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

Remedial Environmental Impact Assessment Report (rEIAR):

Chapter 07 – Land, Soils and Geology

Prepared for:
Bord na Móna Energy Ltd

BnM

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Core House, Pouladuff Road, Cork, T12 D773, Ireland
T: +353 21 496 4133 | E: info@ftco.ie

CORK | DUBLIN | CARLOW
www.fehilytimoney.ie

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7. LAND, SOILS AND GEOLOGY

7.1 Introduction

This chapter reports on the results of the assessment of effects on land, soils and geology arising from peat extraction and ancillary activities at the Application Site (Longfordpass Bog, Littleton Bog, Lanespark Bog and Derryvella Bog) during the Peat Extraction Phase, the Current Phase, and the Remedial Phase. The assessments in this chapter also consider any impacts on lands, soils, and geology that have occurred (or are likely to occur) across these three distinct timeframes, as described in Chapter 4 - Description of Development, Volume 2 (Section 4.2.1):

- **Peat Extraction Phase**: peat extraction and ancillary activities at the Application Site from July 1988 to the cessation of peat extraction in 2017 (July 1988 - 2017). The Peat Extraction Phase is described in detail in Chapter 4 - Description of Development, Volume 2 (Sections 4.4 to 4.7)
- **Current Phase**: the management of the Application Site since 2017 to present day including decommissioning works and Rehabilitation Phase 1 works. The Current Phase is described in detail in Chapter 4 - Description of Development, Volume 2 (Sections 4.7 and 4.8)
- **Remedial Phase**: the activities intended to be carried out at the Application Site into the future (Rehabilitation Phase 2 works). The Remedial Phase is described in detail in Chapter 4 - Description of Development, Volume 2 (Section 4.9)

As noted in Section 2.5 of Chapter 2 – Background, Volume 2, 1988 is the baseline year for this assessment, as this is when the EIA Directive (Directive 85/337/EEC) was required to be transposed into Irish law. There is no legal requirement to complete a rEIAR for activities occurring at the Application Site prior to this required transposition date (i.e., it does not have retrospective effect). Nevertheless, for completeness, a description of activities at the Application Site from the onset of site preparation in 1941 to 1988 is provided in Section 4.3 of Chapter 4 - Description of Development, Volume 2.

7.1.1 Statement of Authority

This Chapter has been prepared by Aaron T. Clarke of Fehily Timoney and Company. Aaron is a Chartered Principal Geologist with a BSc in Earth Sciences from University of Galway and a MSc in Applied Geotechnics from Camborne School of Mines (University of Exeter). He is a professional member of the Institute of Geologists of Ireland (PGeo) and the European Federation of Geologists (EurGeol). Aaron has 20 years of post-graduate experience working in the fields of geoscience and ground engineering. He has experience working on Irish renewable energy projects within peatland environments, preparing Soils, Geology and Hydrogeology EIAR chapters.

This Chapter has been reviewed by Ian Higgins of Fehily Timoney and Company. Ian is a Technical Director with a BSc. in Engineering Geology from the University of Sunderland and a MSc. in Geotechnical Engineering from Herriot Watt University. He is a member of the Institute of Engineers of Ireland (MEI) and a Fellow of the Geological Society of London (FGS). Ian has over 25 years of post-graduate experience working within the civil and geotechnical engineering sector. He has experience working on large scale civil engineering projects to include renewable energy developments.

7.2 Assessment Methodology

The primary considerations, based on IGI and EPA guidance, for assessing the effects of peat harvesting activities on land, soils, and geology relate to changes in the landscape, the geological environment, and peat stability.

7.2.1 Guidance and Legislative Review

This chapter has been prepared with reference to the general guidance documents outlined in Chapter 1 - Introduction, Volume 2, as well as the following policy documents that are specifically relevant to this chapter:

- S.I No. 349 of 1989: European Communities (Environmental Impact Assessment) Regulations, and subsequent Amendments. These instruments implement EU Directive 2011/92/EU and subsequent amendments, on the assessment of the effects of certain public and private projects on the environment;
- Directives 2011/92/EU and 2014/52/EU on the assessment of the effects of certain public and private projects on the environment, including Circular Letter PL 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive);
- Planning and Development Act, 2000, as amended;
- S.I. No. 296 of 2018: European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 which transposes the provisions of Directive 2014/52/EU into Irish law;
- S.I. No. 272 of 2009: European Communities Environmental Objectives (Surface Waters) Regulations 2009 (as amended);
- European Communities (Drinking Water) Regulations 2007 (As amended);
- S.I. No. 9 of 2010: European Communities Environmental Objectives (Groundwater) Regulations 2010 (as amended);
- S.I. No. 296 of 2009: The European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (as amended by S.I. No. 355 of 2018);
- Institute of Geologists Ireland (IGI) (2013): Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements;
- Environmental Protection Agency (EPA) (2022): Guidelines on the Information to be contained in Environmental Impact Assessment Reports;
- Environmental Protection Agency (2003): Advice Notes on Current Practice (in the preparation of Environmental Impact Statements);
- National Roads Authority (NRA) (2008): Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;
- CIRIA 2006: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors. CIRIA C532. London, 2006; and,
- Environmental Protection Agency (2006): Environmental Management in the Extractive Industry (Non-Scheduled Minerals).

7.2.2 Consultation

The rEIA scoping correspondence was issued to appropriate statutory and non-statutory bodies in January 2026 in accordance with Article 28 of the Planning and Development Regulations, 2001 (as amended). A full list of responses to these scoping correspondences is provided in Table 2-6 of Chapter 2 - Background, Volume 2. The responses which are relevant to Land, Soils and Geology have been provided in Table 7-1 below.

Table 7-1: List of Consultation Responses

Consultee Name	Summary of Responses Received
Minister for Climate, Energy and the Environment	Key points relevant to this EIAR chapter: • Identifies the site as nationally important in terms of post-glacial climate record preserved in peat and pollen stratigraphy. • States that the integrity of peat and soil profiles may be impacted. • Requires the development to treat the site as a constraint to avoid damaging geological and palaeo-environmental records. • Requests mitigation, and where integrity cannot be preserved, recording of soil/peat exposures during construction.
Geological Survey Ireland (GSI)	GSI's remit includes: • Geology (bedrock, quaternary, geohazards) • Groundwater • Geological heritage (Geoheritage sites) Since GSI has aligned its comments with the Minister, they reinforce the geological/peatland significance of the site.
Irish Peatland Conservation Council (IPCC)	Although focused on biodiversity and climate, their response is highly relevant to peat soils and geomorphology, particularly given the site's peatland. Key points affecting Land/Soils/Geology: • Acknowledges decades of industrial peat extraction and its residual effects. • Notes loss of ecosystem services, including carbon sequestration, which is inherently linked to peat soil integrity and depth. • Highlights the site's fragmented landscape and soil degradation.

Consultee Name	Summary of Responses Received
Uisce Éireann	Primarily water-focused, but some elements cross over into Land/Soils: Potentially relevant aspects: • Soil infiltration characteristics • Soil contamination risks • Management of excavated material affecting water pathways
Transport Infrastructure Ireland (TII)	Mostly transport-focused, but includes points that can relate to geology and soils: Relevant items: • Construction methods in proximity to national road assets • Stability of ground near road infrastructure • Haul routes - soil compaction, settlement, geotechnical considerations • Potential requirement for geotechnical assessments around structures/drainage.

7.2.3 Desk Study

A desk study of the Application Site and surrounding area was carried out to collate all available and relevant data for the study area, using the following data sources:

- Geological Survey of Ireland (GSI) online mapping (www.gsi.ie);
- Bedrock Geology 1:100,000 Scale Map Series, Sheet 18; Geological Survey of Ireland (GSI, 1996);
- Available LiDAR data (supplied by Bord na Móna).
- 1973, 1995, 2004 and 2018 Aerial Photography (supplied by Bord na Móna)
- National Parks & Wildlife Services Public Map Viewer (www.npws.ie);
- Environmental Protection Agency database (www.epa.ie);
- Environmental Protection Agency online maps(www.epa.ie);
- Bord na Móna Annual Reports;
- Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plans (Chapter 4 - Description of Development, Volume 2, Appendix 4-2, Volume 3)
- Publicly available aerial photography (www.google.com/maps, www.geohive.ie)
- Historic 6" and 25" ordnance mapping (www.geohive.ie, www.gsi.ie)

7.2.4 Site Investigations

Between August 2022 and July 2025 phased investigations were undertaken across the Application Site comprising both site reconnaissance surveys (including peat probing) and intrusive ground investigation (trial pits and rotary cored boreholes). The purpose of these investigations was to determine baseline ground and groundwater conditions across the Application Site for a proposed renewable energy development. A summary of investigations undertaken at the Application Site is presented in Table 7-2 below. The information gathered during these site surveys is incorporated into the discussion of the baseline environment in Section 7.3 of this chapter.

Table 7-2: Summary of Site Surveys and Investigations

Undertaken By	Date Completed	Type of Investigation
Ground Investigations Ireland (GII) Ltd.	August 2022	28 no. Trial Pits
Ground Investigations Ireland (GII) Ltd.	March 2023	12 no. Trial Pits
Ground Investigations Ireland (GII) Ltd.	December 2023	4 no. Trial Pits within the Application Site 3 no. Rotary Cored Boreholes within the Application Site
Bord na Móna	No date	383 no. Peat Probes
Fehily Timoney and Company (FT) Ltd.	June 2023	164 no. Peat Probes
Fehily Timoney and Company (FT) Ltd.	July 2025	65 no. Peat Probes

A summary of the site reconnaissance and ground investigation findings is presented in Sections 7.3.9 and 7.3.10. The ground investigation reports are presented in Appendix 7-1, Volume 3 of this rEIAR.

7.2.5 Impact Assessment Methodology

As outlined in Section 7.1, this chapter identifies the potential effects of the Peat Extraction Phase, the Current Phase, and Remedial Phase at the Application Site and broader study area on the existing land, soils and geology receptors. The assessment also identifies appropriate mitigation measures to minimise these effects.

The following elements were examined to determine the potential effects of the development on the land, soils and geology within the study area:

- Characterisation of the land use, soils and geology; and,
- Evaluation of the likely significant effects of the Peat Extraction Phase, Current Phase and Remedial Phase.

The baseline geological conditions within the study area were determined following a desktop review of publicly available information (see Section 7.2.3). This initial review was undertaken in early 2022 (prior to the August 2022 Site Investigations) and later updated in January 2026. In addition to the desktop assessment, two separate site reconnaissance surveys (including peat probing) were undertaken by members of FT's Geoscience Team.

A phased intrusive ground investigation, comprising trial pits and boreholes, was undertaken by Ground Investigations Ireland (GII) between August 2022 and December 2023.

A summary of the site reconnaissance and intrusive ground investigation findings is presented in Sections 7.3.9 and 7.3.10 respectively.

Following the assessment of the existing environment, the effects of the Peat Extraction Phase, the Current Phase, and Remedial Phase on sensitive receptors identified were determined. The evaluation of the significance of the effects was undertaken in accordance with the Institute for Geologists Ireland (IGI) "Guidance for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements" (2013). As part of the cumulative effect assessment, large scale developments within 2km of the Application Site were assessed in line with the study radius recommended in relevant IGI (2013) guidance.

Where likely significant effects were identified, mitigation measures are proposed and will be implemented. The residual effect from the development was then re-appraised considering the mitigation measures. The residual effects are presented in Section 7.6.

7.2.6 Evaluation Criteria

The evaluation criteria will assess whether the project activities taking place during each phase (the Peat Extraction Phase, the Current Phase, and the Remedial Phase) have the potential to cause significant effects on land, soil and geological receptors within the Application Site and broader study area. For each phase, the assessment will identify where mitigation measures are required to prevent or reduce effects on the land, soils and geological receptors, with details of these measures presented in Section 7.5.

7.2.6.1 Assessment of Magnitude and Significance of Effect on Land, Soils and Geology

An impact rating has been developed for each of the phases of the development based on the Institute for Geologists Ireland (IGI) 2013 "Guidance for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements". In line with the IGI Guidance, the receiving environment (Geological Features) was first identified.

Using the NRA rating criteria in Appendix C of the IGI Guidance, the importance of the geological features are rated (Table 7-3) followed by an estimation of the magnitude of the effects on geological and hydrogeological features (Table 7-4).

This determines the significance of the effect prior to application of mitigation measures as set out in Table 7-5.

Table 7-3: Criteria for Rating Site Importance of Geological Features (NRA, 2008)

Magnitude	Criteria	Typical Example
Very High	Attribute has a high quality, significance or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and/or soft organic soil underlying the Application Site is significant on a national or regional scale.	• Geological feature on a regional or national scale (NHA); • Large existing quarry or pit; • Proven economically extractable mineral resource.
High	Attribute has a high quality, significance or value on a local scale.	• Contaminated soil on site with previous heavy industrial usage; • Large recent landfill site for mixed wastes;

Magnitude	Criteria	Typical Example
	Degree or extent of soil contamination is significant on a local scale. Volume of peat and/or soft organic soil underlying the Application Site is significant on a local scale.	• Geological feature of high value on a local scale (County Geological Site); • Well drained and/or high fertility soils; • Moderately sized existing quarry or pit; • Marginally economic extractable mineral resource.
Medium	Attribute has a medium quality, significance or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and/or soft organic soil underlying the Application Site is moderate on a local scale.	• Contaminated soil on site with previous light industrial usage; • Small recent landfill site for mixed wastes; • Moderately drained and/or moderate fertility soils; • Small existing quarry or pit; • Sub- economic extractable mineral resource.
Low	Attribute has a low quality, significance or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and/or soft organic soil underlying the Application Site is small on a local scale.	• Large historical and/or recent site for construction and demolition wastes; • Small historical and/or recent landfill site for construction and demolition wastes; • Poorly drained and/or low fertility soils; • Uneconomic extractable mineral resource.

Table 7-4: Estimation of Magnitude of Impact on Geological Features (NRA, 2008)

Magnitude	Criteria	Typical Example
Large Adverse	Results in loss of attribute	• Loss of high proportion of future quarry or pit reserves • Irreversible loss of high proportion of local high fertility soils • Removal of entirety of geological heritage feature • Requirement to excavate / remediate entire waste site • Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	• Loss of moderate proportion of future quarry or pit reserves • Removal of part of geological heritage feature • Irreversible loss of moderate proportion of local high fertility soils • Requirement to excavate / remediate significant proportion of waste site • Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	• Loss of small proportion of future quarry or pit reserves • Removal of small part of geological heritage feature • Irreversible loss of small proportion of local high fertility soils and/or • high proportion of local low fertility soils • Requirement to excavate / remediate small proportion of waste site • Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	No measurable changes in attributes
Minor Beneficial	Results in minor improvement of attribute quality	Minor enhancement of geological heritage feature

Magnitude	Criteria	Typical Example
Moderate Beneficial	Results in moderate improvement of attribute quality	Moderate enhancement of geological heritage feature
Major Beneficial	Results in major improvement of attribute quality	Major enhancement of geological heritage feature

The matrix in Table 7-5 determines the significance of the effects based on the importance and magnitude of the effects as determined by Table 7-3 and Table 7-4.

Table 7-5: Ratings of Significance of Impacts for Geology (NRA, 2008)

Importance of Attribute	Magnitude of Impact			
	Negligible	Small Adverse	Moderate Adverse	Large Adverse
Very High	Imperceptible	Significant/Moderate	Profound/Significant	Profound
High	Imperceptible	Moderate/Slight	Significant/Moderate	Profound/Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/Moderate

The determination of the significance of each effect for the Application Site are discussed in Section 7.4.

7.3 Baseline Environment

7.3.1 Site Location

The Application Site comprises four distinct land packages (Longfordpass Bog, Littleton Bog, Lanespark Bog, and Derryvella Bog) located in north County Tipperary, approximately 3km southeast of Littleton village, as shown in Figure 4-1 (Site Location Map), Volume 4. Together, these land packages cover a total area of approximately 1,616 ha.

The regional review of geological conditions extends to a minimum zone of 2km from the Application Site boundary, in accordance with the IGI Guidelines (2013). The study area has been assessed in relation to the geological environment, as well as the scale of peat extraction- and ancillary activities.

While the primary focus of the assessment is on land, soils, and geology within the Application Site, the study area extends 2km beyond the Application Site boundary, as illustrated in Figure 7-1, Volume 4.

7.3.2 Topography

Topographic changes are presented in Table 7-6, which summarises the pre-extraction (1941), baseline (1988), and current (2017 to present) topography across the Application Site.

Table 7-6: Estimated Site Topography Changes - Pre-Extraction (1941) to Post Extraction (2017)

Bog Name	1941 (mAOD) Note 1	1988 (mAOD) Note 2	2017 (mAOD) Note 3	Estimated Drop in Elevation Since 1941 (m)
Longfordpass Bog	No data	120 to 133	117 to 130	3 Note 4
Littleton Bog	128 to 133	123 to 133	120 to 130	3-8
Lanespark Bog	130	122 to 128	119 to 125	5-11
Derryvella Bog	130 to 131	124 to 131	121 to 128	3-9

Note 1 - Elevations derived from historic 6" and 25" Ordnance Survey mapping.
Note 2 - Elevations derived from assuming a peat extraction rate of 0.1m/year (Section 4.4, Chapter 4 - Description of Development, Volume 2).
Note 3 - Elevations derived from available Tailte Éireann Discovery Series mapping, and LiDAR data supplied by the Applicant.
Note 4 - 1941 data unavailable - total elevation change from 1988 to 2017 has been estimated.

7.3.2.1 Pre-Extraction Topography (1941)

From a review of historic 6-inch and 25-inch Ordnance Survey maps, the topography across the Application Site prior to the onset of peat extraction activities is estimated to have ranged between 128 and 133 mAOD (see Table 7-6). Before site preparation works vegetation clearance commenced in 1941, the Application Site comprised a relatively uniform, low-lying bogland with localised but limited conifer and deciduous tree coverage, while the surrounding landscape was primarily made up of low-lying agricultural fields, rough pastureland, and peatlands. Topographical levels indicate very low relief (approximately 5 m) across the entire Application Site, with limited drainage features observed except at the southeastern extent of Lanespark Bog and the eastern half of Derryvella Bog, where extensive linear drainage was present.

It should be noted that the historic 6-inch and 25-inch Ordnance Survey maps do not provide topographical information for Longfordpass Bog.

7.3.2.2 Baseline Topography (1988)

Historically, the topographic profile of the Application Site was higher than that observed at present, with changes in elevation varying across the Application Site depending on each bog unit's initial drainage conditions and vegetation removal (see Section 4.5, Chapter 4 - Description of Development, Volume 2).

As described in Chapter 4 - Description of Development, Volume 2, the topography of the Application Site in 1988 is based on an assumed average milled peat extraction depth of <0.1 m per year over the 30-year period from 1988 to the cessation of peat extraction in 2017. Considering this, the resulting baseline elevations range from 123 to 133 m AOD (see Table 7-6).

All areas of the Application Site will have experienced some decrease in topography since 1988 due to the installation of drainage and removal of peat during peat extraction.

7.3.2.3 Current Topography (2017 to Present)

The Application Site's current topography ranges from 117 to 130m AOD (see Table 7-6 and Figure 7-2, Volume 4). The ground surface has generally been reduced by approximately 3 to 11m relative to pre-extraction levels. As with the pre-extraction topography, the Application Site exhibits very low relief, with a total elevation variation of approximately 13 m.

7.3.2.4 Geomorphology

GSI Physiographic mapping (Figure 7-2, Volume 4) along with field observation and assessment of available aerial photography indicate the entire Application Site is characterised by a bog plain comprised entirely of degraded raised peatland.

The area surrounding the Application Site is dominated by glacial sediments and exhibits a flat to gently undulating topography. There are numerous glacial landforms comprising predominantly drumlins adjacent to the Application Site; however, none of these features are mapped within the Application Site.

7.3.3 Land (Land take)

Land-use changes within the Application Site have been investigated using available aerial photographs, topographic information present on historical mapping, and from descriptions provided in Section 4.3, Chapter 4 - Description of Development, Volume 2. Observed changes in land-use from various data sources are summarised in Table 7-7. Data sources used to compile this summary include Bord na Móna Annual Reports (Chapter 4 - Description of Development, Volume 2, and Appendix 4-3, Volume 3); 1973, 1995, 2001 and 2018 aerial photography provided by Bord na Móna (Appendix 4-4, Volume 3); publicly available aerial photography; and historic 6-inch and 25-inch Ordnance mapping.

Table 7-7: Summary of Land Use Changes

Land Use Pre-1988 [Note 1]	
Area	**Comments**
Longfordpass Bog	Drainage works first commenced at Longfordpass Bog by 1947. The earliest available aerial imagery dating from 1973 shows sod peat drainage inserted at Longfordpass Bog. By 1988, there were no pumps, and 3 no. silt ponds installed on Longfordpass Bog. Sod peat extraction began in 1952 and ceased in 1984. Sod peat was extracted for domestic sale and to supply fuel to the Southern Health Board for use in hospitals and other public health facilities. Following the cessation of sod peat extraction in 1984, the areas of sod peat extraction were converted to milled peat extraction. The drainage infrastructure was also amended to facilitate milled peat extraction. Ancillary activities and features were largely in place prior to 1988 including railway and drainage infrastructure.
Littleton Bog	Drainage works first commenced at Littleton Bog by 1941 according to Bord na Móna Annual Reports. The earliest available aerial imagery dating from 1973 shows sod peat drainage inserted at Littleton Bog. Sod peat extraction began in 1952 and ceased in 1984. Sod peat was extracted for domestic sale and to supply fuel to the Southern Health Board for use in hospitals and other public health facilities. Following the cessation of sod peat extraction in 1984, the areas of sod peat extraction were converted to milled peat extraction. The drainage infrastructure was also amended to facilitate milled peat extraction. Ancillary activities and features were largely in place prior to 1988 including railway and drainage infrastructure.
Lanespark Bog	Drainage works first commenced at Lanespark Bog by 1968. The earliest available aerial imagery dating from 1973 shows drainage inserted at Lanespark Bog. No records are available for the commencement of peat extraction at Lanespark Bog; however, it is assumed that milled peat extraction began shortly after drainage was installed in 1968. Ancillary activities and features were largely in place prior to 1988 including railway and drainage infrastructure.
Derryvella Bog	Drainage works first commenced at Derryvella by 1968. The earliest available aerial imagery dating from 1973 shows sod peat drainage inserted at Derryvella Bog. No records are available for the commencement of peat extraction at Derryvella Bog; however, it is assumed that milled peat extraction began shortly after drainage was installed in 1968. Ancillary activities and features were largely in place prior to 1988 including railway and drainage infrastructure.
Land Use Post-1988 [Note 2]	
Area	**Comments**
Longfordpass Bog	1988: No aerial imagery available. 1995: Almost the entire site displays bare peat, with production fields typically running north–south and separated by drainage channels. Limited forestry and other vegetation occurs along the Application Site's peripheries. A rail line travels along the southern and eastern extent of the Application Site 2001: Little change had occurred since 1995, with only minor revegetation evident along some production fields. 2006: Little change has occurred since 2001. Some additional areas of revegetation along the production fields observed. 2013: Little change has occurred since 2006. 2018: Little change has occurred since 2013. 2024: Significant revegetation has occurred along the western half of the Application Site and along the southern extents

Littleton Bog	1988: No aerial imagery available. 1995: Almost the entire site displays bare peat, with production fields typically running NNE (southern half of site) to NNW (northern half of site) and separated by drainage channels. Forestry and other vegetation occurs along the Application Site's peripheries and along many of the peat production fields. A large, forested area (approx. 80 ha) is located to the south of the Application Site. A rail line travels the entire length of the Application Site connecting Littleton Bog with Longfordpass Bog to the north and Lanespark Bog to the south. 2001: Little change since 1995. Numerous small, flooded areas within the Application Site. 2006: Little change since 2001. 2013: The central and southern portions of the Application Site display significant revegetation. 2018: Little change since 2013. 2024: Little change since 2018.
Lanespark Bog	1988: No aerial imagery available. 1995: Almost the entire site displays bare peat, with production fields typically running NW and separated by drainage channels. Vegetation limited to the Application Site 's peripheries. A compound containing numerous buildings is located within the southwestern extent of the Application Site. A rail line, which starts at the compound travels along the western periphery of the Application Site connecting Lanespark Bog with Littleton Bog. 2001: Little change had occurred since 1995. Some minor revegetation along the peat production fields. 2006: Little change had occurred since 2001. Some minor revegetation along the peat production fields. 2013: Little change had occurred since 2006. Some minor revegetation along the peat production fields. 2018: Little change had occurred since 2013. Some minor revegetation along the peat production fields. 2024: Significant revegetation along the peat production fields. Significant areas of localised flooding observed, most prevalent within the southern and central portions of the Application Site.
Derryvella Bog	1988: No aerial imagery available. 1995: The western half of the Application Site is heavily vegetated with production fields running NW and separated by drainage. Some localised flooding is present in this area. A pond is located within the northwestern extent of the Application Site. The eastern half of the Application Site displays bare peat with production fields running NNE and separated by drainage. Limited forestry and other vegetation occurs along the peripheries of the eastern half of the Application Site. 2001: A pond is now located within the northwestern extent of the Application Site. Flooding has reduced. 2006: Little change had occurred since 2001. Some additional drainage has been installed within the southern extern of the Application Site. 2013: Noticeable revegetation within the western half of the Application Site and within the Application Site 's southern extent. 2018: Little change had occurred since 2013. 2024: Some revegetation and significant flooding within the eastern half of the Application Site.
Note 1 - information sources include Bord na Móna Annual Reports (Chapter 4 - Description of Development, Volume 2, and Appendix 4-3, Volume 3) and 1973, 1995, 2001 and 2018 aerial photography (Appendix 4.4, Volume 3), publicly available aerial photography and historic 6-inch and 25-inch Ordnance mapping. *Note 2 - information sources include GeoHive aerial imagery (1995, 2001, 2006, 2013), and Google Earth aerial imagery (2018, 2024)*	

7.3.4 Peat/Soils and Subsoils

7.3.4.1 Historic Peat Extraction

Table 7-8 summarises peat extraction volumes within the Application Site between 1952 and 2017. Values in tonnes have been taken from Sections 4.3.3 and 4.5.3, Chapter 4 - Description of Development, Volume 2, and a conversion factor of 1.22 applied to these tonnages to determine peat extraction volumes (m^3).

Table 7-8: Summary of Estimated Peat Extraction Volumes

Year Range	No. of Years	Extracted Weight (Tonnes) Note 1	Volume (m^3) Note 2
1952-1988	37	3,534,355	4,311,913
1988-2017	30	5,117,790	6,243,704
Total Peat Values		**8,652,145**	**10,555,617**

Note 1 - Tonnage taken from Table 4-4 (1952-June 1988) and Table 4-5 (July 1988-2017), Section 4.3, Chapter 4 - Description of Development, Volume 2.
Note 2 - A conversion factor of 1.22 used to convert extracted peat weight (tonnes) to volume (m3).

Between 1952 and 2017, an estimated 10,555,617 m^3 (equivalent to 8,652,145 tonnes) of peat was extracted from the Application Site. This extraction has resulted in a measurable reduction in current topographical elevations across the Application Site when compared to historic elevation data, reflecting an overall decrease in peat depth since 1952 by approximately 3-11m (see Section 7.3.2).

7.3.4.2 Current Soil/Subsoil Environment

Teagasc soils mapping (see Figure 7-3, Volume 4) indicates that the Application Site is almost entirely underlain by a mantle of Cutover/Cutaway Peat. This peat layer is, in turn, underlain by till deposits chiefly derived from limestone. These include both deep, well-drained, mainly basic mineral soils (BminDW) and, to a lesser extent, poorly drained, mainly basic mineral soils (BminPD). Smaller, more localised deposits of limestone-derived till comprising peaty, poorly drained, mainly basic mineral soils (BminPDPT) are also mapped throughout the Application Site. An area of Made Ground is mapped to the south of the Application Site within Lanespark Bog and represents the site of Bord na Móna's former Littleton Briquette Factory and works area.

Geological Survey Ireland (GSI) Quaternary mapping (Figure 7-4, Volume 4) indicates the Application Site is almost entirely underlain by mantle of cut over raised peat (Cut). This is in turn underlain by till derived from limestone (TLs).

7.3.5 Bedrock Geology

GSI bedrock mapping (Figure 7-5, Volume 4) indicates that the Application Site is underlain by a sequence of Carboniferous Period limestone formations. A summary of these formations is provided in Table 7-9.

Table 7-9: Summary of Bedrock Geology

Area	Formation (Geological Stage)	Description
Longfordpass Bog	Crosspatrick Formation (Visean: Arundian)	Pale-grey cherty crinoidal limestone.
	Ballysteen Formation (Late Tournaisian–early Visean)	Dark muddy limestone and shale
	Waulsortian Limestone	Massive, unbedded lime-mudstone (locally dolomitized)
Littleton Bog	Lisduff Oolite Member (Late Tournaisian–early Visean)	Oolitic limestone
	Ballysteen Formation (Late Tournaisian–early Visean)	Dark muddy limestone, shale

Area	Formation (Geological Stage)	Description
	Waulsortian Limestone (Tournaisian)	Massive, unbedded lime-mudstone
Lanespark Bog	Aghmacart Formation (Visean)	Dark shaly micrite, peloidal limestone.
	Crosspatrick Formation (Visean)	Pale-grey cherty crinoidal limestone.
	Waulsortian Limestone (Tournaisian)	Massive, unbedded lime-mudstone (locally dolomitized)
Derryvella Bog	Durrow Formation (Visean)	Shaly fossiliferous & oolitic limestone
	Aghmacart Formation (Visean)	Dark shaly micrite, peloidal limestone.
	Crosspatrick Formation (Visean)	Pale-grey cherty crinoidal limestone.
	Waulsortian Limestone (Tournaisian)	Massive, unbedded lime-mudstone (locally dolomitized)

7.3.6 Soil Contamination

The EPA's online Waste Facility Mapping tool identifies the locations of current Waste facilities (including licensed, applied, surrendered, rejected etc.). In 1996 the EPA began licensing certain activities in the waste sector. These included landfills, transfer stations, hazardous waste disposal and other significant waste disposal and recovery activities A review of potential soil contamination within the Application Site was carried out using available Environmental Protection Agency (EPA) mapping data. The results of this review are presented in Figure 7-6, Volume 4, and discussed in the following sections.

7.3.6.1 Waste Facilities

There are no waste facilities licences recorded within 2km of the Application Site. However, there is one waste facility boundary located approximately 850m west of Lanespark Bog, associated with composting and anaerobic digestion activities at the Ballybeg Composting Facility (Waste Boundary Reference: W0249-02).

7.3.6.2 Industrial Emission Licences (IEL)

There is one Industrial Emissions Licence (IEL) site located within 2km of the Application Site. This facility, operated by Starrus Eco Holdings Limited (Littleton) (IEL Reference: W0249-02), is situated approximately 990m west of Lanespark Bog. This facility corresponds to the waste facility boundary identified in Section 7.3.6.1 and is associated with the same EPA reference (W0249-02), as shown on the EPA map viewer.

7.3.6.3 Integrated Pollution Control (IPC) Sites

With the exception of IPC Licence P0499-01, there are no other IPC sites located within 2km of the Application Site.

7.3.7 Economic Geology

GSI Minerals mapping (Figure 7-7, Volume 4) indicates there is one mineral locality located within 2km of the Application Site. This is recorded as a non-metallic mineral (dolomite within Carboniferous limestone), which is located approximately 170m east of Longfordpass Bog.

There is one active quarry located within 2km of the Application Site. The quarry, operated by Maher Quarries Limited, is situated approximately 1.3km west of Longfordpass Bog and is engaged in the production of crushed rock for construction aggregates.

The GSI Aggregates Mapping database contains no recorded data for granular aggregate potential within the Application Site. The crushed rock aggregate potential (Figure 7-8, Volume 4) within the Application Site ranges from Very Low to Moderate, with the majority of the Application Site classified as Low to Moderate.

7.3.8 Geological Heritage

The GSI's Geological Heritage (Geo-heritage) division, have undertaken a programme to identify and select important geological and geomorphological sites throughout the country for designation as NHAs (Natural Heritage Areas). This is being addressed under 16 different geological themes. For each theme, a larger number of sites (from which to make the NHA selection) are being examined, to identify the most scientifically significant. The criterion of designating the minimum number of sites to exemplify the theme means that many sites of national importance are not selected as the very best examples. However, a second tier of County Geological Sites (CGS) (as per the National Heritage Plan) means that many of these can be included in County Development Plans and receive a measure of recognition and protection through inclusion in the planning system.

GSI Geoheritage mapping (Figure 7-9, Volume 4) indicates that Littleton Bog lies entirely within the Littleton Bog County Geological Site (CGS). This is described as an extensive area of peatland in a wide and extensive flat plain northwest of Slieve Ardagh. The pollen contained within the peat at Littleton provides a continuous record of the vegetation of the vicinity since the end of the last Ice Age. This is the only place in Ireland, where such a continuous record has been found. The importance of the record held within the pollen in the peat make this site nationally important, and it may be recommended for Geological Natural Heritage Area (NHA).

There are no other audited or unaudited geological heritage sites mapped within 2km of the Application Site.

7.3.9 Site Reconnaissance Findings

Site reconnaissance surveys were undertaken by FT in August 2022, June 2023 and supplemented by a further survey in July 2025. The survey's assessed the Application Site for potential geotechnical constraints focussing on key parameters such as geomorphology, hydrogeology, and peat stability.

Findings from the surveys indicate the Application Site is generally flat and low lying. There are varying degrees of vegetation coverage, ranging from bare peat surfaces to heavily vegetated areas of predominantly coniferous plantations as well as some areas displaying long grass and rushes. Large areas of standing water occur frequently across the Application Site, typically in areas of lower elevation. No signs of peat instability or obvious contamination was observed.

During the phased reconnaissance a total of 229 peat probes were undertaken across all bogs within the Application Site with the exception of Derryvella Bog. A further 383 peat probe depths were supplied by Bord na Móna. Results from these surveys indicate peat depths range from 0.10m (organic topsoil/heath) to 6m with a mean peat depth of 1.51m. A map showing peat probe locations and peat depths is presented in Figure 7-10, Volume 4.

Findings from the peat probe survey for the different land parcels within the Application Site is presented is presented in Table 7-10.

Table 7-10: Summary of Peat Probe Results

Area	No. of Probes	Min. Depth (mbgl)	Max. Depth (mbgl)	Mean Depth (mbgl)
Longfordpass Bog	37	0.1	6	1.95
Littleton Bog	446	0.1	6	1.64
Lanespark Bog	129	0.1	3.35	0.94
Derryvella Bog	No data available			

7.3.10 Intrusive Site Investigation Findings

Three phases of intrusive ground investigation were undertaken across the Application Site between August 2022 and December 2023 and was supervised by members of FT's Geoscience Team. A total of 44no. trial pits and 3 no. rotary core boreholes were completed during this time. The locations of these exploratory holes are presented in Figure 7-11, Volume 4. The purpose of these exploratory holes was to determine ground and groundwater conditions at the Application Site.

In summary, ground conditions across the Application Site typically comprise a relatively thin mantle of peat (0.15-4.5m deep with a mean depth of 1.73m) over lacustrine deposits (marl), which in turn overlies deposits of glacial till. Limestone bedrock was encountered at the base of the glacial deposits at depths ranging from 0.9m and 9.1m bgl. Groundwater was typically encountered at shallow depths within the overlying superficial deposits and likely reflect perched groundwater. Findings from the intrusive investigation reflects the GSI's available Quaternary and bedrock mapping.

7.3.11 Existing Slope Stability

From a review of the GSI Landslide Susceptibility mapping (Figure 7-12, Volume 4), the Application Site is exclusively within an area mapped as having a 'Low' landslide susceptibility. In addition, desktop review of available aerial photography and site reconnaissance findings did not identify evidence of slope instability and there are no historical records of landslide activity within 2km of the Application Site on the GSI database. Therefore, the risk of landslide within the Application Site is negligible.

7.4 Assessment of Significant Effects on Land, Soils & Geology

7.4.1 Site Importance

For the assessment of potential effects on the land, soil and geological receptors, the baseline sensitivity was assessed as **Low**, in accordance with IGI Guidelines (Table 7-3, section 7.2.6.1). This rating reflects the removal of significant volumes of peat pre-1988 at the Application Site.

7.4.2 Do-Nothing Scenario

As outlined in the EPA Guidelines (May 2022), the description of 'Do-Nothing Effects' relates to the environment as it would be in the future should the proposed project not be carried out. As discussed in Section 3.3, the assessment period of this rEIAR commenced in 1988, a time at which peat extraction was already well-established at the site. In the context of this rEIAR, the Project has been ongoing since the baseline assessment year of 1988. As outlined in Section 3.3, peat extraction activities commenced at the Application Site in 1941 with the installation of drainage.

The 'Do-Nothing' option is defined as the Project (as described in Section 4.3 of Chapter 4 - Description of the Development, Volume 2) having ceased at the Application Site in 1988.

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

Subsequently, other land-use practices may also have taken place on the Application Site such as agricultural or commercial forestry, or other commercial or non-commercial uses. Under this 'Do-Nothing' option, IPC Licence Ref. P0499-01 would not have been granted by the EPA in 2001, and associated decommissioning and planned rehabilitation would not have occurred.

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

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

However, consideration must be given to the following:

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

Therefore, this 'Do-Nothing' option was not the chosen option. Peat extraction and ancillary activities have occurred at the Application Site from July 1988 onwards. A decision to cease peat extraction at the Application Site was taken in 2017 and the Application Site needs to be considered in the context of regularising (without prejudice) the planning status of the lands to facilitate future development (subject to planning consent as required). The Application Site has and will continue to revegetate, and there will be a change from areas of cutover peatland to revegetated peatland. These are described in the individual chapters of the rEIAR.

In the event that Substitute Consent is not granted, in effect, the "Do Nothing" option represents the current situation as at the date of the application for Substitute Consent. As part of Bord na Móna's statutory obligations under IPC Licence requirements, Cutaway Bog Decommissioning and Rehabilitation Plans will continue to be implemented for the Application Site separate to, and independent of, the Substitute Consent application. The implementation of the plans is included in the impact assessment below.

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

All associated infrastructure (including workshops, storage facilities, railway lines, etc.) was established at the Application Site prior to 1988. If industrial peat extraction had ceased at that time, approximately 6,243,704m³ of peat (i.e. the volume of peat extracted since 1988) would have remained in situ. Consequently, no topographic alterations associated with peat removal post-1988 would have occurred, and the existing ground levels across much of the Application Site would be approximately 3m higher than at present. Limited private turbary peat extraction may have taken place along the bog margins and access routes, resulting in only localised and minor changes in surface levels.

The Environmental Protection Agency (EPA) was established following the enactment of the Environmental Protection Agency Act, 1992 (S.I. No. 7 of 1992). In the absence of the EPA and the associated IPC licensing system, Cutaway Bog Decommissioning and Rehabilitation Plans would not have been prepared. Alternative land uses could have emerged following the cessation of peat extraction, including afforestation, limited agricultural production, horticulture and renewable energy developments, as described in Section 3.5.3, Chapter 3 - Consideration of Reasonable Alternatives, Volume 2.

By 1988, areas of bare peat were already present within the Application Site. In the absence of continued peat extraction, these areas would likely have experienced changes in water levels drainage channels became blocked and would likely have gradually re-vegetated. It is reasonable to assume that, under the Do-Nothing Scenario, the Application Site would now support a mosaic of heath, scrub, and developing woodland habitats.

Industrial peat extraction ceased in 2017, and no further industrial peat extraction is proposed. Current activities on-site are limited to decommissioning works, and silt pond inspections and maintenance. Rehabilitation measures have and are being implemented in accordance with IPC Licence P0499-01. Should these rehabilitation measures not be undertaken, the Application Site would continue to evolve naturally, though in an uncontrolled manner. Natural re-vegetation is already evident in areas where peat extraction ceased prior to 2017. However, without active rehabilitation, the full range of potential positive hydrological and ecological outcomes would not be realised or would occur more slowly.

In accordance with the IGI Guidance (2013) the site importance is considered to be **Low**. The magnitude of the effect on the land, soils and geology receptors is considered to be **Moderate Beneficial** in nature. Overall, under the Do-Nothing Scenario, the cessation of peat extraction in 1988 would have resulted in a **Positive, Moderate, Long-Term** and **Likely** effect on land, soils and geological receptors, primarily arising from the ongoing natural revegetation and rewetting of the former peat extraction areas.

7.4.3 Identification of Effects

7.4.3.1 Peat Extraction Phase (1988- 2017)

The Peat Extraction Phase of the development includes all works undertaken from July 1988 to the cessation of peat extraction in 2017.

7.4.3.1.1 Effects on Land (Change of Land Use)

Land and land-use changes at the Application Site were examined for the period 1988 to 2017 (see Section 7.3.3). Given the nature of peat extraction activities, the most significant land-use changes occurred during the initial site preparation phase, in 1941, which involved drainage and removal of vegetation to facilitate peat extraction at Littleton Bog. Consequently, the major alterations to land use associated with peat extraction at the Application Site occurred prior to 1988.

By 1988, industrial peat extraction by the Applicant was already well-established. Littleton Bog was first drained in 1941 with peat extraction commencing in 1952. Site preparation and drainage works commenced at Longfordpass Bog in 1947 with peat extraction commencing in 1952. At Lanespark and Derryvella Bogs, site preparation and drainage works commenced in 1968 with peat extraction commencing in 1973. By 1988, the soils and land at these bogs had been significantly modified, and supporting infrastructure was already in place.

At that time, these areas were actively used for industrial peat extraction, with landcover primarily consisting of drained bare or vegetated peat fields separated by field drains. Slight annual topographic changes (assumed to be approximately 0.1m/year) occurred within the extraction areas as a result of ongoing peat activities. Over the peat extraction phase, the extent of peat extraction gradually decreased. Peat extraction did not result in a loss of peat habitat during this time, as the major alterations to land use associated with peat extraction at the Application Site occurred prior to 1988.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the land, soils and geology receptors is considered to be **Small Adverse** in nature as peat had already been extracted from these areas pre-1988, resulting in an already degraded environment. Considering this low sensitivity and the limited magnitude of land-use change during the 1988–2017 Peat Extraction Phase, the potential effects on land use are determined to be **Negative**, **Imperceptible**, **Long-Term** and **Likely** in nature.

7.4.3.1.2 Effect on Contamination of Soil

Accidental spills of petroleum hydrocarbons during refuelling of machinery and equipment, both stationary and mobile, pose a potential pollution risk. Even the gradual accumulation of small fuel and lubricant spills during routine operations can become a significant environmental hazard over time. Hydrocarbons are highly toxic to humans, as well as all flora and fauna, including fish, and are persistent in the environment. Large spills or leaks have the potential to cause serious impacts, such as contamination of peat and subsoils, and pollution of the underlying aquifer, affecting both the geological and water environment.

No widespread soil contamination has been observed at the Application Site, as machinery and equipment were well maintained and if any spills did occur, they were localised and managed in accordance with an established environmental procedure (see Chapter 4 - Description of Development, Volume 2). Without proper preventative measures, such leakages or spillages could have altered peat and soil geochemistry. Review of the Annual reporting under the IPC licence (P0499-01) has not identified any outstanding issues.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the land, soils and geology receptors is considered to be **Small Adverse** in nature. Considering this, the potential effects on contamination of soils are determined to be **Negative**, **Imperceptible**, **Long-Term** and **Likely**.

7.4.3.1.3 Effect on Geological Heritage

Littleton Bog lies entirely within the Littleton Bog County Geological Site (CGS), which was designated a CGS in 2019. There are no other audited or unaudited geological heritage sites mapped within 2km of the Application Site. The Application Site is of importance due to the pollen record preserved within the peat, which provides valuable insights into past environmental conditions. At the time of the designation of the CGS, peat extraction had ceased at the Application Site.

7.4.3.1.4 Effect on Peat Stability and Failure

Disturbance of natural peatland can increase the risk of peat instability or failure. Peat instability refers to the significant movement of a peat mass, which could negatively affect individual bogs, such as the Application Site, and potentially the surrounding environment. Minor peat instability may have occurred during the initial development of drainage systems or ancillary activities associated with peat extraction.

Significant peat failure at the Application Site could have resulted in:

- Injury or loss of life to personnel;
- Damage to machinery;
- Damage or loss of infrastructure;
- Disruption of drainage due to blocked pathways from displaced peat;
- Contamination of watercourses or water supplies by peat particulates; and
- Degradation of the peat environment through peat relocation.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the land, soils and geology receptors is considered to be **Negligible** in nature based on the absence of observed peat stability issues during the Peat Extraction Phase (1988–2017). Considering this, the potential effects on the land, soils and geology receptors are determined to be **Negative**, **Imperceptible**, **Short-Term** and **Unlikely**.

7.4.3.2 Current Phase (July 2017 – Present)

The Current Phase of the Project covers the period from the cessation of peat extraction at the Application Site in 2017 to the present including Rehabilitation Phase 1 works detailed in the Applicant's final Cutaway Bog Decommissioning and Rehabilitation Plans for the four bog areas across the Application Site on land, soils, and the geological environment. Effective peatland rehabilitation relies on detailed planning using data from desktop and field surveys, combined with topographical and hydrological modelling. This information is essential for designing future peatland landscapes and selecting the most appropriate rehabilitation methods based on site-specific environmental characteristics.

A summary of the Rehabilitation Phase 1 works, undertaken between 2018 and 2021, is presented below and is discussed in detail within Section 4.9.9.1, Chapter 4 - Description of Development, Volume 2.

- Drain blocking - construction of peat dams and removal or blocking of drainage pipes or modification of drainage levels, where required.
- Monitoring, aftercare and maintenance.

7.4.3.2.1 Effects on Land (Change of Land Use)

The Cutaway Bog Decommissioning and Rehabilitation Plans involve removing all ancillary infrastructure, supporting positive effects on land use and site restoration.

The decommissioning of peat extraction activities and implementation of rehabilitation measures at the Application Site will have positive effects on land use, enabling alternative uses of the lands, including renewable energy development. For the land itself, the Current Phase will slightly improve the landscape as peat is no longer being extracted, Rehabilitation Phase 1 works have been undertaken, and redundant infrastructure is removed.

The importance of the current receptors is considered to be **Low**. The magnitude of the effect from the Current Phase on the land, soils and geology receptors is considered to be **Moderate Beneficial** in nature. Considering this, the potential effects on the land, soils and geology receptors are determined to be **Positive**, **Moderate (Positive)** and **Short to Long Term (Positive)** and **Likely**.

7.4.3.2.2 Effect on Contamination of Soil

The Current Phase is ongoing across the Application Site and is being carried out in compliance with Condition No. 10 of the IPC Licence, which requires the Applicant to:

"Decommission, render safe or remove for disposal/recovery any soil, subsoils, buildings, plant or equipment, or any waste, materials or substances, or other matter contained therein or thereon, that may result in environmental pollution."

Although peat extraction has ceased, limited site activities involving machinery and plant continue, carrying a minor risk of accidental hydrocarbon spills. Similarly, discharges from wastewater systems (e.g., septic tanks) could potentially affect surface water or groundwater. These risks are similar to those described in Section 8.4.3.1 but are reduced due to the lower volumes of machinery, plant, and personnel during the current phase.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the land, soils and geology receptors is considered to be **Small Adverse** in nature. Considering this, the potential effects on contamination of soils are determined to be **Negative**, **Imperceptible** and **Medium-Term, Reversible** and **Likely**.

7.4.3.2.3 Effect on Geological Heritage

The decommissioning of peat extraction activities at the Application Site will have positive effects on Littleton Bog CGS, helping preserve existing peat deposits.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the geological heritage receptors is considered to be **Minor Beneficial** in nature. Considering this, the potential effects on geological heritage is determined to be **Positive**, **Slight** and **Medium-Term** and **Likely**.

7.4.3.2.4 Effect on Peat Stability and Failure

No peat extraction has occurred at the Application Site since 2017, and removal of ancillary infrastructure is unlikely to affect peat stability. The baseline sensitivity of the land use was assessed as **Low**. Given the flat topography, relatively shallow peat (mean depth of 1.49m bgl) and absence of any recorded past instability, the magnitude of the effect from peat failure on the land, soils and geology receptors is considered to be **Negligible**. Considering this, the potential effects on the land, soils and geology receptors are determined to be **Negative**, **Imperceptible**, **Temporary** and **Unlikely**.

7.4.3.3 Remedial Phase

This section assesses the likely significant effects of the proposed Rehabilitation Phase 2 works detailed in the Applicant's final Cutaway Bog Decommissioning and Rehabilitation Plans for Derryvella bog and the ongoing monitoring measures under Rehabilitation Phase 1 at Littleton, Longfordpass and Lanespark on land, soils, and the geological environment. Effective peatland rehabilitation relies on detailed planning using data from desktop and field surveys, combined with topographical and hydrological modelling. This information is essential for designing future peatland landscapes and selecting the most appropriate rehabilitation methods based on site-specific environmental characteristics.

A summary of the Rehabilitation Phase 2 works, to be undertaken in 2026 at Derryvella Bog, is discussed in detail within Section 4.9, Chapter 4 - Description of Development, Volume 2. No additional rehabilitation works are proposed at Littleton, Longfordpass and Lanespark. Ongoing monitoring measures under Rehabilitation Phase 1 will be ongoing at Littleton, Longfordpass and Lanespark during the Remedial Phase and these measures are discussed in detail in Section 4.8 of Chapter 4 - Description of Development, Volume 2.

7.4.3.3.1 Effects on Land (Change of Land Use)

Industrial peat extraction has ceased. The benefits arising from the rewetting, revegetation, and natural colonisation of rehabilitated peatlands (particularly the establishment of native woodland) will contribute meaningfully to national targets. All rehabilitation works will be undertaken in accordance with the IPC licence until such a time as that Licence is surrendered.

Habitats on-site comprise a mosaic of wetlands, scrub, and heath/peatland communities. As the former raised bogs are basin peatlands, full reversion to peatland habitats is unlikely in the short to medium term.

A key indicator of success for the Cutaway Bog Decommissioning and Rehabilitation Plan will be the stabilisation of areas previously subject to peat extraction and related works. This stabilisation will primarily occur through natural colonisation processes.

The importance of the current receptors is considered to be **Low**. The magnitude of the effect from the Remedial Phase on the land, soils and geology receptors is considered to be **Major Beneficial** in nature. Considering this, the potential effects on the land, soils and geology receptors are determined to be **Positive**, **Moderate**, **Long Term and Likely**.

7.4.3.3.2 Effect on Contamination of Soil

The storage and handling of hydrocarbons and limited quantities of chemicals represent a routine risk associated with a wide range of industrial and infrastructural developments. Proven and effective measures for the prevention and containment of spills and leaks have been implemented by the Applicant at the Application Site. Fuel management procedures are undertaken in full compliance with the conditions of the IPC Licence. These measures effectively sever the potential pathway between contaminant sources and environmental receptors. In accordance with the IPC Licence conditions, all fuel storage tanks will be appropriately decommissioned and removed.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of effect on the land, soils and geology receptors from the Remedial Phase is considered to be **Small Adverse** in nature. Considering this, the potential effects on contamination of land, soils and geological receptors are determined to be **Negative**, **Imperceptible**, **Long-Term, Likely and Reversible**.

7.4.3.3.3 Effect on Geological Heritage

With industrial peat extraction no longer taking place at the Application Site, no significant effects on geological heritage are expected during this phase.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from these works on the geological heritage receptors is considered to be **Moderate Beneficial** in nature. Considering this, the potential effects on geological heritage is determined to be **Positive**, **Moderate**, **Long-Term** and **Likely**.

7.4.3.3.4 Effect on Peat Stability and Failure

The Remedial Phase is designed to achieve environmental stabilisation at the Application Site, including stabilising and promoting the revegetation of the peat surface. No peat will be excavated or removed from the Application Site during this phase, and no new drainage infrastructure will be installed. Re-wetting activities such as drain blocking have the potential to increase pore water pressure within the peat deposits. However, due to the flat topography, shallow peat and lack of previous recorded peat failures, the risk of peat failure within the Application Site remains very low.

The risk to peat stability is a transient issue confined to the duration of the remedial works, as these works may temporarily influence pore water pressures. However, following the completion of these works and the subsequent stabilization of the water table, the risk of peat failure diminishes significantly, provided the area remains undisturbed.

The baseline sensitivity of the land use was assessed as **Low**. The magnitude of the effect from peat failure on the land, soils and geology receptors is considered to be **Negligible**. Considering this, the potential effects on the land, soils and geology receptors are determined to be **Negative**, **Imperceptible**, **Temporary** and **Unlikely**.

7.5 Control/Mitigation and Monitoring Measures

This rEIAR identifies the Project components with the potential to give rise to significant environmental effects and outlines the control and monitoring measures implemented to prevent, minimise, or reduce such effects to acceptable levels. The assessment also determines the necessity for any additional mitigation or monitoring measures, where required.

7.5.1 Peat Extraction Phase (1988-2017)

7.5.1.1 Effects on Land (Land Use Change)

In the context of the activity under assessment, no specific control measures for land and soils are applicable beyond the restriction of operations to lands under Bord na Móna ownership and within an established, previously licensed peat extraction area. Peat extraction activities at the Application Site ceased in 2017. Since cessation, substantial areas of the Application Site have exhibited natural revegetation and progressive stabilisation of the peat surface, consistent with post-operational recovery processes.

7.5.1.2 Effect on Contamination of Soil

7.5.1.2.1 Pre-IPC Licence (Pre-2000)

As described in Chapter 4 - Description of Development, Volume 2, formal documentation of control measures prior to 2000 are not available. However, personal communication with former Bord na Móna employees (Section 4.1.2) indicates that the following best practice procedures were implemented to prevent hydrocarbon leakages and spillages:

Machinery Storage and Maintenance

- All peat harvesting machinery was stored at the Littleton Works or at local storage areas at the end of each workday.
- Machinery was regularly inspected and serviced by dedicated Bord na Móna staff.

- Machinery was regularly cleaned using a power steam wash system at a wash bay, with wash water drained into an interceptor tank and associated gravel soak pit. The interceptor removed floatable oil/grease components.
- A self-contained machine parts washer was located at the Workshop.

Refuelling and Spill Management

- All refuelling and vehicle maintenance was undertaken at the Littleton Works depot or at local holding areas in Longfordpass, Littleton, and Lanespark Bogs.
- On-site refuelling, if required, was carried out using a mobile fuelling unit.
- In the event of a spill:
- The General Manager was immediately informed.
- The spill was assessed for potential risks to employee health and environmental impact.
- The source of the spill was isolated and contained using polystyrene booms or dry peat (10% moisture content).
- Measures were taken to prevent the spill from entering storm drains or outfalls.
- Once contained, the spill was absorbed using dry peat.
- All ignition sources and combustible materials in the spill area were removed.
- Appropriate remedial work was implemented to prevent recurrence.
- Significant spillages were reported to the local authority.

Waste Management

- Waste oil and brake fluids drained from machinery were collected in drums and transported off-site by licensed disposal contractors.
- Used oil and fuel filters, as well as used batteries, were collected by licensed disposal and battery collection contractors, respectively.
- Wash water from the self-contained machine parts washer was collected in a sludge tank at the Littleton Works.

7.5.1.2.2 Post-IPC Licence (2001 to Present Day)

Following the grant of the IPC Licence in 2001, control measures were upgraded to comply with regulatory requirements:

Spill and Leak Management

- Effective management of spills/leaks from mobile fuelling units.
- Replacement or remediation of all underground fuel tanks where necessary.
- All tank and drum storage areas were rendered impervious to the materials stored and, as a minimum, bunded.
- Drainage from bunded areas was diverted for collection and safe disposal.

- The integrity and watertightness of all bunding structures was tested and reported to the Agency within 18 months of the licence grant and every two years thereafter.
- Loading and unloading of fuel oils was carried out in designated areas protected against spillage and leachate run-off.
- All materials awaiting disposal were stored in designated areas protected against spillage and leachate run-off.

Water and Waste Management

- All surface water discharges from workshop areas, except roof water, were fitted with oil interceptors.
- Inspections for leaks on all flanges and valves on over-ground pipes (excluding water) were carried out weekly.
- Wastewater systems and associated discharges were inspected and monitored in accordance with IPC licence requirements.

Emissions Control

No other emissions to water of environmental significance were permitted.

7.5.1.3 Effects on Geological Heritage

No significant effects on geological heritage were identified, therefore no mitigation required.

7.5.1.4 Effect on Peat Stability and Failure

There are no records indicating peat instability on the Application Site or in the surrounding area. Neither Geological Survey Ireland (GSI) nor Bord na Móna records document any occurrences of peat slides, instability, or failure within the Application Site throughout the peat extraction period.

Since the baseline assessment year of 1988, an active and extensive drainage system has been in place. Residual peat depths across much of the Application Site are shallow, and slope gradients are minimal, rendering the risk of large-scale peat failure negligible.

Mitigation, Control, and Management Measures Implemented:

- All drainage works were carried out by experienced and competent operatives.
- Design and oversight of all works were conducted by qualified Bord na Móna personnel.
- The drainage system around the Application Site was continuously maintained and managed by Bord na Móna throughout the Peat Extraction Phase (1988–2017).
- Bord na Móna implemented best practice drainage maintenance measures prior to 2001, which were subsequently updated to comply with IPC licence conditions in 2001 (refer to Chapter 4 - Description of Development, Volume 2).

7.5.2 Current Phase (2017 – Present Day)

Measures that mitigate (and will continue to mitigate) against contamination of peat, subsoil, and bedrock are detailed in Section 7.4.3.2 and are currently being implemented at the Application Site. These measures effectively reduce the risk of soil contamination and form part of the ongoing compliance with IPC licence conditions at the Application Site.

No additional mitigation measures beyond those already implemented are considered necessary.

7.5.3 Remedial Phase

Measures that mitigate (and will continue to mitigate) against contamination of peat, subsoil, and bedrock are outlined in Section 7.5 and are currently being implemented at the Application Site. These measures effectively reduce the risk of soil contamination and form part of ongoing compliance with IPC licence conditions at the Application Site.

No additional mitigation measures beyond those already implemented are considered necessary.

7.6 Residual Effect

7.6.1 Peat Extraction Phase (1988 – 2017)

7.6.1.1 Change of Land Use

A significant change to the land and soil environment occurred following the cessation of peat extraction, with natural revegetation of former extraction areas gradually taking place across the Application Site. Some areas that were previously subject to peat extraction in 1988 had revegetated by 2017. The residual effect of this natural revegetation on soils and land from the Peat Extraction Phase can be classified as medium-term and not significant at the Application Site. In contrast, the residual effect on areas still subject to peat extraction by 2017 is imperceptible.

Overall, there are no significant effects on landcover or topography. However, there is a significant positive impact on soils and land, as the land has transitioned from industrial peat extraction to recovering peatland, scrub, and wetland habitats.

Considering this low sensitivity and the limited magnitude of land-use change during the 1988–2017 Peat Extraction Phase, the potential post mitigation residual effects on land use are determined to be **Positive**, **Slight**, **Short-Term** and **Likely** in nature.

7.6.1.2 Effect on Contamination of Soil

Hydrocarbon and chemical use present a potential risk for development. Bord na Móna implemented proven mitigation measures at the Application Site to break the spill/leak pathway between source and receptor.

Based on these control measures and the absence of existing contamination, the residual effect on peat, subsoils, and bedrock is deemed **Negative**, **Imperceptible**, **Short-term**, **Unlikely** and **Reversible**. Therefore, the implementation of control measures ensures no significant effects on land, soil or geological receptors.

7.6.1.3 Effects on Geological Heritage

No significant effects were identified. Littleton Bog was only designated as a CGS in 2019, after peat extraction had ceased.

7.6.1.4 Effect on Peat Stability and Failure

There were no significant long-term effects on peat stability from peat extraction and ancillary activities at the Application Site. The effect on peat stability and failure during the Peat Extraction Phase at the Application Site was negligible. Considering the controls measures implemented, no significant effects on land or geological receptors have occurred.

7.6.2 Current Phase (July 2017 to present day)

The Current Phase encompasses the period of time between the cessation of peat extraction activities at the Application Site in 2017 to the present day which is inclusive of Rehabilitation Phase 1 works (2018-2021).

7.6.2.1 Change of Land Use

Industrial peat extraction at the Application Site ceased in 2017. Following the removal of stockpiles and loose peat, the area was typically left to re-vegetate and naturally recolonise. Initial recolonisation has been observed along surface water drains and where mineral soil is exposed. Bare peat areas are now seeing pioneer species, such as rush and scrub, which have slowly expanded since 2017. However, due to the relatively short time elapsed since extraction stopped, the land cover remains largely unchanged, dominated by bare peat fields and pioneer open cutaway habitats. In conclusion, no significant effects on land, soil or geological receptors have occurred.

7.6.2.2 Effect on Contamination of Soil

The Applicant implemented proven and effective control measures for the use and storage of hydrocarbons and small volumes of chemicals, in line with the EPA licence for fuel management. These standard measures broke the pollutant pathway, ensuring the residual effect on peat, subsoil, and bedrock remained **Negative**, **Imperceptible**, **Short-term**, **Unlikely** and **Reversable**. Therefore, the implementation of control measures ensures no significant effects on land, soil or geological receptors.

7.6.2.3 Effects on Geological Heritage

No significant effects were identified. The area of Littleton Bog was only designated as a CGS in 2019, after peat extraction had ceased. With the exception of the Rehabilitation Phase 1 works (2018-2021), there are currently no significant works being undertaken within the Application Site. Effects associated with the Rehabilitation Phase 1 (2018-2021) works are considered to have a negligible effect on the CGS. Consequently, no significant effects on land or geological receptors has occurred.

7.6.2.4 Effect on Peat Stability and Failure

There were no significant long-term effects on peat stability since the cessation of peat extraction in 2017 at the Application Site. The effect on peat stability and failure during the Current Phase is negligible. Considering the controls measures implemented during the Peat Extraction Phase, no significant effects on land or geological receptors have occurred.

7.6.3 Remedial Phase

This section assesses the likely significant effects of the proposed Rehabilitation Phase 2 works and ongoing Rehabilitation Phase 1 works within the Applicant's Cutaway Bog Decommissioning and Rehabilitation plans for the four bogs within the Application Site on the land, soils, and geology. Effective peatland restoration requires detailed planning, leveraging data from desktop and field surveys alongside topographical and hydrological modelling to design future peatland landscapes and select appropriate rehabilitation methodologies.

7.6.3.1 Change of Land Use

Industrial peat extraction has ceased. The post-peat extraction rehabilitated peatland, following re-wetting, revegetation, and colonisation of significant areas with native woodland, will provide benefits, contributing significantly to achieving the State's targets. Habitats on the Application Site are a mosaic of wetlands, scrub, and heaths/peatlands. However, as the former raised bogs are basin peatlands, reversion to embryonic bog/mire in the short to medium term is unlikely. A key success criterion for the Cutaway Bog Decommissioning and Rehabilitation Plans is the stabilisation of former peat extraction and ancillary activities areas, which will be primarily achieved through natural colonisation. The residual effects on land, soil and geological receptors are determined to be **Positive**, **Moderate**, **Long Term and Likely**.

7.6.3.2 Effect on Contamination of Soil

The use and storage of hydrocarbons and small volumes of chemicals constitutes a potential risk associated with development, including rehabilitation works. Bord na Móna implemented proven and effective measures to mitigate the risk of spills and leaks at the Application Site. Fuel management on site will align with the EPA licence. These control measures effectively break the pathway between the potential source and the receptor.

Considering this, the potential effects on contamination of land, soils and geological receptors are determined to be **Negative**, **Imperceptible**, **Short-Term** and **Unlikely**. Therefore, with the implementation of these control measures, it is concluded that there will be no significant residual effects on land, soil or geological receptors.

7.6.3.3 Effects on Geological Heritage

No significant residual effects on geological heritage are expected. Considering this the effects on geological heritage is determined to be **Positive**, **Moderate**, **Long-Term** and **Likely**.

7.6.3.4 Effect on Peat Stability and Failure

As previously discussed, re-wetting activities such as drain blocking have the potential to increase pore water pressure within the peat deposits. However, due to the nature of the Application Site, existing peat depths, and the absence of recorded peat failures within the Application Site, the risk of peat failure remains very low. Considering this, the potential residual remedial effects on land, soil and geological receptors are determined to be **Negative**, **Imperceptible**, **Temporary** and **Unlikely**.

7.6.4 Cumulative and Indirect Effects

As detailed in Table 2-2, Chapter 2 - Background, Volume 2 and Appendix 2-2, Volume 3 of the rEIAR, the cumulative effects assessment considered relevant data from existing and historical large-scale developments surrounding the Application Site. Additionally, the assessment accounted for future land use within the Application Site, including planned renewable energy development, private peat extraction, and enhanced rehabilitation under the IPC Licence and the Peatlands Climate Action Scheme (PCAS).

A summary of potential cumulative effects is presented in Table 7-11 to 7-13 below:

Table 7-11: Summary of Cumulative Effects for the Peat Extraction Phase (1988-2017)

Development Description	App. Ref.	Grant Date	Location
Briquette Factory Complex, bog workshop, factory workshop, office building, oil storage and tank compound and septic tank	4921	13/03/1978	Immediately adjacent to southern extent of the Application Site.
Relocate baling house in existing briquette factory	P39788	30/05/1985	
Retention of extension for fire lighter manufacturer and storage and bund area	991431	18/02/2000	
Briquette factory	P34576	15/07/1977	
Briquette factory complex, workshops, and office building	P34921	14/03/1978	
The M8 motorway is a significant development in the local and would have been constructed in parts through numerous planning applications to both the local authority and An Coimisiún Pleanála (formerly An Bord Pleanála). In this context, the part of the motorway which runs adjacent to the Application Site has been considered as part of this cumulative assessment	NMS10.MS2008	23/12/2004	The M8 route passes immediately adjacent to the northern portion of the Application Site.
Historical industrial peat extraction proximate to the Application Site	N/A	N/A	Within and immediately adjacent to the Application Site

Table 7-12: Summary of Cumulative Effects for the Current Phase (2017-Present)

Development Description	App. Ref.	Grant Date	Location
The erection of a roofed structure to the rear of the existing industrial shed, (ii)the erection of signage on existing screen wall to the front elevation	20976	22/11/2020	Immediately adjacent to southern extent of the Application Site.
A recreational shared cycle and walkway to connect into the existing Loch Dhoire Bhile Loop - a) the delivery of a shared cycle and walkway on Bord na Móna lands. This will include the repurposing of 602 meters of existing former rail bed, 2859 meters along existing bog headlands / former high fields, and 721 meters along pre-existing machine access routes, b) the construction of car and / or bicycle parking facilities at a number of gateway locations along the proposed route and the provision of EV charging spaces at the gateway locations. This will include; i. 2 no. Type 2 Gateways, ii. 1 no. Type 4 Gateway, iii. 1 no. Minor Rest Points, c) Upgrade works to 1 no. local access road crossing and 4 no. agricultural access crossings, d) the erection of wayfinding and interpretative signage at Gateway locations along the route, e) the implementation of Sustainable Drainage Systems (SuDS) nature-based drainage proposals at the Gateway locations to cater for surface water drainage at car park locations, f) fencing and screening will be erected where required for health and safety and biodiversity reasons which will include 2250 meters of screening and 1925 meters of boundary treatment fencing, g) all other ancillary and associated site work. This Planning Application is accompanied by a Natura Impact Statement (NIS)	TCC Ref. 2560154 ACP Ref. 323662-25	27/01/26	Within the Application Site and at Ballybeg Bog (0.3km from the Application Site)

Table 7-13: Summary of Cumulative Effects for the Remedial Phase (2017-Present)

Development Description	App. Ref.	Status	Location
Future Use of lands at the Application Site for a renewable energy development. The future use of the lands within the Application Site will be a separate and standalone Application, therefore, they are considered cumulatively for the purpose of this Application. It is intended to develop lands at the Application Site in the future for a renewable energy development and to carry out rehabilitation on the bogs where relevant. As outlined above, it is intended to use lands at the Application Site for a renewable energy development. Littleton Wind Farm DAC (a joint venture between SSE and Bord na Moná) intends to submit an application for, inter alia, an 11-no. turbine wind farm. This will be a standalone SID Application, submitted directly to An Coimisiún Pleanála and will be accompanied by an EIAR which will include an assessment of the implementation of the rehabilitation measures at the Application Site in conjunction with the construction, operation, and decommissioning of the Proposed Wind Farm.	N/A - Future Application	N/A - Future Application	N/A - Future Application

Historic and ongoing development within and adjacent to the Application Site, primarily related to the Briquette Factory complex (various permissions from 1977–2000), associated workshops, and small ancillary upgrades, has long operated under established planning and environmental controls. These activities, located largely along the southern site boundary, do not give rise to significant cumulative effects when considered alongside the Application Site.

The M8 motorway, permitted in 2004 and running immediately adjacent to the Application Site at Longfordpass Bog, represents the most substantial external project. Its construction was undertaken under statutory planning and environmental requirements, and no residual effects are identified that would interact cumulatively with the Application Site.

Historical non-commercial (domestic) peat extraction around the Application Site is small-scale in the present context and does not contribute to notable cumulative impacts.

Current Phase developments include minor industrial upgrades adjacent to the southern boundary (2020) and the shared cycleway/walkway project extending through Bord na Móna lands and into Ballybeg Bog (permitted 2026). These works involve limited ground disturbance and operate under modern environmental safeguards. Consequently, no significant cumulative effects are anticipated.

Future phases, including potential renewable energy development and bog rehabilitation proposals, will be subject to project-specific statutory assessment and IPC/licensing processes. Based on current information, no significant cumulative impacts are anticipated.

7.6.5 Major Accidents and Disasters

The Major Accidents and Disasters assessment considers the potentially significant effects of a development on the environment due to its vulnerability to, or potential to introduce, risks of major accidents and/or disasters. According to the EIA Directive, such assessments are primarily applicable to Control of Major Accident Hazards (COMAH) sites, SEVESO sites, or nuclear installations. Although this development is neither a COMAH nor a nuclear installation, the assessment is included here for completeness.

The potential for a significant peat slide at the Application Site is negligible, and no peat slides have occurred from 1988 to the present. Therefore, it can be concluded that the risk of accidents associated with this development is low and has not caused unusual, significant, or adverse effects on the soils and geology environment during the Peat Extraction Phase, Current Phase, or Remedial Phase.

7.7 Conclusion

The comprehensive assessment of the Peat Extraction at Application Site, detailed within this chapter, concludes that the Peat Extraction Phase (1988–2017) and the Current Phase (2017–present) have resulted in **no significant long-term negative effects** on the land, soils, or geological receptors. This outcome is attributed to the effective implementation of control measures throughout the operational history, which successfully mitigated potential risks such as soil contamination and peat instability. the Application Site's intrinsic low risk of peat failure, owing to its flat topography and shallow existing peat depths, further contributed to this finding.

A key factor influencing the low level of negative residual effects is the removal of significant volumes of raised bog that occurred prior to 1988, which defined the post-extraction environment as cutover bog, naturally evolving into scrub and wetland habitats.

Crucially, the proposed Remedial Phase activities, which are focused on re-wetting, revegetation, and broader rehabilitation of the cutover bog, are projected to yield substantial **Positive, Moderate, Long-Term,** and **Likely** benefits for land, soil, and geological receptors. This remedial approach is specifically designed to support peatland recovery and foster ecosystem recovery within the Application Site, thereby ensuring the post-extraction land use transition delivers a net positive environmental outcome.

7.8 References

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