic flora and fauna are deemed **positive, long-term** and of **moderate significance**.

15.2.9.3 Remedial Phase

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

During the Remedial Phase, all operations will adhere to required control measures, which over time are anticipated to produce a long-term, moderate, positive effect on water quality. As restored peatlands become self-regulating, nutrient and sediment runoff to surrounding watercourses will be substantially reduced.

Improved water quality at the site will support the recovery of local habitats and aquatic fauna, enhancing overall environmental conditions and the quality of water flowing from the Application Site to designated sites. Consequently, no negative effects on pNHAs or European sites are anticipated.

This is further detailed in Chapter 6 - Biodiversity, Volume 2.

15.2.10 Biodiversity and Noise and Vibration

15.2.10.1 Peat Extraction Phase (1988 - 2017)

Peat extraction and associated activities during this phase would have caused disturbance to local bird populations utilising the site. Noise from machinery, railway operations, and human activity likely disrupted species using the application site and adjacent areas. Overall, these impacts are considered to have had a slight, negative, long-term effect on fauna.

15.2.10.2 Current Phase (2017 - Present Day)

Due to the reduced presence of plant, machinery, and personnel on-site, disturbance and displacement impacts on fauna species are considered to be of a smaller magnitude compared to the peat extraction phase. Overall, impacts on fauna during the Current Phase are assessed as long-term, slight, and negative, affecting both the application site and mobile fauna from European sites that may occasionally use the area.

15.2.10.3 Remedial Phase

The proposed rehabilitation activities are expected to cause minimal disturbance to fauna, as works will involve only a short-term presence of machinery and personnel at volumes significantly lower than those during peat extraction. While some temporary disturbance to local fauna and mobile species from European sites may occur, the overall outcome of the rehabilitation plan is anticipated to deliver long-term, moderate, positive effects on fauna as detailed in the Chapter 6 - Biodiversity, Volume 2.

This is further detailed in Chapter 6 - Biodiversity, Volume 2.

15.2.11 Land, Soils and Geology and Water Quality

15.2.11.1 Peat Extraction Phase (1988 - 2017)

Drainage of the peatland began in 1941, and peat extraction was underway across all areas by 1952. Consequently, the primary effects of drainage occurred 25–40 years prior to 1988. These effects likely accelerated peat decomposition and reduced the retention of dissolved and particulate organic carbon within the peat.

Peat extraction and ancillary activities can contribute to increased sediment and nutrient runoff, potentially affecting the quality of receiving waters in the catchments draining the area. Water quality has remained classified as 'moderate' over an extended period, from the late 1980s to the present day, based on regular monitoring. Similarly, waters within the broader catchment area are also of moderate quality.

There has been no significant deterioration or notable change in water quality since 1988, and the overall regional water quality remains moderate. Therefore, it is concluded that peat extraction and ancillary activities did not have a significant effect on overall water quality in the area.

This is further detailed in Chapter 7 - Land, Soil and Geology and Chapter 8 - Hydrology, Hydrogeology and Water Quality, both contained within Volume 2.

15.2.11.2 Current Phase (2017 - Present Day)

Decommissioning of peat extraction activities associated with the IPC Licence is currently underway across the application site as well as Rehabilitation Phase 1 works. During this phase, limited activity is required to maintain compliance with IPC Licence requirements. This includes the use of machinery and plant, which carries a risk of accidental hydrocarbon spills.

Monitoring data indicate that downstream water quality has not significantly changed since the cessation of peat extraction. This stability is likely influenced by other activities within the catchment, such as agriculture on peat or poorly drained soils, forestry, and wastewater discharges, which have historically affected water quality and remained largely unchanged during the peat extraction phase.

The effect on downstream surface water quantity is considered unlikely to be significant, as drainage systems were designed to limit runoff to greenfield rates.

This is further detailed in Chapter 7 - Land, Soil and Geology and Chapter 8 - Hydrology, Hydrogeology and Water Quality, both contained within Volume 2.

15.2.11.3 Remedial Phase

As noted, monitoring data indicate that downstream water quality has not significantly changed since the cessation of peat extraction. Similarly, the effect on downstream surface water quantity is expected to remain negligible, as drainage systems were designed to limit runoff to greenfield rates.

Following the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans, the bogs will become wetter, retain more water, and gradually recolonise with vegetation. Over time, they will transition into a peatland/wetland mosaic, reducing silt and nutrient outputs.

Consequently, the residual effects of these plans are anticipated to deliver moderate, positive, direct, long-term effect on local peat bog hydrology/hydrogeology.

This is further detailed in Chapter 7 - Land, Soil and Geology and Chapter 8 - Hydrology, Hydrogeology and Water Quality, both contained within Volume 2.

15.2.12 Land, Soils and Geology and Archaeology and Cultural Heritage

15.2.12.1 Peat Extraction Phase (1988 - 2017)

It is possible that significant negative effects could have occurred to sub-surface finds and features during peat extraction. However, these impacts were mitigated through peatland surveys conducted from 1988 onwards and 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 32 Sites and Monuments Records (SMRs) were recorded within the application site. Accordingly, residual effects on sub-surface finds and features from 1988 to 2017 are considered Slight to Moderate.

Overall, it is possible that significant negative effects could have taken place to sub-surface finds and features during the Peat Extraction Phase. This negative effect was mitigated by archaeological surveys and excavations conducted within the Application Site from 1995 onwards as well as the introduction of the 2012 Code of Practice (Appendix 13.3, Volume 3). The residual effects resulting from the implementation of these mitigation measures on sub-surface archaeological features in the period from 1988 to 2017 were permanent, positive, slight to moderate.

This is further detailed in Chapter 12 - Cultural Heritage, Volume 2.

15.2.12.2 Current Phase (2017 - Present Day)

Since the cessation of peat extraction in 2017, no direct effects on cultural heritage have occurred during the Current Phase. No impacts have been identified as a result of current activities, and therefore, no residual effects are anticipated.

In terms of cultural heritage, any impacts as a result of ground works conducted as part of the Rehabilitation Phase 1 works fall under the Code of Practice (2012) between the Applicant and the now Department of Housing, Local Government and Heritage. No direct effects on cultural heritage assets as a result of Rehabilitation Phase 1 works are identified. Since no effects were identified without the need for control measures, no residual effects will occur. This is further detailed in Chapter 12 - Cultural Heritage, Volume 2.

15.2.12.3 Remedial Phase

Remedial activities such as drain blocking or tracking over peat fields may pose a risk to any sub-surface archaeological finds or features present within or beneath the peat. These actions could result in permanent, negative, and significant effects. However, as all activities associated with the applicant are governed by the 2012 Archaeological Code of Practice, any potential impacts will be managed in the same manner as previous peat extraction activities and ancillary works. In this regard the potential residual effect on sub-surface archaeological remains, if present, may be positive permanent, slight to moderate.

This is further detailed in Chapter 12 - Cultural Heritage, Volume 2.

15.2.13 Land, Soils and Geology and Landscape and Visual

15.2.13.1 Peat Extraction Phase (1988 - 2017)

As outlined in in section 11.5.3.1.1 (Chapter 11 - Landscape and Visual, Volume 2), the landscape effects of the Peat Extraction Phase (1988–2017) are assessed as Medium in magnitude. When combined with the Low landscape sensitivity rating (see Section 11.4.2 of Chapter 11 - Landscape and Visual, Volume 2), the overall significance of effect is considered Moderate-slight.

The magnitude of visual effects during this phase is not considered to have exceeded Low. When combined with the Low visual receptor sensitivity rating (see Section 11.5.2 of Chapter 11 - Landscape and Visual, Volume 2), the overall significance of visual effect is deemed Slight.

This is further detailed in Chapter 11 - Landscape and Visual, Volume 2.

15.2.13.2 Current Phase (2017 - Present Day)

As outlined in section 11.5.3.1.1 (Chapter 11 - Landscape and Visual, Volume 2, the activities within the Current Phase are anticipated to result in a low level of landscape and visual impact, both of which are considered marginally adverse. For comprehensive details, refer to Chapter 11 - Landscape and Visual, Volume 2.

As referenced in Section 16.2.6, Bord na Móna is obligated under Condition 10.2 of the IPC Licence to develop and implement Cutaway Bog Decommissioning and Rehabilitation Plans. In compliance with this requirement, Bord na Móna has prepared individual plans for each of the three bogs within the Application Site (see Appendix 4.2, Volume 3).The measures most relevant to landscape and visual considerations include rewetting of bogs through drain blocking, berm construction, and field reprofiling. Additional interventions involve the establishment of grassland and birch-dominated scrub. These are relatively subtle physical changes when viewed against the baseline condition of cutaway peatlands, yet they deliver positive outcomes for biodiversity and contribute to a more naturalistic wetland character across the site.

Overall, these interventions are assessed as having **low-magnitude**, positive effects, resulting in a **slight/positive significance** in landscape and visual terms.

15.2.13.3 Remedial Phase

The proposed measures include rewetting of bogs and the establishment of grassland and birch-dominated scrub, which are expected to deliver a positive outcome for the land, soils, and geology environment. These effects are assessed as low in magnitude and of slight positive significance. This is further detailed in Chapter 11 - Landscape and Visual, Volume 2.

15.2.14 Land, Soils and Geology and Air Quality

15.2.14.1 Peat Extraction Phase (1988 - 2017)

Peat extraction and ancillary activities within the Application Site, including milling, harrowing, ridging, and harvesting, were associated with dust emissions that could affect nearby properties. These activities were assessed as posing a medium risk of dust soiling. To mitigate this, stockpiled peat was covered following extraction to reduce wind dispersal and maintain dryness, significantly limiting potential dust emissions.

As required under the IPC Licence (in place since 2001), Bord na Móna implemented a range of dust control measures and conducted regular monitoring to ensure compliance. Dust monitoring results from the AER reports from 2002 to 2018 indicated that dust limits set out in the IPC licence conditions were exceeded on many occasions. Nevertheless, there are no dust-related complaints. Overall, the activities are considered to have had a long-term, localised, direct, negative, and slight effect on air quality. This is further detailed in Chapter 9 - Air Quality, Volume 2.

15.2.14.2 Current Phase (2017 - Present Day)

Peat extraction and ancillary activities ceased in 2017. Given the limited number of sensitive receptors in close proximity to the Application Site and the continued implementation of dust control measures required under the IPC Licence, dust emissions during the Current Phase, given the limited scope of works and the small number of receptors within the highest impact zone, dust emissions during this phase are assessed as direct, long-term, localised, negative, and imperceptible.

15.2.14.3 Remedial Phase

The Remedial Phase involves minimal activities with potential to affect air quality. Key works will include site re-vegetation, drain blocking, and re-wetting of bogs where feasible, supported by ongoing monitoring to ensure site stabilisation and full re-vegetation. Dust emissions during this phase are anticipated to result in direct, long-term, localised, negative, and imperceptible effects on air quality.

15.2.14.4 Vulnerability to Natural Disasters

During the Peat Extraction and Current Phases (1988 to present), no major accidents or natural disasters have been recorded. In accordance with Condition 13 of the IPC Licence, Bord na Móna is required to maintain a documented Emergency Response Procedure to address any on-site emergencies. This procedure includes measures to minimise environmental impacts and remains in place as the IPC Licence is still active.

Potential sources of pollution, such as bulk storage of hydrocarbons, chemicals, and wastes, are managed under the conditions of the IPC Licence to prevent significant environmental contamination and associated health risks. Historically, the likelihood of natural disasters within the project area has been low, with potential risks limited to flooding, fire, or landslides. Flood risk is addressed in Chapter 8 - Hydrology, Hydrogeology and Water Quality, while landslide risk is assessed in Chapter 7 - Land, Soils and Geology, both contained within Volume 2.

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. During each production season at the Application Site fire patrols were carried out by trained site personnel. There is one record of a bog fire at the Application Site in 2005.

This incident was reported to the EPA in the 2005 AER (Appendix 4-3, Volume 3, of this rEIAR). The cause of this fire was likely due to the challenging dry and windy weather conditions. Following on from this in 2006 a Fire and Environmental Plan was developed as detailed in the 2006 AER (Appendix 4-3, Volume 3, of this rEIAR). No bog fires have been recorded at the Application Site since 2005. Communication with former and current Bord na Móna personnel confirmed that fire procedures were in place in 1988 and during the Peat Extraction Phase (1988 to 2017). These measures remain in place during the Current Phase, and will be in place during the Remedial Phase.

The Application Site is not regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations (SEVESO) and is not located near any SEVESO sites; therefore, no effects from this source are anticipated.

15.3 Residual Effects

Where potential interactive adverse effects have been identified, a comprehensive range of control and mitigation measures has been incorporated within the relevant chapters of the EIAR (Chapters 5 to 14, Volume 2) and is summarised in Chapter 16 - Schedule of Mitigation and Monitoring, Volume 2 of this rEIAR. The implementation of these measures will minimise or eliminate the likelihood of such effects occurring. Details regarding potential residual effects and their significance are also provided within each respective chapter.

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