

6. BIODIVERSITY

6.1 Introduction

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) of the peat extraction and ancillary activities that took place at the Application Site from July 1988 to the present day on biodiversity. This chapter also assesses the potential impacts on biodiversity of the implementation of rehabilitation plans for the Application Site, required under Condition 10 of its EPA Licence P0503-01, following the cessation of peat extraction in June 2020. Particular attention has been paid to species and habitats of ecological importance. These include species and habitats with national and international protection under the Wildlife Acts 1976 (as amended) and EU Habitats Directive 92/43/EEC. A full description of all peat extraction and ancillary activities is provided in Chapter 4 Project Description of this remedial EIAR (rEIAR).

The chapter is structured as follows:

- The introduction provides a description of the legislation, guidance and policy context applicable to Biodiversity.
- This is followed by a comprehensive description of the ecological survey and impact assessment methodologies that were followed to inform the robust assessment of likely significant effects on ecological receptors.
- A description of the baseline ecological conditions (taking the baseline to be July 1988 as outlined in Chapter 4) and receptor evaluation is then provided.
- This is followed by an assessment of effects which are described with regard to peat extraction and ancillary activities from 1988 onwards. Specifically, the likely significant effects on biodiversity as a result of the Project are assessed under three separate timeframes, termed 'Phases' (as described in Chapter 4 Project Description) covering the period from July 1988 onwards when the European Communities Environmental Impact Assessment (EIA) Directive was transposed into Irish Law and as defined in Chapter 1 Introduction of this rEIAR:
 - **Peat Extraction Phase** - peat extraction and activities at the Application Site from July 1988 to the cessation of peat extraction in June 2020 (July 1988 – June 2020). The Peat Extraction Phase is described in detail in Chapter 4, Section 4.4 to Section 4.7.
 - **Current Phase** - the management of the Application Site since June 2020 (June 2020 to present). The Current Phase is described in detail in Chapter 4, Section 4.7 to Section 4.8.
 - **Remedial Phase** - the activities intended to be carried out at the Application Site into the future. The Remedial Phase is described in detail in Chapter 4, Section 4.9.
- The potential cumulative effects in combination with other plans and projects are also fully assessed.
- Control and monitoring measures that were implemented during the Peat Extraction Phase and Current Phase are described and discussed in addition to measures proposed under the Remedial Phase. This is followed by an assessment of residual effects taking into consideration the effect of the implemented and proposed mitigation, control and best practice measures.
- The conclusion provides a summary statement on the overall significance of the likely effects on Biodiversity.

The following defines terms utilised in this chapter:

- 'The Project' refers to all phases of this rEIAR, which are fully detailed in Chapter 4.

- “Key Ecological Receptor” (KER) is defined as a species or habitat occurring within the zone of influence of the Project upon which likely significant effects may have occurred or are anticipated.
- “Zones of Influence” (ZOI) for individual ecological receptors refers to the zone within which potential effects may have occurred or are anticipated. ZOIs differ depending on the sensitivities of particular habitats and species and were assigned in accordance with best available guidance and through adoption of a precautionary approach.

6.1.1.1 Site Location

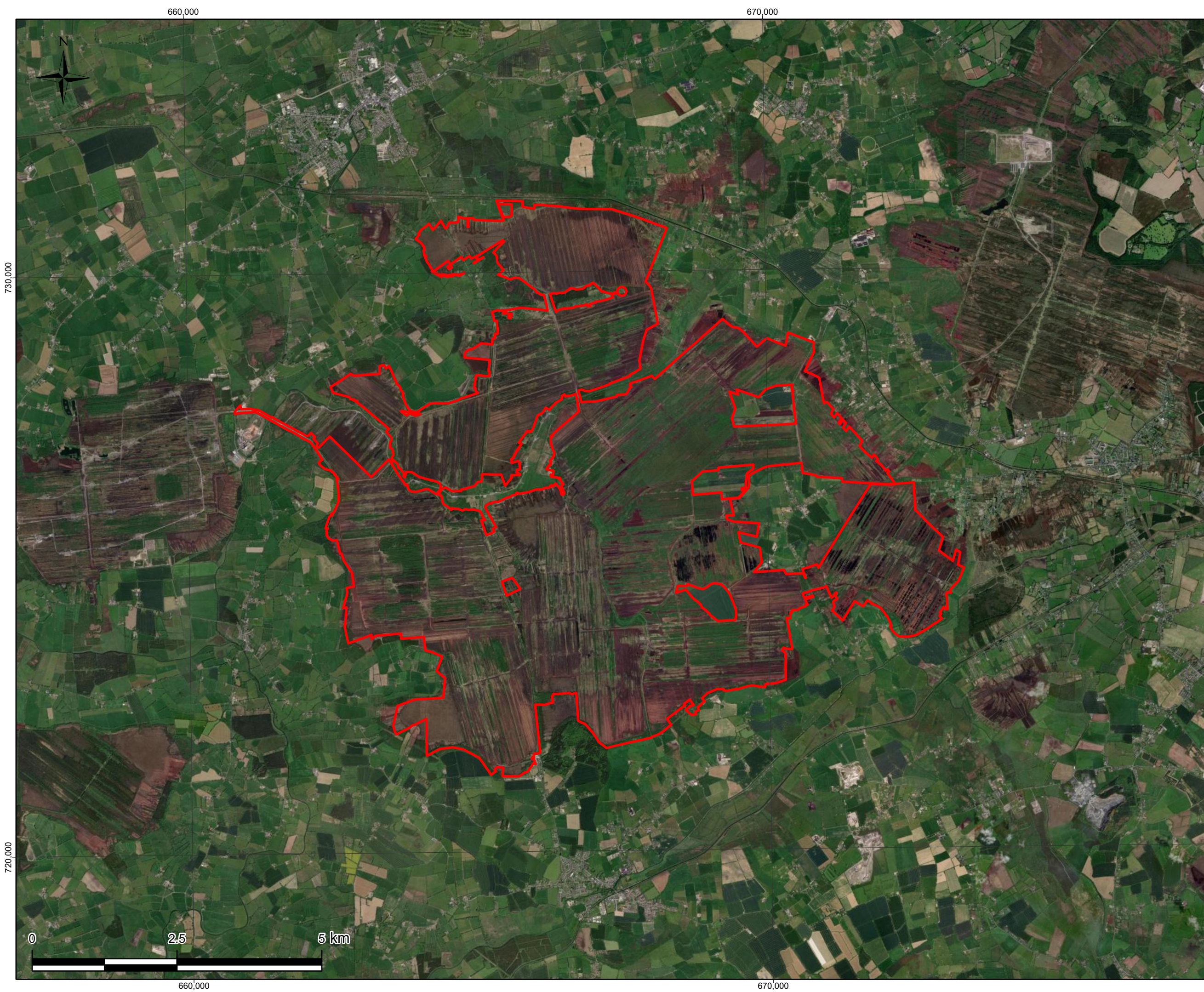
The Application Site is located 2.2km southeast of Edenderry, 3.3km west of Allenwood, 2.4km north of Rathangan and 1.7km east of Clonbullogue Village as shown in Figure 6-1. The Application Site comprises 14 no. bogs located on the Offaly-Kildare County border. The bogs include: Ticknevin, Glashabaun North, Glashabaun South, Codd 1, Codd 2, Ballydermot North, Ballydermot South, Blackriver, Lullymore, Lullybeg, Barnaran, Killina, Derrybrennan and Lodge. The Application Site comprises a site area of 5,448 hectares (ha).

The Application Site is located in a low-lying landscape rural in character. The topography today ranges between 84 m above ordnance datum (AOD) at its highest point to approximately 68 m AOD at its lowest point. The Application Site measures approximately 10 km in length from north to south, and approximately 10.7 km from east to west, at its widest point. The Grid Reference co-ordinates for the approximate centre of the Bog Group are E 266159, N 225145. The boundaries of the individual bogs are mainly defined by hedgerows, watercourses and laneways. Under the Water Framework Directive (WFD; Directive 2000/60/EC), the Application Site is located primarily within the Figile_SC_010, Figile_SC_020, Figile_SC_030, Slate_SC_050 and Slate_SC_010 sub catchments with a small section of the site on the north boundary in Boyne_SC_010 sub catchment, and within the Barrow (Catchment ID 14). The Application Site is generally accessible via the local road network branching from the R402 to the north, R403 to the east, the R401 to the west and the R414 to the south, with the latter cutting through the southeast of the site.

Table 6-1 Townlands in which the Application Site is located

Bog Reference	County	Townlands - Kildare	Townlands - Offaly
Ballydermot North	Kildare/Offaly	Killinthomas	Clonbrown, Cushaling, Ballydermot, Clonmel
Ballydermot South	Kildare/Offaly	Rathangan, Killinthomas, Cushaling, Ballysooghan North, Ballinure	Clonbrown, Coolygagan, Clonroosk Big, Clonroosk Little
Blackriver	Kildare	Cappanargid, Killinthomas, Cushaling, Killyguire, Lullybeg	N/A
Lullybeg	Kildare	Lullymore West, Lullybeg	N/A
Lullymore	Kildare	Lullymore West, Lullybeg	N/A
Lodge	Kildare	Killina Upper, Ballybrack, Killina Lower, Lullymore East, Allenwood South	N/A
Killina	Kildare	Lullymore West, Derrybrennan	N/A
Barnaran	Kildare	Cappanargid, Killyguire, Lullymore East, Barnaran, Lullybeg	N/A
Derrybrennan	Kildare	Ticknevin, Ballybrack, Kilpatrick, Derrybrennan	N/A

Bog Reference	County	Townlands - Kildare	Townlands - Offaly
Glashabaun North	Kildare/Offaly	Ticknevin, Cushaling, Derries	Codd
Glashabaun South	Kildare/Offaly	Ticknevin, Cushaling, Lullymore West, Lullybeg, Derrybrennan	N/A
Ticknevin	Kildare/Offaly	Clonkeen	Derries, Cloncanon
Codd 1	Kildare/Offaly	Cushaling	Cloncant, Shean, Ballydermot
Codd 2	Offaly	N/A	Cushaling, Codd, Shean



Map Legend

Application Site Boundary

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

SITE LOCATION - NOT TO SCALE

Application Site Location

Project Title
Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly

Project No. 250709	Drawing No. 6-1	Scale 1:60,000
Drawn By TS	Checked By JB	Date 30/07/2026

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6.1.2 Statement of Authority

This report has been prepared by Sorchá Shanley (B.A., M.Sc.) and has been reviewed by Rachel Walsh (B.Sc. Env., MCIEEM).

Sorchá is a Project Ecologist at MKO and holds a BA (Hons) in Zoology and an M.Sc. in Marine Biology. Sorchá has over four years' experience working in ecological consultancy with experience in undertaking habitat and species surveys and working on Ecological Impact Assessment and Appropriate Assessment for a wide range of projects.

Rachel is a Senior Ecologist at MKO with six years' experience in ecological consultancy and holds full membership with the Chartered Institute of Ecology and Environmental Management (MCIEEM). Rachel has worked on a wide range of ecological impact assessments for projects such as renewable energy infrastructure projects, wastewater infrastructure projects, extractive industry and residential projects.

The baseline terrestrial ecological surveys were conducted by MKO ecologists Amy McDermott (B.Sc.), Bea Jackson (B.A., M.Sc.), Brídín Foster (B.Sc.), Caití Farren (B.A.), Caoimhe Myles (B.Sc., M.Sc.), Chandra Walter, Ciara Lynn Sheehan (B.Sc.), Cuan Feely (B.Sc.), Deepali Mooloo (B.Sc., M.Sc.), Inga Reich (M.Sc., Ph.D.), Kate Johnson (B.Sc.), Kate Leahy (B.Sc.), Kate O'Donnell (B.Sc., ACIEEM), Katy Beckett, Kevin McElduff (B.Sc.), Julie O'Sullivan (B.Sc., M.Sc.), Mairead Kavanagh (B.Sc.), Niamh Leahy (B.Sc.), Ellen Tuck (B.Sc.), Pádraig Desmond (B.Sc.), Rachel Walsh (B.Sc., MCIEEM), Rudraksh Gupta (B.Sc., M.Sc., ACIEEM) and Sarah Mullen. All surveyors have relevant academic qualifications and are competent in undertaking habitat and ecological assessments.

MKO's Ecology team includes a dedicated bat unit with expertise in scoping, conducting, and reporting bat surveys, as well as preparing impact assessments. All ecologists hold relevant academic qualifications, licences, and training to meet required survey standards. Bat survey scope development and project management was overseen by Aoife Joyce (B.Sc., M.Sc., MCIEEM). Bat surveys were carried out by Ryan Connors (B.Sc., M.Sc.), Fred Mosley (B.A., M.Sc.), Kate Greaney (B.Sc., M.Sc.), Charlie Meehan (B.A., M.Sc.) and Laura McEntegart (B.Sc.). The Bat Report (included as Appendix 6-2) was prepared by Fred Mosley, Ryan Connors, Tim Murphy (B.Sc.) and Molly O'Hare (B.Sc., M.Sc.) and was reviewed and approved by Aoife Joyce. Staff's roles and relevant training are presented in Table 1-2 of the Bat Report in Appendix 6-2.

The Bird Survey Report (Appendix 6-4) was prepared by Kathryn Sheridan (M.Sc.), Senior Ornithologist of MKO, and reviewed by Patrick Manley (B.Sc., MCIEEM), Project Director. Both are suitably qualified ornithologists with experience in conducting ornithological assessments and competent for the purposes of the preparation of this report. Field surveys were undertaken by Alan Lauder (B.Sc.), Bernard Burke (B.A.), Conor Berney (M.Sc.), Cian Cahalin (B.Sc.), Cora Twomey (B.Sc.), Declan Manley, Donnacha Woods (M.Sc.), Eamonn O'Brien (B.Sc.), Ellen Tuck (B.Sc.), Franck Le Moënnier, Fionn O'Donoghue (B.A.), Hannah Keogh, Hannah O'Donoghue (B.Sc.), Ian Hynes (B.Sc.), James Corcoran Hodgins (M.Sc.), Jonah Gaine (B.Sc.), Kate Bismilla (B.Sc.), Kathryn Sheridan (M.Sc.), Katy Beckett (M.Sc.), Laura Gránicz (M.Sc.), Laura McEntegart (B.Sc.), Louis de Vries (M.Sc.), Matthew Kieran (B.Sc.), Neil Bourke, Neil Campbell (M.Sc.), Niall Murray (B.Sc.), Niall McHugh (B.Sc.), Oisín Casasín (B.Sc.), Pádraig Cregg (M.Sc.), Pádraig Webb (B.Sc.), Patrick Manley (B.Sc., MCIEEM), Sheriène Acun (B.Sc.), Susan Doyle (M.Sc., Ph.D.), Shawn Dowdall (M.Sc.), Shay Fennelly (B.Sc.), Tom Ryan (M.Sc.) and Zuzana Erosova (B.Sc.). Surveyors are all experienced and competent field ornithologists.

All surveyors have relevant academic qualifications and licences, and are competent in undertaking the ecological surveys in which they were involved.

Requirements for Ecological Impact Assessment

National Legislation

The Wildlife Act, 1976 (as amended), is the principal piece of legislation governing protection of wildlife in Ireland. The Wildlife Act provides strict protection for species of conservation value. The Wildlife Act conserves wildlife (including game) and protects certain wild animals and flora. These species are therefore considered in this report as ecological receptors.

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that are designated for the protection of flora, fauna, habitats and geological sites. Only NHAs are designated under the Wildlife (Amendment) Act 2017. NHAs are legally protected from damage from the date they are formally proposed for designation. A list of pNHAs were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, these sites are considered to be of significance for wildlife and habitats as they may form statutory designated sites in the future.

The Flora (Protection) Order 2022 (S.I. No. 235) lists the species, hybrids and/or subspecies of flora protected under Section 21 of the Wildlife Acts. It provides protection to a wide variety of protected plant species in Ireland including vascular plants, mosses, liverworts, lichens and stoneworts. Under the Flora Protection Order it is illegal to cut, pick, collect, uproot or damage, injure or destroy species listed or their flowers, fruits, seeds or spores or wilfully damage, alter, destroy or interfere with their habitat (unless under licence).

National Policy

Ireland's 4th National Biodiversity Action Plan 2023-2030 (Department of Housing, Local Government and Heritage, 2024) (the "NBAP"). The NBAP strives for a "whole of government, whole of society" approach to the governance and conservation of biodiversity. It demonstrates Ireland's continuing commitment to meeting and acting on its obligations to protect Ireland's biodiversity for the benefit of future generations and will implement this through a number of key targets, actions and objectives.

The Wildlife (Amendment) Act 2023 introduced a new public sector duty on biodiversity. The legislation provides that every public body, as listed in the Act, is obliged to have regard to the objectives and targets in the NBAP. The NBAP sets out five key objectives as follows:

- **Objective 1: Adopt a Whole-of Government, Whole of Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.
- **Objective 2: Meet Urgent Conservation and Restoration Needs.** Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.
- **Objective 3: Secure Nature's Contribution to People.** Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy.
- **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.

- **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.**
Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.

Such policies have informed the evaluation of ecological receptors recorded within the Application Site and the ecological assessment process.

European Legislation

Habitats and species of European importance are provided legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive) and the EU Birds Directive 2009/147/EC (the Birds Directive) this legislation forms the cornerstone of Europe's nature conservation within the EU. It is built around two pillars: the Natura 2000 network of protected sites (hereafter referred to as European Sites³) and the strict system of species protection. Both the Habitats and Bird Directives have been transposed into Irish law by Part XAB of the Planning and Development Acts 2000 (as amended) (from a land use planning perspective) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011).

Annex I of the Habitats Directive lists habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. Annex II of the Directive lists animal and plant species (e.g. marsh fritillary, Atlantic salmon, and Killarney fern) whose conservation also requires the designation of SAC. Annex IV lists animal and plant species in need of strict protection such as lesser horseshoe bat and otter, and Annex V lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish hare, common frog and pine marten. Species can be listed in more than one Annex, as is the case with otter and lesser horseshoe bat which are listed on both Annex II and Annex IV. The disturbance of species under Article 12 of the Habitats Directive (and in particular avoidance of deliberate disturbance of Annex IV species, particularly during the period of breeding, rearing, hibernation and migration and avoidance of deterioration or destruction of breeding sites or resting places) has been specifically assessed in this EIAR.

The Birds Directive instructs Member States to take measures to maintain populations of all bird species naturally occurring in the wild state in the EU (Article 2). According to Recital 1 of the Birds Directive, Council Directive 79/409/EEC on the conservation of wild birds was substantially amended several times and in the interests of clarity and rationality, the Birds Directive codifies Council Directive 79/409/EEC. Such measures may include the maintenance and/or re-establishment of habitats in order to sustain these bird populations (Article 3). A subset of bird species has been identified in the Directive and are listed in Annex I as requiring special conservation measures in relation to their habitats. These species have been listed on account of inter alia: their risk of extinction; vulnerability to specific changes in their habitat; and/or due to their relatively small population size or restricted distribution. Special Protection Areas (SPAs) are to be identified and classified for these Annex I listed species and for regularly occurring migratory species, paying particular attention to the protection of wetlands (Article 4).

In summary, the species and habitats provided National and International protection under these legislative and policy documents have been considered in this Ecological Impact Assessment. A detailed assessment of the likelihood of the Project having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs, SPAs or cSPAs) has been carried out in the Appropriate Assessment (AA) Screening Report and Natura Impact Statement. A separate assessment has not been carried out in this chapter, to avoid duplication of assessments. However, the relevant conclusions have been cross-referenced and incorporated.

In addition to the above, the following legislation applies with respect to habitats, fauna, invasive species and water quality in Ireland and has been considered in the preparation of this chapter:

- The International Convention on Wetlands of International Importance especially Waterfowl Habitat (Concluded at Ramsar, Iran on 2 February 1971)
- S.I. No. 272 of 2009: European Communities Environmental Objectives (Surface Waters) Regulations 2009 and S.I. No. 722 of 2003 European Communities (Water Policy) Regulations 2003 which give further effect to EU Water Framework Directive (2000/60/EC).
- The following legislation applies with respect to non-native species - Regulation 49 and 50 of European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011).

6.1.4 Assessment Methodology and Relevant Guidance

The assessment methodology is based primarily upon the Transport Infrastructure Ireland (TII)'s (formerly the National Roads Authority) Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2 (TII, 2009) (referred to hereafter as the TII Ecological Impact Assessment Guidelines), and the survey methodology is based on the TII Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (TII, 2008). Although these survey methodologies relate to road schemes, these standard guidelines are recognised survey methodologies that ensure good practice regardless of the development type.

In addition, other guidance including the following guidelines were consulted in the preparation of this document to provide the scope, structure and content of the assessment:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2018).
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) (EPA, 2022).

This assessment has been carried out in accordance with the Environmental Impact Assessment guidance as outlined in Chapter 1 of this rEIAR.

The following planning policies and strategy guidance documents listed below were also considered in the preparation of this assessment:

- Offaly County Development Plan 2021-2027, Offaly County Development Plan 1987
- Partial versions of Historic County Development Plans for Offaly including 2014-2020, 2009-2015, 2003-2009, 1995 and 1967, where accessible. Further detail on historic county development plans are provided in Section 2.2.3 in Chapter 2 Background.
- Offaly County Council Biodiversity Action Plan 2025-2030
- Kildare County Development Plan 2023-2029, Kildare County Development Plan 2021-2027,
- Partial versions of Historic County Development Plans for Kildare including 2011-2017, 2005-2011, 1999-2005, 1985-1991, 1984 (Draft), 1977-1984, 1972-1977, 1972-1977 and 1967-1972 where accessible. Further detail on historic county development plans are provided in Section 2.2.3 in Chapter 2 Background.
- Kildare County Council Draft Biodiversity Action Plan 2026-2031

6.2 Methodology

The following sections describe the methodologies followed to gather information on the baseline ecological condition of the Application Site and surrounding area in July 1988 as well as the present day.

6.2.1 Desk Study

The desk study undertaken for this assessment included a thorough review of available data pertaining to the Application Site and surrounding area including the following:

- BnM Habitat Mapping for the Application Site
 - The Application Site was subject to detailed habitat surveys by BnM in 2010 and 2011 (with follow-up site visits in subsequent years for specific bogs) and detailed habitat maps were prepared.
- Draft and Final Bord na Móna Cutaway Bog Decommissioning and Rehabilitation Plans (included in Appendix 4-2 of this rEIR):
 - Ballydermot Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Barnaran Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Blackriver Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Codd Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Derrybrennan Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Glashabaun Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Killinagh Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Lullybeg Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Lullymore Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026);
 - Ticknevin Bog Draft Cutaway Bog Decommissioning and Rehabilitation Plan (2026); and,
 - Lodge Bog Cutaway Bog Decommissioning and Rehabilitation Plan (2022).
- Aerial imagery for the years 1973, 1988, 1995, 2004 and 2020 (included in Appendix 4-4 of the rEIR).
- Bird Atlases: (Sharrock, 1976; Lack, 1986; Gibbons *et al.*, 1993; Balmer *et al.*, 2013).
- Bord na Móna Breeding and Wintering Bird Survey Reports (2018-2020) undertaken by Inis Environmental Consultants Ltd.
- National Parks and Wildlife Service (NPWS) (2016) Clara Bog SAC (site code 000572) - Conservation Objectives supporting document – raised bog habitats Version 1. June 2016.
- NPWS (2016) Mongan Bog SAC (site code 000580) – Conservation Objectives supporting document – raised bog habitats Version 1. June 2016.
- NPWS (2015) Raheenmore Bog SAC (site code 000582) - Conservation Objectives supporting document – raised bog habitats Version 1. June 2015.
- Aquatic Report (2026) and Fisheries Report (2026) for Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly prepared by Triturus Environmental Ltd (included as Appendix 6-3).
- Bat Report (2026) for Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly, prepared by MKO (included as Appendix 6-2).
- Bird Report (2026) for Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly, prepared by MKO (included as Appendix 6-4).

The following sources were also consulted in order to obtain information on the ecology of the Application Site and wider area:

- Review of historic 6 inch and 25 inch maps of the Application Site and surrounding area(<https://www.arcgis.com/apps/webappviewer/index.html?id=3ae19cc156bf4706a929304bf8fcc4f6>).

- Records from the NPWS web-mapper and review of specially requested records from the NPWS Rare and Protected Species Database for the hectads in which the Application Site is located.
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.
- Review of online web-mappers: NPWS, EPA (Envision), Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI).
- Review of NPWS Article 17 reports and maps 2007, 2013, 2019, and 2025.
- IFI Reports, where available.
- Data on potential occurrence of protected bryophytes – as per NPWS online map viewer; Flora Protection Order Map Viewer – Bryophytes¹.
- Review of relevant available plans, including the Offaly County Development Plan 2021-2027, Kildare County Development Plan 2023-2029, and partial versions of Historic County Development Plans for Offaly (including 2014-2020, 2009-2015, 2003-2009, 1995, 1987) and Kildare (including 2017-2023, 2011-2017, 2005-2011, 1999-2005, 1985-1991, 1984 (Draft), 1977-1984, 1972-1977, and 1967-1972) where accessible. The National Biodiversity Plan 2002-2006, National Biodiversity Action Plan 2011-2016, National Biodiversity Action Plan 2017-2021 and Ireland's 4th National Biodiversity Action plan 2023-2030 were also reviewed.
- Review of the Bat Conservation Ireland (BCI) Database.

6.2.2 Scoping and Consultation

MKO undertook a scoping exercise during preparation of this rEIAR, as described in Section 2.5 of Chapter 2 of this rEIAR. A scoping report, providing details of the Application Site and the Project, was prepared by MKO and circulated in October 2020. Following the recent updates made to legislation on governing Substitute Consent as noted in Section 2.2.1 and the passage of time, another scoping report was recirculated in January 2026 with follow up requests sent in February 2026.

Copies of all scoping responses are included in Appendix 2-1 of this rEIAR. Details of scoping responses pertaining to biodiversity are included in Table 6-2 below.

Table 6-2 Scoping Responses

No.	Consultee	Response
1	An Taisce	None to date
2	Bat Conservation Ireland	Bat Conservation Ireland does not provide opinions or comments on developments.
3	Bird Watch Ireland	None to date
4	Butterfly Conservation Ireland (BCI)	BCI highlights the damage to priority habitats and protected species as a result of peat extraction, and that multiple remedial EIARs may be required due to the varied extraction timelines. The letter stresses the legal obligations for thorough environmental assessment and the need for meaningful restoration, including full re-wetting and rehabilitation under PCAS.
5	Coillte	27/01/2026 Coillte confirms they have reviewed the Scoping Document and enquires what it is they need to do following review of the document. 11/02/2026 Coillte highlight an area close to the Application Site has been recently mapped to be managed for biodiversity.

¹ NPWS, 2019, Online map viewer; Flora Protection Order Map Viewer – Bryophytes. Online, Available at: <http://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=71f8df33693f48edbb70369d7fb26b7e>

No.	Consultee	Response
		They have enquired about what work is proposed to be carried out on the Coillte land as part of the project.
7	Department of Agriculture, Food and the Marine	Provided information on the felling and reforestation policy and information on obtaining a Felling License prior to trees being removed.
8	Department of Climate, Energy and the Environment	None to date
10	Department of Housing, Local Government and Heritage	Noted the Department is not in a position to make specific comment on this particular referral at this time but may submit observations/recommendations at a later stage in the process.
15	Environmental Protection Agency	Referred to their scoping response issued on 16th March 2022. Noted the presence of the IPC licence at the site and provided an opinion on the level of detail to be included in the rEIAR.
23	Inland Fisheries Ireland	IFI highlights extensive historical peatland drainage, river modification, and habitat loss in the Figle, Slate, and wider Black River system have severely damaged critical salmon spawning and nursery habitats, contributing to the Barrow River's low salmon populations. IFI emphasises that these tributaries, though not SAC-designated, are essential to the Barrow SAC's salmon stock and offer major restoration potential. They ask that large-scale river and habitat restoration be made a central requirement of future development.
24	Irish Peatland Conservation Council	The IPCC highlights concern for BnM's legacy of peat extraction conflicting with today's requirements for ecological restoration under the Nature Restoration Law. IPCC emphasises that standard rehabilitation cannot prevent long-term carbon emissions, whereas enhanced, ecological and hydrologically focused rehabilitation is essential for sustainability. IPCC highlight historical lapses in site protection and encourage any future consent to include stringent, transparent, and legally binding conservation obligations.
25	Irish Red Grouse Association	None to date
27	Irish Raptor Study Group	None to date
28	Irish Wildlife Trust	Noted that they had no capacity to provide a response at this time.
30	Kildare County Council – Environmental Department	KCC highlighted concern for water quality impacts from peat extraction, especially sediment release, acidification, and elevated ammonium as they pose significant risks to adjacent rivers and streams. KCC ask for the report to have a thorough assessment of water quality impacts for the period after 1988 and future effects including extensive historical monitoring data and consideration for the connectivity between bogs. KCC ask for the inclusion of KCC's CDP 2023-2029 Volume 1 Chapter 6 Infrastructure & Environmental Services and the current River Basin Management Plans in the assessment. KCC suggests including a separate Chapter within the report which deals with Water Quality impacts (past and future) and current or future risks to Water Quality.
35	Offaly County Council - Environment Department	None to date

No.	Consultee	Response
38	Office of Public Works	None to date

6.2.3 Field Surveys

A comprehensive survey of the biodiversity of the Application Site was undertaken on various dates between 2020 and 2025 (refer to Table 6-3 below for specific dates). Detailed habitat maps of the Application Site provided by BnM were used to set the baseline and inform the surveys. Whilst a number of the surveys described below were undertaken to inform the EIAR for the proposed Ballydermot Wind Farm which is proposed to be located within the Application Site, the study area for both the proposed Ballydermot Wind Farm and the Application Site boundary for this rEIAR overlap. These surveys provide the information necessary to undertake a robust assessment of the likely impacts of the peat extraction and ancillary activities, both past and present, and the implementation of the rehabilitation plans on the Application Site.

Table 6-3 Summary of surveys undertaken to inform the remedial Ecological Impact Assessment (rEIAR) and remedial Natura Impact Statement (rNIS)

Survey	Dates
Multidisciplinary Walkover Surveys (Including Habitats and Mammals)	11 th of September 2025 18 th of September 2025 16 th of July 2024 18 th of July 2024 23 rd of July 2024 25 th of July 2024 29 th of July 2024 13 th of August 2024 22 nd of March 2023 23 rd of March 2023 18 th of April 2023 5 th of May 2022 6 th of May 2022 26 th of May 2022 1 st of June 2022 8 th of June 2022 14 th of June 2022 22 nd of June 2022 22 nd of July 2022 19 th of July 2022 16 th of June 2021 24 th of June 2021 11 th of August 2021 12 th of August 2021

Survey	Dates
	Trail cameras deployed between 20 th of June and 19 th of July 2022
Detailed Habitat and Vegetation Composition Surveys	16 th of July 2024 18 th of July 2024 23 rd of July 2024 25 th of July 2024 29 th of July 2024 13 th of August 2024
Aquatic Surveys (Including Otter)	31 st of July 2024 1 st of August 2024 2 nd of August 2024 3 rd of August 2024 1 st of July 2021 2 nd of July 2021 3 rd of July 2021
Bird Surveys	Various dates between April 2020– March 2026
Marsh Fritillary Surveys	4 th of September 2025 8 th of September 2025 11 th of September 2025 18 th of September 2025 21 st of August 2024 4 th of September 2024 14 th of September 2022 19 th of September 2022 29 th of September 2020 30 th of September 2020
Bat Surveys	April, May, June, July, August, September and October 2024
Round-leaved wintergreen survey	30 th of July 2025

The results of the surveys were used to inform this rEIAR chapter. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies, dates of survey and guidance followed.

6.2.3.1 Multidisciplinary Walkover Surveys

Multidisciplinary walkover surveys were undertaken within the Application Site. Surveys were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). These surveys were carried out in accordance with TII Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (TII, 2008).

The walkover surveys were designed to detect the presence, or likely presence, of a range of protected species. The survey included a search for mammal signs (bats, badger, red squirrel etc.) and areas of suitable habitat to support these species, potential features likely to be of significance to bats and additional habitat features for the full range of other protected species that are likely to occur in the vicinity of the Application Site (e.g. otter etc.).

During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) and Third Schedule of the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011) was conducted.

Other targeted survey methodologies undertaken at the Application Site are described in the following subsections.

6.2.3.2 Dedicated Habitat and Vegetation Composition Surveys

Detailed botanical surveys/relevé assessments of the Application Site were undertaken throughout multidisciplinary walkover surveys carried out between 2021 and 2025. All habitats recorded on site and described in this rEIAR chapter have been classified in accordance with Fossitt (2000).

The habitat assessment surveys described in this report have been undertaken with reference to the following guidelines and interpretation documents:

- Commission of the European Communities (2013) *Interpretation manual of European Union habitats*. Eur 28. European Commission DG Environment.
- NPWS (2025). *The Status of EU Protected Habitats and Species in Ireland*. Volume 2: *Habitat Assessments*. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018), *The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats*. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013), *The Irish semi-natural grasslands survey 2007-2012*. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
- Smith, G.F. & Crowley, W. (2020) *The habitats of cutover raised bog*. Irish Wildlife Manuals, No. 128. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- Fernandez, F., Connolly K., Crowley W., Denyer J., Duff K. & Smith G. (2014) *Raised Bog Monitoring and Assessment Survey 2013*. Irish Wildlife Manuals, No. 81. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland.
- Daly, O.H., O'Neill, F.H., & Barron, S.J. (2023). The monitoring and assessment of four EU Habitats Directive Annex I woodland habitats. Irish Wildlife Manuals, No. 146. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- Cross, J. & Lynn, D. (2013) Results of a monitoring survey of bog woodland. Irish Wildlife Manuals, No. 69. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Habitats were identified and classified, with emphasis on those of ecological significance, particularly those with the potential to correspond to Annex I of the EU Habitats Directive (92/43/EEC).

Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010), while mosses and liverworts nomenclature follows 'Mosses and Liverworts of Britain and Ireland - a field guide' (British Bryological Society, 2010).

6.2.3.2.1 Vegetation Composition Assessment

Detailed habitat classification and assessment was undertaken at targeted locations within the Application Site, with relevés undertaken within representative habitats recorded within the Application Site. The extent of each habitat on site was mapped using the Field Maps app. A representative photograph was also taken for each of the habitats recorded on site, including all relevés.

The survey results were then analysed in accordance the Irish Vegetation Classification (IVC) system. The IVC is a project with aims to classify, describe, and map in detail all aspects of natural and semi-natural vegetation in Ireland within a single, unified framework. The National Vegetation Database (NVD), upon which the IVC is based, holds data for over 30,000 relevés and is the core resource upon which the classification system is based.

A fundamental requirement of the IVC is to “aid in definition and identification of EU Habitat Directive (92/43/EEC) Annex I habitats” and to ‘inform the planning process, for example through environmental impact assessments’.

The Engine for Relevés to Irish Communities Assignment (ERICA)² is a web application for assigning vegetation data to communities defined by the Irish Vegetation Classification (IVC). Data can be uploaded, checked for errors and analysed and the results can then be downloaded. ERICA works with both quantitative vegetation cover data (such as are recorded in relevés and other types of botanical recording plots) and presence/absence data, such as species lists. ERICA covers grasslands, woodland, duneland, heaths, bogs, fens, mires, freshwater, saline waters, rocky habitats, scrub, strandline, saltmarsh and weed communities (Perrin, 2018). The data collected from the botanical assessments was uploaded to ERICA, analysed and the results data downloaded.

The analysis procedure uses a clustering process to assign classification affinity to vegetation plots based on a degree of membership to each of the communities defined by the IVC. Table 6-4 details the categorizing types of plots utilising the clustering analysis. This categorizing procedure was utilised to determine if the habitat plots within the study area had any affinity to Annex I habitats and whether further assessment was required.

Table 6-4 Categorising types of plots using clustering analysis (after Wiser & de Cáceres, 2013).

Plot Type	Definition
Assigned	The plot has membership ≥ 0.5 for one of the vegetation communities and therefore relates to the core definition of that vegetation community.
Unassigned	The plot has membership ≥ 0.5 for the noise class and is poorly represented by the current classification scheme
Transitional	The plot has membership < 0.5 for all vegetation communities and for the noise class. It falls within the scope of the current classification scheme but does not relate to the core definition of any of the vegetation communities.

Habitats considered to be of ecological significance and in particular having the potential to correspond to those listed in Annex I of the EU Habitats Directive where present were identified and classified as KERs.

6.2.3.3 Terrestrial Fauna Surveys

The results of the desk study, scoping replies and incidental records of protected species recorded during multidisciplinary walkover surveys were used to inform the scope of targeted ecological surveys required. While the surveys described below were undertaken to inform the EIAR for the proposed

² Perrin, 2019, ERICA – Engine for Relevés to Irish Communities Assignment V5.0 User’s Manual, Online, Available at: https://biodiversityireland.shinapps.io/vegetation-classification/w_9cd4889a/manual.pdf, Accessed: 10.10.2020

Ballydermot Wind Farm, the study area for both the proposed Ballydermot Wind Farm and the Application Site boundary for this rEIAR overlap, and these surveys provide the information necessary to undertake a robust assessment.

Based on the above, dedicated surveys for marsh fritillary, bats, otter, badger, birds and aquatic fauna were undertaken following the methodologies provided below. Following the completion of ecological walkover surveys, no requirement for further dedicated faunal surveys was identified.

During the multidisciplinary walkover surveys, where observed, incidental records of birds and invertebrates including butterflies, dragonflies, etc. were recorded.

Additionally, incidental records of fauna observed during the extensive ornithological surveys carried out within the Application Site were recorded.

6.2.3.3.1 **Badger Survey**

Areas within the Application Site identified as providing potential habitat for badger were subject to targeted survey. Targeted surveys were also undertaken in areas where incidental badger signs, setts or sightings were recorded during walkover bird surveys of the Application Site.

The badger surveys were conducted in order to determine the presence or absence of badger signs within the Application Site. This involved a search for all potential badger signs (latrines, badger prints, mammal tracks and setts) per Smal (1995). Where potential setts were identified these were mapped and classified according to their status (i.e. main, annexe, subsidiary, outlier) and level of usage (disused, well-used, active). Where setts were identified as potentially being used/active camera traps were set up to confirm if they were in active use by badger. The badger survey was not constrained by vegetation given the nature of the habitats within the Application Site and the timing of the surveys (TII, 2005).

The badger surveys were conducted adhering to best practice guidance (TII, 2008) and followed the 'Guidelines for the Treatment of Badger Prior to the Construction of National Roads Schemes' (TII, 2005) and CIEEM best practice competencies for species surveys (CIEEM, 2013³).

Camera traps

Camera traps were deployed at the location of a badger sett identified within the Application Site between 20th of June and 19th of July 2022 to determine whether the sett was in use. The camera traps were deployed for 29 days.

6.2.3.3.2 **Otter Survey**

Following a review of the previously completed ecological surveys, areas identified as providing potential habitat for otter were subject to additional surveys during multidisciplinary surveys of the Application Site. Additional otter surveys were conducted by Triturus Environmental Ltd. (Appendix 6-3) as part of the aquatic baseline surveys of watercourses within and downstream of the Application Site.

The otter survey was conducted as per TII (2008) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter

³ CIEEM, 2013, *Technical Guidance Series – Competencies for Species Survey*, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/>

habitat (NPWS, 2009). The dedicated otter survey also followed the guidance as set out in TII (2006) ‘Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes’ and following CIEEM best practice competencies for species surveys (CIEEM, 2013).

6.2.3.3.3 Marsh Fritillary Surveys

Following the identification of suitable habitat for marsh fritillary within the Application Site during walkover surveys undertaken as well as the results of the desk study (showing records in hectads N62, N63 and N72), targeted larval web surveys for the species were undertaken between 2020 and 2025.

The survey methodology followed that described in the TII (2008) best practice guidance document and used and recording sheets designed by the NBDC⁴. This involved presence/absence surveys for marsh fritillary active larval webs within suitable areas of marsh fritillary habitat within the Application Site. Devil’s bit scabious plants (*Succisa pratensis*) were systematically searched for marsh fritillary larval webs throughout areas where the species occurs. The surveys were undertaken on dry days during the optimal survey period (August-September).

6.2.3.3.4 Bat Surveys

A detailed description of bat survey methodologies undertaken at the Application Site is provided in the Bat Report in Appendix 6-2, along with dates and details of all surveyors. Surveys carried out in 2024 were in accordance with NatureScot (2021) and form the core dataset for the assessment of effects on bats. These results are supplemented by data collected during surveys undertaken at the Application Site in 2020 and 2022 which were designed in accordance with SNH, 2019, NatureScot, 2021 and Collins, 2016.

The survey programme included bat walkover surveys to assess the suitability of the Application Site to support roosting, foraging and commuting bats, as well as manual activity surveys and ground-level static surveys, summarised as follows:

- **Roost Surveys – Daytime Roost Inspections:** A search for roosts was undertaken within the Application Site in April, May, June, July, August and September 2024. The aim of these searches was to determine the presence of Potential Roost Features (PRFs) for bats and the potential presence of roosting bats. A search for structures and likely suitable roosting areas was first conducted during initial desktop studies of the site. Walkover surveys were carried out and included a search for Potential Roosting Features (PRFs) in trees, buildings, and other structures where present. These were assessed for their potential to support roosting bats according to Collins (2023). Any potential tree roosts identified within the Application Site were examined for the presence of rot holes, hazard beams, cracks and splits, partially detached bark, knot holes, gaps between overlapping branches and any other potential roost features (i.e. PRFs) identified by the Bat Tree Habitat Key (BTHK, 2018). Where accessible, an endoscope was used to inspect PRFs in more detail to assess their suitability for roosting bats.
- **Manual Activity Surveys:** Walked transect surveys after dusk (night-time bat walkovers) were conducted across the Application Site in Spring, Summer, and Autumn 2024, using full-spectrum bat detectors (Batlogger M). A series of representative transect routes were selected throughout the Application Site. The aim of these surveys was to identify bat species using the Application Site and gather any information on bat behaviour and important features used by bats.
- **Ground-level Static Detector Surveys:** Full-spectrum static detectors (Song Meter SM4BAT) were deployed at 22 locations across a representative range of habitats during Spring, Summer, and Autumn 2024 (Figure 3-1 in Appendix 6-2). Detectors were

⁴ <https://biodiversityireland.ie/app/uploads/2021/11/Marsh-Fritillary-Larval-Survey-Form.pdf>

programmed to record from 30 minutes before sunset to 30 minutes after sunrise for at least 10 nights per season. Weather conditions were monitored throughout to ensure appropriate conditions were captured.

All recorded bat calls were analysed using Kaleidoscope Pro software and manually verified to species or genus level, where possible, and activity levels were quantified as bat passes per hour (bpph).

6.2.3.3.5 Aquatic surveys

Dedicated aquatic baseline surveys were undertaken by Triturus Environmental Ltd. Aquatic surveys were conducted on the 31st of July and between the 1st-3rd of August 2024. Surveys were also undertaken in 2021, the results of which were updated in 2024 and considered within the 2026 Aquatic Baseline Report. The surveys assessed watercourses and ponds within and downstream of the Application Site to evaluate fisheries potential, biological water quality, and the presence of aquatic species and habitats of conservation interest. A total of 22 sites were surveyed. The survey site locations are shown in Figure 2-1 of the Aquatic Report in Appendix 6-3.

The surveys included electro-fishing, fisheries habitat appraisal, biological water quality (Q-sampling), macrophyte and aquatic bryophyte surveys, white-clawed crayfish surveys and otter surveys. In addition, environmental DNA (eDNA) sampling was undertaken at selected locations to assist in the detection of potential cryptically low populations of protected and rare aquatic species.

The surveys covered all watercourses draining the Application Site and the survey effort was considered sufficient to provide comprehensive information on the nature of the watercourses within and draining the Application Site. A full description of the survey methodologies is provided in the Aquatic Report in Appendix 6-3.

6.2.3.3.6 Bird Surveys

Bird surveys were undertaken during the period April 2020 to March 2026, consisting of six breeding seasons (April – September) and six non-breeding seasons (October – March) as described in the Bird Survey Report in Appendix 6-4. These field surveys were undertaken in compliance with NatureScot guidance (SNH (2017), which was revised in NatureScot (2025)).

Field survey methodologies were devised to survey for the bird species composition and assemblages that occur within the study area. The study area surveyed for each type of survey is discussed in the methodology section below. The survey radii described in the below sections were devised in relation to the Application Site boundary, as provided to MKO by BnM during initial survey design for the proposed Ballydermot Wind Farm. The bird surveys described below were undertaken to inform the EIAR for the proposed Ballydermot Wind Farm, however the study area for both the proposed Ballydermot Wind Farm and the Application Site boundary for this rEIAR overlap. These surveys provide information on the bird species utilising the Application Site and inform the assessment of the potential impacts of the Project on bird species.

Initial Site Assessment

Based on the results of the desk study, consultation and reconnaissance site visits undertaken in April 2020, the likely importance of the study area for bird species was ascertained. A list of “target species” likely to occur at the Application Site was compiled. Bird surveys conducted at the Application Site were then specifically designed to survey for these target species, in accordance with NatureScot guidance (SNH [2017], which was revised in NatureScot [2025]). The target species list was drawn from:

- Species listed on Annex I of the EU Birds Directive.
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects.

- Red listed Birds of Conservation Concern in Ireland (BoCCI).
- Other raptor species not included in the above.

Based on the collated information available from the above preliminary assessment and adopting a precautionary approach, a site-specific scope for the ornithological surveys was developed. The various survey types undertaken are described below.

Vantage Point Surveys

Vantage point surveys were undertaken at the Application Site from April 2020 to March 2026. Surveys were conducted monthly throughout the survey period from 16 no. fixed point vantage points, allowing comprehensive coverage of the Application Site.

Data Recording and Digitisation

Survey methodology followed SNH (2017) and NatureScot (2025). The surveyor collected data on bird observations and flight activity from the scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3 hour watches separated by a minimum 30 minute break (i.e. 6 hours total) per month. Surveys were conducted from April 2020 to March 2026 inclusive, and were scheduled to provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity (Table 6-5).

Table 6-5 Vantage point survey effort

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Breeding Season 2020 (16 VPs)	36 hours per VP
Winter Season 2020/2021 (16 VPs)	36 hours per VP
Breeding Season 2021 (16 VPs)	36 hours per VP
Winter Season 2021/2022 (16 VPs)	36 hours per VP
Breeding Season 2022 (16 VPs)	36 hours per VP
Winter Season 2022/2023 (16 VPs)	36 hours per VP
Breeding Season 2023 (16 VPs)	36 hours per VP
Winter Season 2023/2024 (16 VPs)	36 hours per VP
Breeding Season 2024 (16 VPs)	36 hours per VP
Winter Season 2024/2025 (16 VPs)	36 hours per VP
Breeding Season 2025 (16 VPs)	36 hours per VP
Winter Season 2025/2026 (16 VPs)	36 hours per VP

Each flight observation was assigned a unique identifier when mapped in the field and subsequently digitised using GIS software. Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions for each survey. Figure 2-1 of the Bird Survey Report (Appendix 6-4) shows the Vantage Point Survey Locations.

Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine the presence of bird species of high conservation concern and identify areas of possible, probable or confirmed breeding for bird species observed within the Application Site, and to a 500m radius of the Application Site. The methodology was based on Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat. Transect routes were walked across different habitat complexes within the survey area where access allowed. Using binoculars, the surveyor regularly scanned the surroundings of each transect for target species. All target species were

mapped and breeding status was assigned following British Trust for Ornithology (BTO) breeding status codes⁵. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Breeding walkover surveys were carried out during daylight hours over four visits during the core breeding season months April to July (2020, 2021, 2022, 2023, 2024 & 2025), with the Application Site being visited seven consecutive days per month (insofar as possible) on each occasion. Following all survey visits, the field maps were analysed to determine the number and location of breeding territories. All non-breeding individuals and species encountered were also recorded.

Survey effort is presented in Appendix B of the Bird Survey report in Appendix 6-4, including full details of dates, times and weather conditions for each survey. Figure 2-2 of the Bird Survey Report (Appendix 6-4) shows the breeding walkover transect routes.

Breeding Raptor Surveys

Raptors include all harrier, falcon, buzzard, eagle, hawk, owl, kite and osprey species. Breeding raptor surveys were undertaken within the Application Site, and to a 2km radius of the Application Site, to identify occupied territories and monitor their breeding success near or within the Application Site. Survey methodology followed Hardey *et al.* (2013). Breeding raptor watches of 3 hours (supplemented by transects if necessary) were conducted during daylight at a total of 11 no. breeding raptor locations over the six breeding seasons. All raptor species observed were recorded and mapped and breeding status was assigned following BTO breeding status codes. Surveyors did not approach nest sites to avoid disturbance.

Each breeding raptor location was surveyed once per month during the core breeding season between April and July. Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions. Figure 2-3 of the Bird Survey Report (Appendix 6-4) shows the breeding raptor survey locations.

Breeding Woodcock Surveys

Breeding woodcock surveys were undertaken within the Application Site and to a 500m radius of the Application Site. The aim of the survey was to identify breeding woodcock territories within the Application Site by locating roding (breeding display) males. Survey methodology followed Gilbert *et al.* (1998): the surveyor walked transects within the Survey Area for two hours from dusk until last visible light during which all woodcock observations were mapped, with particular reference to roding observations. Each transect was surveyed up to three times⁶ during the core breeding season of May and June (2020, 2021, 2022, 2023, 2024 & 2025).

Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions. Figure 2-4 of the Bird Survey Report (Appendix 6-4) shows the Breeding Woodcock survey transects.

Breeding Barn Owl Surveys

As barn owl were determined to be utilising an old factory shed in 2021, breeding barn owl surveys were subsequently undertaken at this location during breeding seasons 2021, 2022, 2023, 2024 & 2025. Barn owl were no longer present at this location in 2025 and surveys were subsequently moved to an abandoned cottage which barn owls were observed entering. Survey methodology followed TII (2021).

⁵ <https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>

⁶ Due to the abundance of roding woodcock throughout the site, each transect was visited at least twice per season to confirm presence of breeding woodcock before covering another transect.

The surveyor conducted a watch at the potential nest site from 30 mins before sunset until 1 hour after sunset, searching for barn owls provisioning young, listening for the sound of chicks, and observing for barn owl pellets, feathers or whitewash. All such observations were recorded and mapped and a breeding status was assigned following TII (2021). The potential nest sites were surveyed a minimum of three times during the core breeding season May to July (2021, 2022, 2023, 2024 & 2025).

Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions. The survey location is shown in Figure 2-5 of the Bird Survey Report (Appendix 6-4).

Winter Walkover Surveys

Winter walkover surveys were undertaken to record the presence of bird species within the Application Site to a 500m radius of the Application Site, including areas between vantage point locations. The methodology was adapted from the walkover methodology outlined in Bibby *et al.* (2000) and adapted Brown and Shepherd surveys', combined with Common Bird Census methods (British Trust for Ornithology, 2021). Transect routes were walked across different habitat complexes within the survey area where access allowed. All target species were recorded and mapped. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Winter walkover surveys were conducted in daylight hours over four visits between October and March (i.e. four visits in winter 2020/2021, four visits in winter 2021/2022, four visits in winter 2022/2023, four visits in winter 2023/2024, four visits in winter 2024/2025 and four visits in winter 2025/2026).

Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions for each survey. Figure 2-6 of the Bird Survey Report (Appendix 6-4) shows the winter walkover survey radius.

Hen Harrier Roost Surveys

Hen harrier roost surveys were undertaken in areas of suitable habitat within a 2km radius of the Application Site. These surveys aimed to identify active winter hen harrier roosts near or within the Application Site. Survey methodology followed Gilbert *et al.* (1998) and O'Donoghue (2019). Roost watches of 2-3 hours were conducted at a total of 18 hen harrier vantage point locations over the six winter seasons surveyed. Surveys were carried from dusk until last visible light during which all hen harrier observations were recorded and mapped.

Each hen harrier vantage point was surveyed once per month during the winter season between October and March inclusive (in winters 2020/2021, 2021/2022, 2022/2023, 2023/2024, 2024/2025 & 2025/2026). Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions. Figure 2-67 of the Bird Survey Report (Appendix 6-4) shows the hen harrier roost survey locations.

Breeding Nightjar Surveys

Following an observation of nightjar in 2023, dedicated breeding nightjar surveys were conducted in the same area of suitable habitat within the Application Site. Survey methodology followed Gilbert *et al.* (1998); the surveyor walked transects within the Survey Area for two hours from dusk until last visible light during which all nightjar observations would be mapped, with particular reference to display observations. The Survey Area was surveyed two times during the core breeding season of June and July 2023. Survey effort is presented in Appendix B of the Bird Survey Report (Appendix 6-4), including full details of dates, times and weather conditions. Figure 2-8 of the Bird Survey Report (Appendix 6-4) shows the breeding nightjar survey location.

6.2.3.3.7 **Invasive Species Survey**

During the multidisciplinary walkover surveys and botanical surveys, a search for non-native invasive species was also undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (As Amended) (S.I. 477 of 2015) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024).

6.2.3.3.8 **Survey Limitations**

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the field surveys that were undertaken to establish the current ecology of the Application Site. The potential of the Application Site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. The habitats and species on the Application Site were readily identifiable during the site visits and comprehensive assessments were made during the field visit and no limitations have been identified in this regard.

The description of the 1988 baseline below is based on a desk study involving a review of available literature and mapping, including existing habitat mapping of the Application Site provided by BnM. Aerial photography and information provided by BnM on the timelines of drainage, vegetation stripping, peat extraction and ancillary activities at the Application Site were also studied in detail. In addition, information gathered during field surveys of the Application Site undertaken by MKO between 2020 and 2026 has also been used. These surveys provided information on the nature of the habitats present in areas where peat extraction and ancillary activities had recently ceased, in areas where peat extraction and ancillary activities had ceased for some time and in areas of remnant raised bog which had never been subject to peat extraction. Using this information, it is possible to infer what the ecological baseline at the Application Site was likely to have been in 1988. However, no detailed, site specific ecology and habitat surveys from that time are available to inform the description.

While many of the surveys described in this Chapter were undertaken to inform the EIAR for the proposed Ballydermot Wind Farm, the study area for the proposed Ballydermot Wind Farm and the Application Site overlap. The surveys undertaken comprehensively covered the Application Site and provide the information required to undertake a robust assessment of the likely significant effect of peat extraction and ancillary activities on biodiversity.

6.2.4 **Methodology for Assessment of Impacts and Effects**

6.2.4.1 **Identification of Target Receptors and Key Ecological Receptors**

The methodology for assessment followed a precautionary screening approach with regard to the identification of Key Ecological Receptors (KERs). Following the aforementioned comprehensive desk study, the initial site visits and stakeholder consultation (refer to Section 6.2.2 above for details of consultations undertaken); “Target receptors” likely to occur in the zone of influence (as defined in Section 6.1 above) of the Project were identified. The target receptors included habitats and species that were protected under the following legislation:

- Annexes of the EU Habitats Directive and EU Birds Directive;
- Qualifying Interests (QI) of Special Areas of Conservation (SAC) within the likely zone of influence;

- Species protected under the Wildlife Acts 1976-2021; and
- Species protected under the Flora Protection Order 2022.

6.2.4.2 Determining Importance of Ecological Receptors

The importance of the ecological features identified within the Application Site, and its vicinity was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the TII Ecological Impact Assessment Guidelines (TII, 2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular receptor is of importance on the following scales:

- International Importance;
- National Importance;
- County Importance;
- Local Importance (Higher Value); and
- Local Importance (Lower Value).

The TII guidelines clearly set out the criteria by which each geographic level of importance can be assigned. Locally Important (Lower Value) receptors contain habitats and species that are widespread and of low ecological significance and are of importance only in the local area. Internationally important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected flora and fauna. Specific criteria for assigning each of the other levels of importance are set out in the guidelines (TII, 2009) and have been followed in this assessment. Where appropriate, the geographic frame of reference set out above was adapted to suit local circumstances. In addition, and where appropriate, the conservation status of habitats and species is considered when determining the significance of ecological receptors.

Any ecological receptors that are determined to be of National or International, County or Local Importance (Higher Value) following the criteria set out in the guidelines (TII, 2009) are considered to be Key Ecological Receptors (KERs) for the purposes of ecological impact assessment if there is a pathway for effects thereon. Any receptors that are determined to be of Local Importance (Lower Value) are not considered to be Key Ecological Receptors.

6.2.4.3 Characterisation of Impacts and Effects

Developments or projects can result in a number of impacts. The ecological effects of these impacts are characterised as per the CIEEM 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (2018). These guidelines are the industry standard for the completion of Ecological Impact Assessment in the UK and Ireland. The headings under which the impacts are characterised follow those listed in the CIEEM guidance document and are applied where relevant. A summary of the impact characteristics considered in the assessment is provided below:

- **Positive or Negative.** Assessment of whether a proposed development or project results in a positive or negative effect on the ecological receptor.
- **Extent.** Description of the spatial area over which the effect has the potential to occur.
- **Magnitude.** Refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
- **Duration** is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.

- **Frequency and Timing.** This relates to the number of times that an impact occurs and its frequency. A small-scale impact can have a significant effect if it is repeated on numerous occasions over a long period.
- **Reversibility.** This is a consideration of whether an effect is reversible within a 'reasonable' timescale. What is considered to be a reasonable timescale can vary between receptors and is justified where appropriate in the impact assessment section of this report.

6.2.4.4 Determining the Significance of Effects

The ecological significance of the effects of the Project are determined following the precautionary principle and in accordance with the methodology set out in Section 5 of CIEEM (2018).

For the purpose of Ecological Impact Assessment (EcIA), 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local (CIEEM, 2018).

When determining significance, consideration is given to whether:

- Any processes or key characteristics of key ecological receptors will be removed or changed.
- There will be an effect on the nature, extent, structure and function of important ecological features.
- There is an effect on the average population size and viability of ecologically important species.
- There is an effect on the conservation status of important ecological habitats and species.

The EPA Guidelines on information to be included in Environmental Impact Assessment Reports (EPA, 2022) and the TII Ecological Impact Assessment Guidelines, (TII, 2009) were also considered when determining significance.

As per TII (2009) and CIEEM (2018) best practice guidelines, the following key elements should also be examined when determining the significance of effects:

- The likely effects on 'integrity' should be used as a measure to determine whether an impact on a site is likely to be significant (TII, 2009).
- A 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives (CIEEM, 2018).

Integrity

In the context of EcIA, 'integrity' refers to the coherence of the ecological structure and function, across the entirety of a site, that enables it to sustain all of the ecological resources for which it has been valued (TII, 2009). Impacts resulting in adverse changes to the nature, extent, structure and function of component habitats and effects on the average population size and viability of component species, would affect the integrity of a site, if it changes the condition of the ecosystem to unfavourable.

Conservation status

An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status. According to CIEEM (2018) guidelines the definition for conservation status in relation to habitats and species are as follows:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

As defined in the EU Habitats Directive 92/43/EEC, the conservation of a habitat is favourable when:

- Its natural range, and areas it covers within that range, are stable or increasing.
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.
- The conservation status of its typical species is favourable.

The conservation of a species is favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.
- There is and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

According to the TII/CIEEM methodology, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international).

6.2.4.5 **Incorporation of Control Measures and Mitigation**

Section 6.4 of this rEIAR assesses the likely significant effects of peat extraction and ancillary activities since July 1988 on sensitive ecological receptors and outlines the best practice and control measures, where applicable, that were/are in place during the Peat Extraction Phase and Current Phases. It also outlines mitigation measures which are to be in place during the implementation of the rehabilitation plans for the Application Site during the Remedial Phase. Since the year 2000 all operations at the Application Site have been licenced under IPC Licence (No. P0503-01) and have been subject to the conditions of that licence. It is currently proposed to implement Cutaway Bog Decommissioning and Rehabilitation Plans to fulfil the requirements of Condition 10 of the IPC licence. The objective of this plan is to stabilise and rehabilitate the peatland habitats within the Application Site. The implemented control measures and mitigation measures avoid or reduce or offset potential significant residual effects, post mitigation.

6.3 **Establishing the Ecological Baseline**

6.3.1 **Desk Study**

The following sections provide the results of a detailed desk study undertaken to collate information on the ecology of the Application Site and the surrounding area (refer to Section 6.2). As outlined in Chapter 1 of this rEIAR, the Project includes the period from July 1988, when the European Communities Environmental Impact Assessment (EIA) Directive was required to be transposed into Irish law, until the present day. Therefore, the ecological baseline against which the assessment in this chapter is undertaken is taken to be July 1988. The sections below provide information gathered from a desk study which help establish the ecological baseline conditions that are likely to have existed at the

Application Site and surrounding area in 1988. A full description of activities at the Application Site from 1935 until the present day is included in Chapter 4.

The Application Site is located within the 10km grid squares (hectads) N62, N63 and N72. In addition to presenting desk study information on the ecological baseline of the Application Site, information on the ecology of the wider area (within hectads N62, N63 and N72) is also included. This encompasses records of protected species (both historical and contemporary), information on Annex I habitats, and relevant water quality data. While historical information is presented where available, e.g. previous Bird Atlases, NPWS records, information on water quality, much of the information presented on the surrounding area relates to recent records obtained from the National Biodiversity Data Centre (NBDC) and other sources.

6.3.1.1 1988 Ecological Baseline

By 1988, the land use at the Application Site was well established as industrial peat extraction. The Application Site was drained with milled, sod moss and sod peat extraction taking place across 4,840 ha of the Application Site in 1988. Railway infrastructure was also established throughout the Application Site by 1988. The main entrance points to the Application Site were at the Ballydermot Works entrance on the L-3001 road in the southwest of the Application Site, and from a local road (L-2506-3) which crosses the Grand Canal, passing the Lullymore Briquette Factory before cutting through Killina Bog in the northeast. Other access points include entrances off the L3001 Rathangan to Edenderry Road which cuts through the Application Site in a north to west direction and off the Allenwood to Rathangan Road (designated R414 in 1993) which cuts through the southeast of the Application Site. Ballydermot Works, which comprised welfare facilities, storage sheds, offices, maintenance buildings, staff carparks, HGVs storage area, refuelling area and a tiphead is still in situ at present day. The following ancillary infrastructure was established at the Application Site by July 1988:

1. *Railway infrastructure;*
2. *Internal machine passes/tracks;*
3. *Silt ponds and drains; and*
4. *Pumping stations.*

Aerial imagery indicates that by July 1988, approximately 4,840ha of the Application Site was subject to peat extraction. Thus, the main landcover type at this time was cutover peat. The Application Site included 25 no. artificial silt ponds, 15 no. surface water emission points and 9 no. pumps which remain in situ today. Surface water outfall locations discharge to tributaries of the River Barrow. The topography of the Application Site is estimated to have been approximately 72-88mOD by 1988. (See Section 4.4 of Chapter 4 Project Description for further detail).

6.3.1.1.1 Description of Habitats at the Application Site – 1988 (Baseline)

Raised Bog Habitat

By 1988 the land use at the Application Site was well established as industrial peat extraction. The Application Site was drained with milled, sod moss and sod peat extraction were taking place across most of the Application Site in 1988. Railway infrastructure was also established throughout the Application Site by 1988.

In the absence of historical data for the Application Site, this description of the baseline ecology at the Application Site before the Project is informed by NPWS published accounts of bog habitats and *A Guide to Habitats in Ireland* (Fossitt, 2000). Prior to any drainage (pre-1935), the majority of the Application Site would have likely been covered by predominantly uncut raised bog, and associated habitats including bog woodland, fen and flush.

Raised bogs are accumulations of deep acid peat (3-12m in depth) that originate in shallow lake basins or topographical depressions. They have a typical elevated domed surface which grows upwards from the surface. The dome is primarily rainwater fed and isolated from the groundwater table giving rise to acid conditions which support distinctive specialised vegetation communities tolerant of such acid conditions.

Raised bogs vegetation communities are grouped into a series of community complexes which in turn are amalgamated into a series of ecotopes characterised by different physical characteristics.

The main ecotopes that community complexes are grouped into include:

- Central ecotope
- Sub-central ecotope
- Active flushes and soaks
- Sub-marginal ecotope
- Marginal ecotope
- Inactive flushes
- Face-bank ecotope

Actively accumulating peat conditions occur within the sub-central and central ecotope, which are the wettest on the bog and an indication of good quality active raised bog. Active raised bog is characterised by an actively growing upper layer known as the acrotelm (peat-forming layer of the bog) which is composed mainly of Sphagnum mosses. The surface of intact active raised bog is typically wet, acidic and deficient in plant nutrients with a complex microtopography of hummocks and hollows on the bog surface. Sphagnum mosses dominate the ground layer. Bogs are generally driest at the edges becoming wetter towards the centre where well-developed pool systems are common. Dry areas and hummocks typically support ling heather (*Calluna vulgaris*), deergrass (*Trichophorum germanicum*), hare's tail cottongrass (*Eriophorum vaginatum*), cross-leaved heath (*Erica tetralix*) and Sphagnum and other moss species. Wetter areas and pools are generally characterised by common cottongrass (*Eriophorum angustifolium*), bog asphodel (*Narthecium ossifragum*), white beak sedge (*Rhynchospora alba*), bogbean (*Menyanthes trifoliata*) and Sphagnum mosses (Fossitt, 2000). Active raised bog is a priority habitat listed under Annex I of the Habitats Directive and is described as a raised bog which is "still capable of peat formation, or if peat formation has temporarily ceased". Active flushes and soaks are also dominated by Sphagnum mosses and typically have wet conditions. These features are associated with active raised bog and contribute to the overall diversity of the habitat. The adjacent surrounding marginal, sub-marginal, and face-bank bog areas typically have a supporting function for the central and sub-central communities but are not peat accumulating.

In 1988, predominantly smaller areas of uncut raised bog would have been present, mostly at the peripheral areas of the Application Site where peat extraction would not have occurred. These areas of raised bog were fragmented and would mainly have been degraded in nature due to the extensive drainage that had been inserted in the majority of the wider bog by this stage. In any areas that had been drained but not subject to peat extraction (a section of Codd 1), vegetation was still intact and therefore would also have comprised areas of degraded raised bog. Sphagnum moss cover was likely much reduced and ling heather more abundant compared to an undrained intact raised bog, due to the lowered water table. It is unlikely, given the extensive drainage that had been inserted within and surrounding this section of raised bog that any significant areas of active raised bog would have remained.

Areas that were neither drained nor subject to peat extraction by July 1988 included 98 ha in the west of Ballydermot South, approximately 38 ha in Ticknevin, approximately 15 ha in Codd 1, and a section of remnant uncut raised bog of approximately 24 ha in the southwest of Lodge Bog. These undrained and unextracted areas would have retained more typical raised bog characteristics, though likely degraded to varying degrees due to surrounding drainage activity.

Cutover Bog

Based on the information provided in Section 6.3.1.1 above, the vast majority of the Application Site in 1988 would have been classified as cutover bog. Cutover bog is a variable habitat, or complex of habitats, that can include mosaics of bare peat and revegetated areas with woodland, scrub, secondary heath communities, fen and flush or grassland communities. The nature of the recolonising vegetation depends on numerous factors including the frequency and extent of disturbance, hydrology, the depth of peat remaining, and the nature of the peat and the underlying substratum (Smith and Crowley, 2020).

In 1988, the cutover bog habitat at the Application Site would have comprised predominantly of bare peat where large sections of the bogs had been drained and vegetation removed. Where peat extraction and ancillary activities ceased for some time during subsequent years, these areas would have begun to be colonised by vegetation communities typical of cutover bog habitats and similar to those present on parts of the Application Site today, i.e. a mosaic of birch dominated scrub and woodland with some willow, generally dry in nature, ling heather dominated secondary heath vegetation, pioneer poor fen dominated by common bog cotton and areas of dry and wet grassland.

6.3.1.1.2 Fauna at the Application Site – 1988 (Baseline)

The faunal species on the Application Site in 1988 would have comprised species typical of cutover bog habitats, as well as species typical of raised bog. Small, fragmented areas of uncut raised bog remained at the Application Site by 1988. The following sections describe fauna typically associated with raised bog and cutover bog habitats.

Typical Fauna of Raised Bog

Raised bogs are nutrient poor ecosystems and the acidic, waterlogged and exposed conditions mean they support a low faunal species diversity (NPWS, 2016). This description of typical raised bog fauna is informed by NPWS published accounts of bog habitats, including site-specific conservation objectives supporting documents for Clara Bog, Mongan Bog and Raheenmore Bog (NPWS, 2016), considered good examples of raised bog habitat in Ireland.

The lack of suitable foraging and breeding places on raised bog habitats make raised bog largely unsuitable for many mammal species. Irish hare is the most commonly occurring mammal species on raised bogs. Other species recorded from marginal areas and watercourses surrounding bogs include otter (*Lutra lutra*), pygmy shrew (*Sorex minutus*), badger (*Meles meles*), pine marten (*Martes martes*) and fox (*Vulpes vulpes*) (NPWS 2016).

Common frog is the most common amphibian whilst common lizard may also be found.

Eighteen species of birds have been reported breeding on raised bogs (Wilson 1990), however, many of these use the bog as nesting habitat only and are dependent of other habitats including open water bodies, callows and wet grassland for feeding. A few species, meadow pipit (*Anthus pratensis*), skylark (*Alauda arvensis*) and curlew (*Numenius arquata*) complete their full breeding cycle on raised bog and the first two species are the most commonly occurring species (Bracken *et al.* 2008). Red grouse is also considered a typical bog species occurring year-round as a resident. Other species associated with raised bog include mallard, hen harrier, cuckoo, merlin, kestrel, snipe, and lapwing.

In terms of invertebrates, while information on invertebrate assemblages typical of raised bog is limited, two species of Lepidoptera have been identified as characteristic of raised bog habitat, i.e. bordered grey (*Selidosema brunnearia*) and light knot grass (*Acrionicta menyanthidis*). Marsh fritillary butterfly and large heath butterfly are also typically associated with peatland habitats.

Species mentioned above are not confined to active raised bog habitat and most, if not all, will use other areas of the bog and surrounding habitats, including cutover bog.

Typical Fauna of Cutover bog

By 1988 the majority of the Application Site was cutover bog with smaller areas of uncut raised bog remaining in Ballydermot South and Ticknevin as well as mostly around the margins of the other bogs within the Application Site. The Application Site, therefore, while it may have supported populations of some species typical of raised bog habitats in the remnant raised bog areas, is more likely to have supported faunal assemblages typical of cutover bog habitats and similar to the faunal assemblages present today which include skylark, meadow pipit, Irish hare, badger, otter.

6.3.1.1.3 Habitats and Fauna Present During Peat Extraction Phase

The below sections set out the data on habitats and fauna gathered at the Application Site during the Extraction Phase.

BnM Ecology Surveys and Habitat Mapping (2010-2011)

As detailed in Section 6.2.1, BnM carried out a baseline ecological survey of all of its properties in 2009-2012 and developed habitat maps. As part of this exercise, the Application Site was surveyed in 2010-2011.

The following subsections summarise the ecological survey reports prepared by BnM ecologists for each bog within the Application Site. The descriptions reflect conditions as recorded at the time of each survey, during the Peat Extraction Phase

Ballydermot North

Ballydermot North is described in the September 2011 Ecological Survey Report, which covers Ballydermot North, Ballydermot South and Codd 1 as a combined sub-section. The bog is located in west Kildare approximately 4km north of Rathangan, with the Ballydermot Works in the southeastern corner and an extensive BnM railway network throughout. The bogs drained eastward via arterial channels towards the Figle River. The majority of peat at that time was fen peat, with the eastern section underlain by thick shell marl exposed at the bog surface in places, and mixed silt and gravel beneath the central higher ground.

Ballydermot North supported a mosaic of bare peat, strips of mature birch woodland and dry heather dominated vegetation along arterial drains, pioneer dry heather dominated vegetation and open birch scrub on a central cutaway mound, and soft rush-dominated poor fen in areas recently out of production. Remnant high bog along the western boundary was degraded, extensively drained and with low Sphagnum cover. Sphagnum sod moss was being harvested from high bog in the southwest at time of survey. Basil thyme (*Clinopodium acinos*) and blue fleabane (*Erigeron acer*) were recorded along railway embankments within this bog, both listed on the Flora Protection Order and in the Irish Red Data Book (Curtis and McGough 1988, Vulnerable)(at the time of the survey).

Ballydermot South

Ballydermot South is described within the same September 2011 Ecological Survey Report as Ballydermot North and Codd 1. The southern boundary supported areas of remnant raised bog and extensive mature birch woodland up to 15 m in height, co-dominated by scots pine, rowan, hawthorn and wild cherry, with a ground flora of heather, bramble and bracken.

The western area contained the most ecologically significant area of remnant raised bog within this subsection, approximately 61 ha in moderate condition with the dome still visible. The high bog was drying out and no pool systems were recorded at time of survey. The vegetation comprised heather, bog asphodel, deer grass, bog cotton, cross-leaved heath, round-leaved sundew, bog rosemary and Sphagnum species including *S. austinii*, *S. cuspidatum*, *S. capillifolium* and *S. subnitens*. Scots pine were seeding into this area from adjacent birch woodland. The majority of the former production area was dominated by bare peat, with linear strips of open and closed birch scrub developing along larger drains. The northern cutaway areas supported younger pioneer poor fen and birch scrub communities, with a localised area of pioneer poor fen with open water in the northwest corner supporting bottle sedge and reed-mace. Basil thyme and blue fleabane were recorded along railway embankments within this bog.

Codd 1

Codd 1 is described within the same September 2011 Ecological Survey Report as Ballydermot North and Ballydermot South. The Figile River flows along the northern boundary and white-clawed crayfish (*Austropotamobius pallipes*) was recorded from the Figile River during drainage works in the 1990s. The majority of peat was fen peat.

Codd 1 was predominantly in milled peat production at time of survey, an area in the north of the bog produced sod moss from 2011 with very limited cutaway vegetation development. Small areas of pioneer dry heather dominated vegetation, open birch scrub and purple moorgrass-dominated grassland were developing around silt pond complexes. A small area of degraded remnant high bog on the western side had developed into mature birch woodland with scots pine, within which a block of planted oak and naturally self-seeding oak saplings was recorded. A disused badger sett was recorded within this birch-oak woodland. Basil thyme and blue fleabane were recorded along railway embankments within this bog.

Blackriver

The September 2011 Ecological Survey Report describes Blackriver as located along the east side of the Rathangan-Edenderry Road, approximately 4km north of Rathangan. The Crabtree River flows along the northeastern boundary and the channelised Black River runs through the bog, with pumped drainage directed northward towards the Figile River. White-clawed crayfish was historically recorded from the Crabtree River during drainage works in the 1990s. The majority of peat was fen peat, with shell marl underlying the western portions and gravel sub-soil exposed further west.

The majority of Blackriver was in active milled peat production at the time of survey, converted from former sod peat operations. Pioneer poor fen communities dominated by soft rush, bog cotton and marsh arrowgrass were developing in fields out of production in the northwest. Marginal habitats were relatively well-developed, mature birch woodland along the margin adjacent to Killinthomas Wood included scots pine, oak, guelder rose, holly and alder buckthorn, with Sphagnum hummocks in the ground flora. Ash-hazel woodland with calcareous indicator species including purging buckthorn, spindle and guelder rose was present along the Crabtree River to the northeast.

Several areas of remnant high bog (PB1) were present around the western and northern margins, generally degraded and drained. Smaller patches with Sphagnum cover exceeding 50% were present, and some high bog in the southwestern area retained ridges dominated by heather with troughs containing deergrass, bog cotton, bog asphodel, purple moorgrass and regenerating *S. capillifolium* and *S. papillosum*. Active private sod peat cutting was ongoing along the western and northern margins at the time of the survey. Basil thyme and blue fleabane were recorded along the railway embankment at several locations.

Barnaran

The September 2011 Ecological Survey Report describes Barnaran as located in west Kildare, approximately 6km west of Allenwood, south of a prominent mineral island. The Crabtree River flows along the northwestern boundary and the Slate River along the eastern boundary. Sub-soils were sand and gravel throughout and the overall topography was flat, comprising primarily cutaway of varying ages.

The northwestern area supported the most mature cutaway, with tall closed birch scrub. Elsewhere, younger cutaway contained a mix of poor fen dominated by soft rush with occasional bog cotton, pioneer scrub, and small gravel hills colonised by calcareous grassland species. A small area of degraded raised bog in the west consisted of a mixture of gorse, birch scrub, bare peat and dry heather dominated vegetation, subject to recent sod peat harvesting. The southern boundary supported a mix of mature birch woodland and remnant sections of raised bog, the latter dry, degraded and becoming colonised by scots pine and birch. The railway through the bog supported a diverse, species-rich dry grassland with glaucous sedge, knapweed, ox-eye daisy, wild carrot, cocksfoot, yarrow and purple moor-grass. Basil thyme was recorded along the railway embankment, with an estimated population of 150–200 plants distributed over approximately 300m of track.

Glashabaun North

The September 2011 Ecological Survey Report (supplemented by Long Derries surveys in 2014/2015) describes Glashabaun North as located approximately 4km south of Edenderry in County Offaly, to the east of the Edenderry to Rathangan road, forming one part of a combined survey area with Codd 2. The bog drained towards the Figile River within the Southeastern Barrow catchment. White-clawed crayfish was historically recorded from the Figile River during drainage works in the 1990s.

The majority of Glashabaun North was in full peat production at time of survey, with pioneer poor fen and scrub developing in areas out of production and along arterial drainage channels. The southernmost part retained a strip of intact remnant raised bog subject to domestic turf cutting, ditched, dry and heather-dominated. The Cushaling River flowed between Glashabaun North and Glashabaun South, retaining natural riffles and pools, and otter spraint was recorded here at time of survey. Significant areas of domestic turf cutting were occurring along the southern and eastern boundaries at time of survey.

The Long Derries cSAC (site code 000925) partially overlaps with the Glashabaun North BnM property. This gravel ridge (esker) is designated for orchid-rich calcareous grassland (Annex I habitat 6210) and supports several species of notable conservation interest, including basil thyme (*Clinopodium acinos*), blue fleabane (*Erigeron acer*) and green-winged orchid (*Anacamptis morio*), all listed on the Flora Protection Order (at the time of the survey) and in the Irish Red Data Book (Curtis and McGough 1988). The calcareous grassland of the Long Derries supported a diverse flora including quaking grass, carline thistle, yellow rattle, eyebright, slender St John's wort and bird's foot trefoil. The Long Derries was formerly used as a BnM gravel pit, and the spread of basil thyme and blue fleabane across the wider BnM railway network is considered to originate from this source. Pine marten and badger were recorded within the Long Derries at time of survey. A remnant strip of raised bog at the southern margin of the Long Derries retained typical raised bog characteristics but does not qualify as the Annex I Habitats Directive habitat type 7120.

Codd 2

Codd 2 is described within the same September 2011 Ecological Survey Report as Glashabaun North. It is located to the west of the Edenderry to Rathangan road, approximately 4km south of Edenderry, with the Figile River flowing along its southern boundary. Codd 2 had relatively deep peat remaining, with gravelly sub-soil present in some silt ponds to the north.

Codd 2 was largely in full production at time of survey, with bare peat exposed across the majority of the bog. The northern boundary included scrub habitats developing around silt ponds, and birch woodland was present on marginal ground. The northwest section included a small area of remnant high bog (PB1) along its southern boundary and active cutover bog (PB4) along its northern side. Basil thyme and blue fleabane were recorded at several locations along the railway through Codd 2.

Glashabaun South

The September 2011 Ecological Survey Report describes Glashabaun South as a former sod peat production bog converted to milled peat, located within Counties Kildare and Offaly. The Figle River flows west along the southern boundary, the Lugherra River along the southeastern boundary, and the Cushaling River between Glashabaun North and South, all channelised within deep embankments. Otter was recorded on the bog during the survey. Deeper peat remained on Glashabaun South compared to other production bogs in the complex, though harvested to the fen layers.

The eastern side of the bog had been substantially planted with conifers by Coillte (under lease), predominantly sitka spruce and lodgepole pine with a small oak plantation, with dense birch scrub and woodland developing along the plantation margins. The remainder of the bog contained a mosaic of bare peat, open and emergent birch scrub in mosaic with soft rush-dominated poor fen, and more developed closed birch scrub and woodland in older cutaway areas. Two remnant areas of high bog at the southern end were being cut for commercial sod peat at time of survey. Basil thyme and blue fleabane were recorded along the railway embankment through the bog.

Derrybrennan

The August 2010 Ecological Survey Report describes Derrybrennan as located in west Kildare, 6km west of Allenwood, at the northeast corner of the Application Site, south of the BnM Lullymore Briquette Factory. The topography was influenced by a mineral island at Derrybrennan Townland, with a shallow basin deepening westward and greater peat depths toward the centre and west. The Abbeylough River flows along the northern boundary within the River Barrow catchment.

The majority of the bog was dominated by bare peat or early pioneer poor fen and birch scrub. The most developed habitats were in the southeast corner, including a small patch of birch woodland (approximately 14 m canopy) surrounded by dense birch and gorse-dominated scrub. Rush-dominated poor fen was well developed along the higher southern ground, comprising dense soft rush, bog cotton and creeping bent. Small dry calcareous grassland patches had developed along old tracks with glaucous sedge, knapweed, ox-eye daisy, wild carrot and purple moorgrass. Basil thyme was recorded along the railway, with an estimated population of 150–200 plants over approximately 300 m of track.

Killina

Ecological surveys of Killina were carried out in October 2009, May 2015 and August 2016. Killina Bog is located near Lullymore in County Kildare. The bog occupied a shallow basin sloping generally towards the southeast, which was the wettest area. Drains discharged towards streams linked to the Slate River within the Barrow catchment. The bog is within 1km of the Grand Canal pNHA (site code 002104).

The southeast section contained bare peat slowly revegetating with pioneer poor fen and birch scrub. The northeast section was more mature, with dense closed birch scrub, open poor fen and small reedbed patches, with some lower fields supporting standing water and developing wetland vegetation. The western half contained pioneer poor fen and emerging birch scrub, with several fields planted with reed canarygrass as part of a BnM biomass trial. Dry calcareous grassland and a cocksfoot-sweet vernal grass community had developed around an exposed mineral island at the northern end of the bog, notable for species including *Centaurea nigra*, *Carex flacca*, *Lotus corniculatus*, *Briza media*, *Linum*

catharticum, *Succisa pratensis* and *Pedicularis sylvatica*. Cutover bog (PB4) was present in small areas in various stages of recolonisation, including white-beak sedge (*Rhynchospora alba*) in older sections. Sod moss extraction occurred on the bog, ceasing by 2020.

Lodge

The August 2012 Ecological Survey Report describes Lodge Bog as located adjacent to Lullymore, approximately 3km west of Allenwood in County Kildare. The bog is bounded by the R414 along part of the northern boundary, separating it from Killina to the north and Barnaran to the west. The bog drained eastward in two main catchments into the Slate River, within the River Barrow catchment. The main peat type was black fen peat, with shell marl present in field drains towards the eastern half and mixed gravel till exposed at field ends developing as cutaway. The Grand Canal pNHA (site code 002104) is located approximately 0.5km from the southeast corner of the bog.

The majority of Lodge Bog was in active sod moss peat production at time of survey. A small amount of pioneer cutaway vegetation was developing along the southwest margin where peat has been exhausted and mixed till sub-soil is exposed, including soft rush and bog cotton-dominated poor fen on lower wetter fields and a mosaic of pioneer dry grassland communities on higher ground, with purple moorgrass, dry calcareous grassland and sweet vernal-grass communities. A portion of the western margin containing remnant high bog (PB1), birch woodland and scrub was given to the Irish Peatland Conservation Council (IPCC) by BnM in 2005 and was managed as a nature reserve, with drain-blocking and scrub removal works carried out since that date. This section was not surveyed as part of the 2012 ecological survey. Basil thyme was recorded at one location along the railway at the southern end of the bog.

Lullymore

Ecological surveys of Lullymore were carried out in June 2010 and 2015. Lullymore Bog is located in County Kildare, adjacent to Lullymore Heritage and Discovery Park. The Figile River flows along the northern boundary and the Crabtree River along part of the western boundary, both within the Southeastern Barrow catchment. The majority of the bog was out of production at time of survey and had been zoned as a wetland area. Drain-blocking rehabilitation works were carried out in 2006/2007 to enhance wetland habitat development.

The bog supported the most diverse wetland habitats recorded within the Application Site. Birch-dominated scrub was the main establishing habitat on drier areas, with grey willow, eared willow, scots pine and occasional rowan, aspen and oak also present. The wetland areas were notably diverse, with a mosaic of bog cotton-dominated and soft rush-dominated poor fen, areas of bottle sedge, standing water with emergent vegetation, and frequent large clumps of saw sedge, the most extensive occurrence of this species recorded across BnM cutaway bogs to date. The presence of saw sedge, brown mosses, greater tussock sedge and small areas dominated by yellow sedge with *Campylium stellatum* indicated significant potential for rich fen habitat development. Drain-blocking had resulted in localised re-wetting, with some areas developing standing-dead birch and willow-dominated re-wetted scrub.

A small area of mature mixed woodland dominated by beech and sycamore is present along the eastern boundary on a mineral island, considered to have been planted in the 19th century, with a native ground flora typical of ash woodland. A disused badger sett was recorded within this woodland. The adjoining Lullybeg bog to the northwest, managed by Butterfly Conservation Ireland, supports a mosaic of scrub and species-rich dry grassland actively managed for marsh fritillary.

Lullybeg

The September 2011 Ecological Survey Report describes Lullybeg as surrounded on three sides by the Crabtree River, with the Figile and Lugherra Rivers meeting at the northern end, all channelised within

deep embankments. The bog drained towards the Figile River within the Southeastern Barrow catchment. Otter, white-clawed crayfish and a diverse invertebrate assemblage had been recorded in the associated watercourses.

The northern section contained unthicketed conifer plantation and sod peat spread-ground. The western margins along the Lugherra River supported ash-hazel woodland and hazel-blackthorn scrub on mineral alluvial soils or thin peats, with guelder rose, spindle, hawthorn and alder buckthorn present. The central cutaway section contained a mosaic of bare peat, birch scrub and poor fen at varying stages of development, with a small area of more diverse calcareous grassland in the northwestern corner supporting devil's bit, hemp agrimony, greater tussock sedge and yellow sedge-dominated vegetation with potential rich fen features. The southern production area was dominated by bare peat, with dense birch woodland present at the southern end on former high bog. No remnant high bog remained within the bog. The Butterfly Conservation Ireland reserve within the northeast corner of the bog had recorded 22 species of butterfly including marsh fritillary, as well as narrow-bordered bee hawkmoth, kingfisher, water rail, teal, woodcock, buzzard, red squirrel and otter.

Ticknevin

The November 2011 Ecological Survey Report describes Ticknevin as located in County Offaly and Kildare, approximately 4km south of Edenderry, with the Grand Canal flowing close to the northern boundary. The bog straddled the Barrow and Boyne catchments, with the majority of drainage flowing northward under the Grand Canal towards the River Boyne. Peat was predominantly Sphagnum peat, with mixed gravel till sub-soils towards the northern boundary and blue-silty clay in drain profiles elsewhere. The bog is adjacent to both the Long Derries SAC and the Grand Canal pNHA.

The former production area comprised open cutaway with significant peat depth remaining, with isolated strips of vegetation associated with drains or remnant bagger machine features, vegetated with heather, purple moorgrass, gorse and birch. Minor cutaway habitat development had occurred at the margins, including purple moorgrass-dominated grassland around silt ponds and light scrub on drainage spoil along the southern boundary, where Japanese knotweed was also recorded. Towards the eastern end of the Long Derries esker, ditched high bog retained around a small archaeologically significant mound showed a transition from former ditched high bog and birch woodland through dry heather dominated vegetation to acidic and calcareous grassland on the mound slopes.

The most ecologically significant feature of Ticknevin was the area of intact raised bog west of the Edenderry Road, in notably good condition with old drains infilled and the active Sphagnum layer intact. Hummocks of *S. capillifolium*, *S. papillosum*, *S. austinii* and *S. fuscum* are present, along with white-beak sedge, hare's-tail bog cotton, bog rosemary and Aulacomnium palustre. Remnants of former hummock and pool complexes were revegetating, with some areas approaching active raised bog quality. Active private sod peat cutting was ongoing at the southwest corner of the intact high bog at time of survey.

Key Biodiversity Features of Interest across the Application Site

The 2010-2011 BnM ecological surveys of the bogs within the Application Site identified the following key biodiversity features of interest:

- Basil thyme (*Clinopodium acinos*) and blue fleabane (*Erigeron acer*), both nationally rare, listed on the Flora Protection Order (at the time of the survey) and in the Irish Red Data Book (Curtis and McGough 1988, Vulnerable and Endangered respectively) were recorded along railway embankments across multiple bogs including Ballydermot North, Ballydermot South, Codd 1, Barnaran, Blackriver, Glashabaun North, Codd 2, Glashabaun South, Derrybrennan and Lodge Bog. Their distribution reflects the spread of gravel sourced from the Long Derries SAC during BnM railway construction.

- Marsh fritillary is present at the Lullybeg/Lullymore sites, with 22 butterfly species in total recorded at the Butterfly Conservation Ireland reserve within Lullybeg West.
- Remnant raised bog (PB1) of varying quality is present at several bogs, including Ballydermot South (approximately 61 ha, moderate condition), Blackriver, Barnaran, Glashabaun North, Codd 2 and Ticknevin, with the highest quality intact raised bog recorded at Ticknevin west of the Edenderry Road.
- Rich fen habitat potential has been identified at Lullymore and Lullybeg West, based on the presence of saw sedge, greater tussock sedge, yellow sedge, brown mosses and *Campylium stellatum*.
- White-clawed crayfish was historically recorded from the Figile River (Codd 1, Lullybeg West) and the Crabtree River (Blackriver) during drainage works in the 1990s.
- Otter was recorded at the Cushaling River (Glashabaun North), Glashabaun South and the Lullybeg/Lullymore watercourses.
- Pine marten and badger were recorded within the Long Derries SAC area (Glashabaun North). Disused badger setts were also recorded at Codd 1 and Lullymore.
- Typical bog fauna recorded across the Application Site included hare, fox, badger, kestrel, snipe, lapwing, skylark, stonechat, meadow pipit, reed bunting, sedge warbler, whitethroat, willow warbler, common frog and a range of common butterfly species.

Habitats Present Across the Application Site

The most common habitats recorded across the Application Site during the 2010-2011 BnM surveys included:

- Bare peat
- Pioneer poor fen vegetation dominated by soft rush (*Juncus effusus*), bog cotton (*Eriophorum angustifolium*), marsh arrowgrass (*Triglochin palustris*) and reed-mace (*Typha latifolia*)
- Birch scrub (emergent, open and closed) and birch woodland, frequently in mosaic with poor fen communities
- Pioneer dry heather dominated vegetation dominated by ling heather
- Pioneer calcareous grassland developing on old tracks and railway embankments
- Purple moorgrass-dominated grassland developing on margins
- Gorse scrub developing on margins
- Access routes (railways, paved tracks and associated verges)
- Rank dry meadow-type grassland (GS2) on margins
- Temporary open water and silt ponds
- Works areas and associated infrastructure
- Riparian zones (channelised rivers, drains and associated bank habitats)
- Conifer plantation (WD4), including some failed plantation

6.3.1.2 Designated Sites within the Likely Zone of Influence of the Application Site

Special Areas of Conservation (SACs) and Special Protection Areas for Birds (SPAs) are designated under the EU Habitats Directive and EU Birds Directive, respectively and are collectively known as 'European Sites'. The likely significant effects and/or adverse impacts on the integrity of European Sites is fully assessed in the remedial Appropriate Assessment Screening Report and remedial Natura Impact Statement that accompanies the application for substitute consent. As per EPA Guidance 2022, "a biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on

European sites contained in a Natura Impact Statement” but should “*incorporate their key findings as available and appropriate*”. Section 6.4.2 of this rEIAR provides a summary of the key assessment findings with regard to European Designated Sites.

Natural Heritage Areas (NHAs) are designated under Section 18 of the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. The likely significant effects of peat extraction and ancillary activities on these designated sites is fully considered in this assessment.

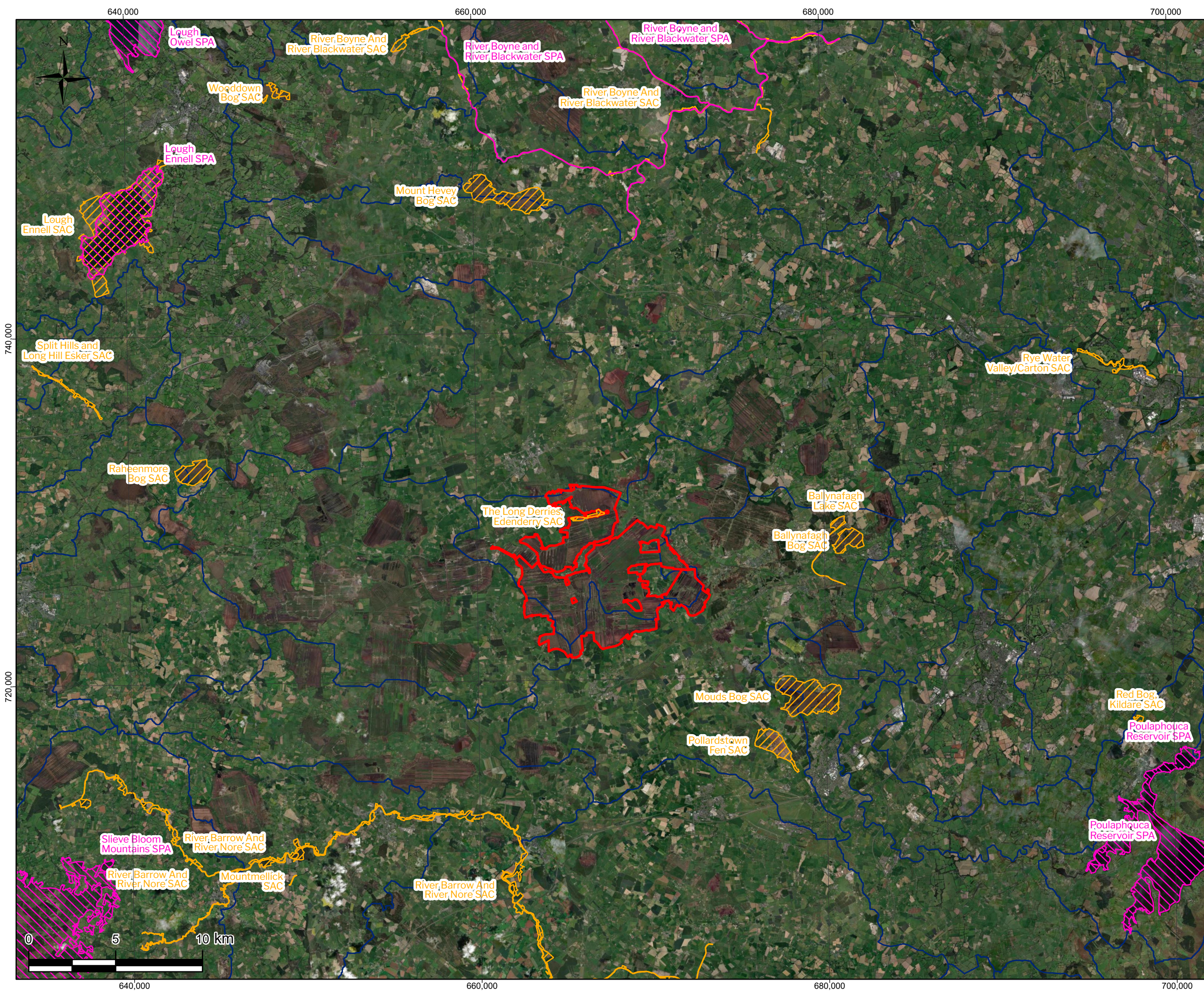
Proposed Natural Heritage Areas (pNHAs) were listed on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, the potential for effects on these sites is fully considered in this assessment.

The following methodology was used to establish the designated sites that have the potential to be impacted by the peat extraction and ancillary activities:

- Initially the most up to date GIS spatial datasets for European and Nationally designated sites and water catchments were downloaded from the NPWS website(www.npws.ie)⁷ and the EPA website (www.epa.ie). The datasets were utilised to identify Designated Sites which could feasibly be affected by the peat extraction and ancillary activities.
- All European and Nationally Designated Sites that could potentially be affected were identified using a source-pathway-receptor model. To provide context for the assessment, Designated Sites surrounding the Application Site are shown on Figure 6-2 and Figure 6-3.
- Information on these Designated Sites with regard to the likely Zone of Influence is provided in Table 6-6.
- The designation features of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- All European Designated Sites and the Qualifying Interests (QIs)/Special Conservation Interests (SCIs) for which they’re designated, are fully described and assessed in the Screening for Appropriate Assessment and remedial Natura Impact Statement reports submitted as part of the Substitute Consent application.

Where potential pathways for Likely Significant Effects were identified, the Application Site is included within the Likely Zone of Influence and further assessment is required.

⁷ The following SAC, SPA, NHA and pNHA GIS boundary datasets are the most recently available at the time of writing: SAC_ITM_2024_12, SPA_ITM_2024_01, NHA_ITM_2019_06, pNHA_ITM_2015_11.



Map Legend

- Application Site Boundary
- Special Protection Areas (SPA)
- Special Area of Conservation (SAC)
- WFD Sub-Catchments

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

SITE LOCATION - NOT TO SCALE

Drawing Title

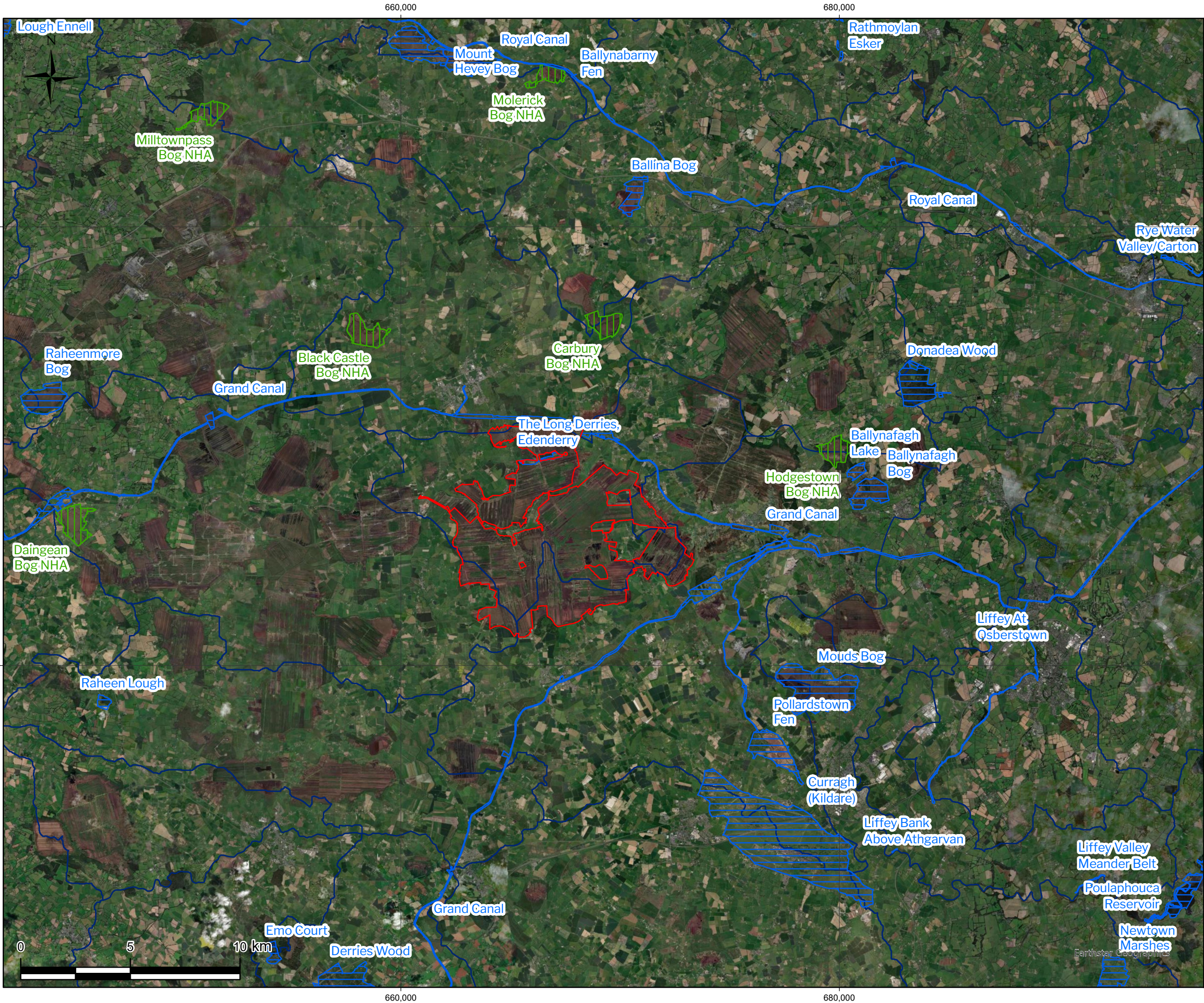
European Designated Sites

Project Title
Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly

Project No.	Drawing No.	Scale
250709	6-2	1:200,000
Drawn By	Checked By	Date
TS	JB	31/07/2026

Email: info@mkofireland.ie / Website: www.mkofireland.ie

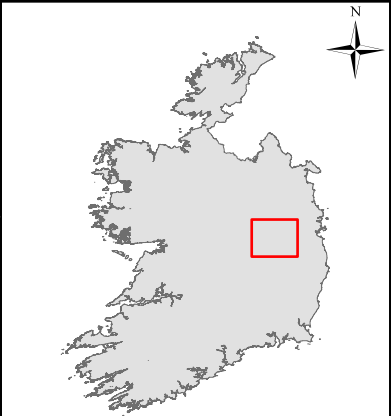
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Map Legend

- Application Site Boundary
- Natural Heritage Areas (NHA)
- Proposed Natural Heritage Areas (pNHA)
- WFD Sub-Catchments

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator



SITE LOCATION - NOT TO SCALE

Nationally Designated Sites		
Project Title Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly		
Project No. 250709	Drawing No. 6-3	Scale 1:160,000
Drawn By TS	Checked By JB	Date 31/07/2026

MKO

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Table 6- 6 Identification of European and Nationally designated sites within the Likely Zone of Influence

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
Special Area of Conservation		
The Long Derries, Edenderry SAC [000925]	The Application Site is located within the boundary of this SAC	The Application Site overlaps with the boundary of this designated site. Following a precautionary principle, a potential pathway for direct effects on the QI habitats of this designated site was identified. The potential for the Project to result in indirect effects on this European Site was considered. There is a hydrological connection via the Codd river running through the SAC and Application Site. However, this site is designated for terrestrial habitats only. Therefore no potential for impacts due to hydrological or hydrogeological impacts was identified. This SAC is therefore within the likely zone of influence of the Project. Further assessment is required.
Mouds Bog SAC [002331]	5.9 km	No pathway for direct effects was identified as this European Site lies entirely outside of the Application Site boundary. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SAC via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effects was identified. There is no potential for significant effect on these European Sites, they are not located within the Likely Zone of Influence, and no further assessment is required.
Ballynafagh Lake SAC [001387]	6 km	No pathway for direct effects was identified as this European Site lies entirely outside of and >6km from the Application Site. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SAC via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effects was identified. While marsh fritillary and suitable marsh fritillary habitat was recorded within the Application Site, it is located 6km from Ballynafagh Lake SAC. Evidence suggests marsh fritillary rarely disperses beyond 750 metres, although long-range dispersal over longer distances of 5 to 20 km is possible (NPWS, 2025). Due to the species' average dispersal abilities, it is thought a distance of 2km between habitat patches is appropriate when defining the functional landscape for the species (Fowles, 2003). Therefore, due to the intervening distance between the Application Site and the SAC, no potential pathway for effects on marsh fritillary populations associated with Ballynafagh Lake SAC was identified. No pathway for likely significant effect on this European Site was identified, when considered in the absence of any mitigation, individually or cumulatively with other plans or projects. This site is not within the Likely Zone of Influence of

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
		the Project. Therefore, it is not considered further in this assessment.
Pollardstown Fen SAC [000396]	7.5 km	No pathway for direct effects was identified as this European Site lies entirely outside of the Application Site boundary. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SAC via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effects was identified. There is no potential for significant effect on these European Sites, they are not located within the Likely Zone of Influence, and no further assessment is required.
Ballynafagh Bog SAC [000391]	7.6 km	No pathway for direct effects was identified as this European Site lies entirely outside of the Application Site boundary. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SAC via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effects was identified. There is no potential for significant effect on these European Sites, they are not located within the Likely Zone of Influence, and no further assessment is required.
River Barrow and River Nore SAC [002162]	9.8 km	No pathway for direct effects was identified as this European Site lies entirely outside of and >9km from the Application Site boundary. The potential for the Project to result in indirect effects on this European Site was considered. There is hydrological connectivity between the Application Site and this SAC (approximately 17km hydrological flowpath) via drainage ditches and watercourses within the Application Site. The majority of the Application Site lies within the River Barrow (14) catchment, specifically the Figile sub-catchment, drained by several streams including the Abbeylough, Lullymore East, Lullybeg, Clonbrown, Cloncant, Codd, Ballyleakin, Clonbulloge and Ballygarrett streams, all of which drain into the Figile River before discharging into the River Barrow. The River Barrow forms part of River Barrow and River Nore SAC. A potential pathway for indirect effects on the aquatic QIs of this SAC as a result of peat extraction and ancillary activities during both the Peat Extraction Phase and Current Phase was identified. During these phases there would have been and currently is potential for deterioration in surface and ground water quality due to run off of pollutants, including silts and hydrocarbons, to watercourses within and downstream of the Application Site. Therefore, a potential pathway for indirect effects on the aquatic QIs of the SAC where they occur downstream of the Application Site was identified.

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
		During the implementation of the rehabilitation plans for the Application Site there will be a requirement for small volumes of machinery and personnel on site for drain blocking works. Taking a precautionary approach, a potential pathway for indirect effects on the aquatic QIs during the Remedial Phase as a result of deterioration of water quality due to runoff of pollutants during such works was identified. A potential pathway for indirect effects on otter as a result of disturbance was also identified. There is likely to be a regularly occurring population utilising the watercourses within and downstream of the Application Site. Otters can utilise extensive territories, (approximately $7.5 \pm 1.5\text{km}$ for females and $13.2 \pm 5.3\text{km}$ for males (Ó'Neill, 2008)). On a precautionary basis, it is considered that otters potentially using watercourses within or downstream of the Application Site may be associated with River Barrow and River Nore SAC. Therefore, a potential pathway for disturbance during the Peat Extraction, Current Phase and Remedial Phase has been identified. This SAC is therefore within the Likely Zone of Influence and following the precautionary principle the potential for significant effect on the above QIs exists. Further assessment is required.
River Boyne and River Blackwater SAC [002299]	14.3 km	No pathway for direct effects was identified as this European Site lies entirely outside of and $>14\text{km}$ from the Application Site boundary. The potential for the Project to result in indirect effects on this European Site was considered. There is hydrological connectivity between the Application Site and this SAC (approximately 22km hydrological flowpath) via drainage ditches and watercourses within the Application Site. A small area in the north of the Application Site lies within the River Boyne (07) catchment, drained by the Clonkeen Stream which discharges into the River Boyne approximately 2 km north of the Application Site. The River Boyne forms part of River Boyne and River Blackwater SAC. This SAC is downstream of the Application Site along the River Boyne. The length of the hydrological flowpath between the boundary of the Application Site and the SAC is 22km. However, it is noted that there is no surface water outfall from the bog with this catchment. All water from Ticknevin Bog is directed to the south and discharges via several settlement ponds to the Codd Stream, a tributary of the Figle River. Therefore, due to its distance from the Application Site and the lack of any surface water emission points from the bogs within the catchment to the River Boyne, there is no potential for significant effects due to water quality impacts. There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Special Protection Areas (SPA)		

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
River Boyne and River Blackwater SPA [004232]	14.3 km	No pathway for direct effects was identified as this European Site lies entirely outside of and 14.3 km from the Application Site. There is hydrological connectivity between the Application Site and this SPA (approximately 22km hydrological flowpath) via drainage ditches and watercourses within the Application Site. A small area in the north of the Application Site lies within the River Boyne (07) catchment, drained by the Clonkeen Stream which discharges into the River Boyne approximately 2 km north of the Application Site. The River Boyne forms part of River Boyne and River Blackwater SPA. This SPA is downstream of the Application Site along the River Boyne. The length of the hydrological flowpath between the boundary of the Application Site and the SPA is 22km. However, it is noted that there is no surface water outfall from the bog with this catchment. All water from Ticknevin Bog is directed to the south and discharges via several settlement ponds to the Codd Stream, a tributary of the Figile River. Therefore, due to its distance from the Application Site and the lack of any surface water emission points from the bogs within the catchment to the River Boyne, no potential for indirect effect on supporting wetland habitat for SCI bird species due to deterioration in water quality exists. The potential for indirect impacts on the SCI species this site is designated for was also considered. Given the distance between the Application Site and the SPA, no potential for significant indirect effects on kingfisher as a result of peat extraction and ancillary activities was identified. There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Poulaphouca Reservoir SPA [004063]	26.2km	No pathway for direct effects was identified as this European Site lies entirely outside of and 26.2km from the Application Site. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project Application Site and this SPA via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effect on supporting wetland habitat for SCI bird species due to deterioration in water quality exists. The Application Site is located over 26km from this SPA and is not considered to represent a significant foraging or roosting resource for SCI populations of this SPA. On this basis, no potential for significant indirect effects on SCI species arising from peat extraction and ancillary activities was identified.

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
		There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Lough Ennell SPA [004044]	26.5km	No pathway for direct effects was identified as this European Site lies entirely outside of and 26.5km from the Application Site. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SPA via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effect on supporting wetland habitat for SCI bird species due to deterioration in water quality exists. The Application Site is located over 26km from this SPA and is not considered to represent a significant foraging or roosting resource for SCI populations of this SPA. On this basis, no potential for significant indirect effects on SCI species arising from peat extraction and ancillary activities was identified. There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Slieve Bloom Mountains SPA [004160]	27.5km	No pathway for direct effects was identified as this European Site lies entirely outside of and 27.5km from the Application Site. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SPA via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effect on supporting wetland habitat for SCI bird species due to deterioration in water quality exists. The Application Site is located over 27km from this SPA and is not considered to represent a significant foraging or roosting resource for SCI populations of this SPA. On this basis, no potential for significant indirect effects on SCI species arising from peat extraction and ancillary activities was identified. There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Lough Owel SPA [004047]	33.8km	No pathway for direct effects was identified as this European Site lies entirely outside of and 33.8km from the Application Site. The potential for the Project to result in indirect effects on this European Site was considered. There is no hydrological connection between the Project and this SPA via surface or groundwater. On this basis and given the distance between the Application Site and this site, no potential for indirect effect on

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
		supporting wetland habitat for SCI bird species due to deterioration in water quality exists. The Application Site is located over 33km from this SPA and is not considered to represent a significant foraging or roosting resource for SCI populations of this SPA. On this basis, no potential for significant indirect effects on SCI species arising from peat extraction and ancillary activities was identified. There is no potential for significant effect on this European Site, it is not located within the Likely Zone of Influence, and no further assessment is required.
Natural Heritage Areas (NHA)		
Carbury Bog NHA [001388]	4.1 km	No pathway for direct effects was identified as these designated sites lie entirely outside of the Application Site boundary. There is no surface water or habitat connectivity between the Application Site and these NHAs. The majority of the Application Site lies within the Barrow (14) catchment, specifically the Figile sub-catchment. This area is drained by several streams including the Codd Stream, Clonbulloge Stream, Ballygarrett Stream, Cloncant Stream, Ballyhagan Stream and the Slate Stream all of which flow to the Figile River and then into the Barrow River. A small area of the Application Site lies within the Boyne (07) catchment. These areas are drained by the Clonkeen Stream into the Boyne River. Given the absence of downstream connectivity and the distance between the Application Site and these NHAs, no potential for indirect effects on these sites due to deterioration of water quality or habitat loss/degradation has been identified. No pathway for effect was identified, and these sites are not within the Likely Zone of Influence.
Black Castle Bog NHA [000570]	6.2 km	
Hodgestown Bog NHA [001393]	7.4 km	
Daingean Bog NHA [002033]	14.4 km	
Molerick Bog NHA [001582]	15 km	
Proposed Natural Heritage Area (pNHA)		
The Long Derries, Edenderry [000925]	The Application Site is located within the boundary of this pNHA	The Application Site is located within the boundary of this designated site. Following a precautionary principle, a potential pathway for direct effects on the qualifying interests of this designated site were identified. There is a hydrological connection via the Codd river running through the pNHA and Application Site. However, this site is designated for terrestrial habitats only. This pNHA is therefore within the likely zone of influence of the Project. Further assessment is required.
Grand Canal [002104]	The Application Site is located within the boundary of this pNHA	The Application Site is located within the boundary of this designated site. Following a precautionary principle, a potential pathway for direct effects on the QI habitats of this designated site were identified. There is a hydrological connection between the Application Site and this pNHA. Therefore, a potential pathway for impacts due to deterioration of water quality exists.

Designated Site	Distance from Application Site (km)	Likely Zone of Influence Determination
		This pNHA is therefore within the likely zone of influence of the Project. Further assessment is required.
Mouds Bog [000395]	5.9 km	No pathway for direct effects was identified as these designated sites lie entirely outside of the Application Site boundary. There is no surface water or habitat connectivity between the Application Site and this pNHA. The majority of the Application Site lies within the Barrow (14) catchment, specifically the Figile sub-catchment. This area is drained by several streams including the Codd Stream, Clonbulloge Stream, Ballygarrett Stream, Cloncant Stream, Ballyhagan Stream and the Slate Stream all of which flow to the Figile River and then into the Barrow River. A small area of the Application Site lies within the Boyne (07) catchment. These areas are drained by the Clonkeen Stream into the Boyne River. Given the absence of connectivity and the distance between the Application Site and these pNHAs, no potential for indirect effects on these sites due to deterioration of water quality or habitat loss/degradation has been identified. No pathway for effect was identified and this site is not within the Likely Zone of Influence.

Surface water connectivity was identified between the Application Site and the River Barrow and River Nore SAC approximately 17km downstream. The Application Site overlaps with The Long Derries, Edenderry pNHA. As this pNHA has also been designated as The Long Derries, Edenderry SAC, impacts on this designated site are fully considered under the European designation within the rNIS. Surface water connectivity was identified between the Application Site and Grand Canal pNHA. This is further described in Section 6.4.2 of this Chapter. Hydrological Connectivity between the Application Site and the designated sites is shown in Figure 6-4.

The AA Screening that accompanies this application identifies the following European Sites as being within the Likely Zone of Influence:

- The Long Derries, Edenderry SAC
- River Barrow and River Nore SAC



Map Legend

- Application Site Boundary
- WFD River Waterbodies
- Special Area of Conservation (SAC)
- Proposed Natural Heritage Areas (pNHA)
- WFD Sub-Catchments

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator

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SITE LOCATION - NOT TO SCALE

Drawing Title

Hydrological Connectivity with Designated Sites

Project Title

Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly

Project No.	Drawing No.	Scale
250709	6-4	1:120,000
Drawn By	Checked By	Date
TS	JB	31/07/2026

Email: info@mkofireland.ie / Website: www.mkofireland.ie

6.3.1.3 Water Quality

Chapter 8: Hydrology of this rEIA, provides a detailed description of the hydrological and hydrogeological baseline environment, along with the current environment. A summary of the baseline relevant to this assessment is provided below.

6.3.1.3.1 Regional and Local Hydrology

Regionally the vast majority of the Application Site is located in the River Barrow surface water catchment within Hydrometric Area 14 of the South Eastern River Basin District. A small area in the north of the Ticknevin Bog located in the River Boyne surface water catchment within Hydrometric Area 07 of the Eastern River Basin District.

Regionally, within the River Barrow surface water catchment, the Application Site is located in 3 no. river sub-catchments. The majority of the Application Site is located within the Figile_SC_010 river sub-catchment, the southwest of the Application Site is located within the Figile_SC_020 river sub-catchment and the south and southeast are located within the Slate_SC_010 river sub-catchment.

Within the Figile_SC_010 river sub-catchment, the Application Site is mapped in 3 no. WFD river sub-basins: the Abbeylough_010, Figile_020 and Figile_030 WFD river sub-basins.

- Within the Abbeylough_010 WFD river sub-basin, the Abbeylough Stream (EPA Code: 14A01) flows to the west along the northern boundary of Derrybrennan Bog where it discharges into the Figile River (EPA Code: 14F01).
- Within the Figile_020 WFD river sub-basin, the Figile River flows to the west, between Glashabaun South and Glashabaun North bogs. A tributary of the Figile River, referred to by the EPA as the Lullymore East Stream (EPA Code: 14L11) is mapped to flow to the west from the western boundary of Lodge Bog. This stream dissects the northern sections of Lullymore and Lullybeg bogs and forms the boundary between Blackriver Bog to the west and Glashabaun South Bog to the east before it discharges into the Figile River. A smaller stream, referred to by the EPA as the Lullybeg Stream (EPA Code: 14L13), flows around the eastern, southern and western perimeter of Lullybeg Bog before it discharges into the Lullymore East Stream. Another stream, assigned the same name (Lullybeg) on the EPA database, flows from south to north through the western section of Blackriver Bog before it discharges into the Figile River.
- Within the Figile_030 WFD river sub-basin, the Figile River flows to the northwest, separating Codd 1 in the south from Codd 2 in the north. A small tributary of the Figile River, the Clonbrown Stream (EPA Code: 14C32) is mapped to flow to the north along the eastern boundary of Ballydermot North Bog before it discharges into the Figile River close to the east of Codd 1 Bog. The EPA also map a stream referred to as the Cloncant Stream (EPA Code: 14C41) to flow to the southwest, dissecting Codd 2 Bog before discharging into the Figile River. Further north, Ticknevin Bog is drained by 2 unnamed no. streams which merge at its southern boundary to form the Codd Stream (EPA Code: 14C44). The Codd Stream flows to the south, along the northwestern boundary of Glashabaun North before it flows to the west and discharges into the Ballyleakin Stream (EPA Code: 14B22). This stream discharges into the Figile River to the northwest of Codd 1 Bog.

Within the Figile_SC_020 river sub-catchment, the Application Site is mapped within the Figile_050 WFD river sub-basin. Within this WFD river sub-basin Figile River is mapped to flow to the south ~1.6km west of the Application Site. Several streams are mapped to originate at the western boundary of the Application Site. The Clonbulloge Stream (EPA Code: 14C53) to the west of Ballydermot North Bog and the Ballygarrett Stream (EPA Code: 14B30) to the west of Ballydermot South Bog. These streams merge just upstream of their confluence with the Figile River.

Within the Slate_SC_010 river sub-catchment, the Application Site is mapped within the Slate_050 and Slate_060 WFD river sub-basins. Within the Slate_050 WFD river sub-basin, the Killinagh Upper Stream (EPA Code: 14K17) is mapped to flow along the southeastern boundary of Lodge Bog before it discharges into the Slate River (EPA Code: 14S01). A second tributary of the Slate River is mapped to originate at the western boundary of Lodge Bog, referred to by the EPA as the Drumsru Stream (EPA Code: 14D19). The Slate River flows to the southwest, ~80m from the south of Lodge Bog. Within the Slate_060 WFD river sub-basin, the Slate River is located ~1km south of Barnaran Bog. There are no watercourses mapped in the immediate vicinity of the Application Site within this WFD river sub-basin.

Further downstream, the Slate River flows through Rathangan and confluences with the Figile River ~6.6km southwest of the Application Site. The Figile River continues to flow to the south before it discharges into the River Barrow to the north of Monasterevin.

Within the River Boyne surface water catchment, the Application Site is located within the Boyne_SC_010 river sub-catchment and the Boyne_010 WFD river sub-basin. The Clonkeen Stream (EPA Code: 07C36) is mapped to flow along the northern boundary of Ticknevin Bog before it flows to the northwest and discharges into the River Boyne (EPA Code: 07B04) ~2km north of the Application Site. The River Boyne continues to flow to the northwest before it veers to the northeast close to its confluence with the Yellow River (~7km northwest of the Application Site).

Table 6-7 summarises the location of Application Site with respect to WFD surface water catchments, sub-catchments and WFD river sub-basins.

The hydrological environment described above for the present day would have been the same as the July 1988 baseline hydrological environment. However, the nomenclature of the WFD classification (i.e. WFD catchments, sub-catchments and river sub-basins) has only existed since 2000. Meanwhile, the rivers have existed in their current form since post glacial times.

For the purposes of this rEIAR chapter, the names of rivers and streams correspond to those assigned in the EPA database. It is noted that some watercourses are identified by different names on local basemaps and OSI Discovery Series mapping. For example, the Figile River is referred to as the Cushaling River along the section flowing between Glashabaun North and Glashabaun South bogs. Similarly, the Lullybeg Stream which flows around the perimeter of Lullybeg Bog, is also known as the Crabtree River, while the Lullybeg Stream within Blackriver Bog is referred to as the Black River. The EPA nomenclature is used throughout this chapter as it represents the most up to date and authoritative hydrological database available within Ireland.

Table 6-7 WFD Catchments, sub-catchments and river-basins and receiving waterbodies

Bog	Catchment	Sub-Catchment	WFD River Sub-basin
Ballydermot North	River Barrow	Figile_SC_010	Figile_030
		Figile_SC_020	Figile_050
Ballydermot South	River Barrow	Figile_SC_010	Figile_020
			Figile_030
		Figile_SC_020	Figile_050
		Slate_SC_010	Slate_060
Blackriver	River Barrow	Figile_SC_010	Figile_020

Bog	Catchment	Sub-Catchment	WFD River Sub-basin
			Figilie_030
		Slate_SC_010	Slate_060
Barnaran	River Barrow	Figile_SC_010	Figilie_020
		Slate_SC_010	Slate_050
			Slate_060
Lullybeg	River Barrow	Figile_SC_010	Figilie_020
Lullymore	River Barrow	Figile_SC_010	Figilie_020
Lodge	River Barrow	Figile_SC_010	Figilie_020
		Slate_SC_010	Slate_050
Killina	River Barrow	Figile_SC_010	Abbeylough_010
			Figilie_020
		Slate_SC_010	Slate_050
Derrybrennan	River Barrow	Figile_SC_010	Abbeylough_010
			Figilie_020
Glashabaun North	River Barrow	Figile_SC_010	Figilie_020
			Figilie_030
Glashabaun South	River Barrow	Figile_SC_010	Abbeylough_010
			Figilie_020
Ticknevin	River Boyne	Boyne_SC_010	Boyne_010
	River Barrow	Figile_SC_010	Figilie_030
Codd 1	River Barrow	Figile_SC_010	Figilie_020
			Figilie_030
Codd 2	River Barrow	Figile_SC_010	Figilie_030

6.3.1.3.2 Water Framework Directive Status

The EU Water Framework Directive (2000/60/EC), as amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU (“WFD”), was established to ensure the protection of the water environment. The Directive was transposed in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722/2003).

Given the timelines for the establishment and its transposition into Irish law, there is no WFD Information for Surface Water Bodies for 1988. As such the 2010-2015 WFD Status Reports have been used to infer the 1988 baseline, and the subsequent WFD reporting periods are included to provide context.

Groundwater Body Status

Local GWB status and risk results are available from (www.catchments.ie) and are summarised in Table 6-8 below. This status is defined based on the quantitative status and chemical status of each GWB.

All GWBs underlying the Application Site achieved ‘Good’ status in all WFD cycles (2010-2015, 2013-2018, 2016-2021 and 2019-2024). These GWBs have been deemed to be “not at risk” of failing to meet their respective WFD objectives except for Trim GWB which is “at risk”. No significant pressures have been identified to be impacting upon the Cushina, Bagenalstown or Kildare GWBs. The Trim GWB is listed to be under significant pressure from agriculture, anthropogenic and domestic wastewater.

Table 6-8 WFD Groundwater Body Status

Groundwater body	Status 2010-2015	Status 2013-2018	Status 2016-2021	Status 2019-2024	3 rd Cycle Risk Status	WFD Pressures
Cushina	Good	Good	Good	Good	Not at risk	None
Bagenalstown Upper	Good	Good	Good	Good	Not at risk	None
Kildare	Good	Good	Good	Good	Not at risk	None
Trim	Good	Good	Good	Good	At risk	Agriculture, Anthropogenic and Domestic Wastewater

Surface Water Body Status

A summary of the WFD status and risk result of Surface Water Bodies (SWBs) in the vicinity and downstream of the Application Site are shown in Table 6-9 below. Note that the first management cycle (Cycle 1) began in 2010, for the period 2010-2015, which established baseline status.

Within the Figile_SC_010 river sub-catchment, the status of the Abbeylough_010 SWB improved from “Poor” (2013-2018) to “Moderate” (2016-2021 and 2019-2024) while the status of the Figile_010 SWB was “Poor” in all WFD cycles. The Figile_020 and Figile_030 SWBs have remained at “Moderate” across all WFD cycles. These SWBs are ‘at risk’ of failing to achieve their respective WFD objectives. Peat drainage and extraction is identified as significant pressure on the Abbeylough_010, Figile_020 and Figile_030 SWBs. Hydromorphology, industry, urban wastewater and peat drainage and extraction are identified significant pressures on the Figile_010 SWB.

Within the Figile_SC_020 river sub-catchment, the status of Figile_040 SWB declined from “Moderate” (2013-2018 and 2016-2021) to “Poor” (2019-2024) status. The Figile_050 SWB declined from “Good” (2013-2018) to “Poor” (2016-2021 and 2019-2024) status whilst the status of the Figile_060 SWB was “Good” in all WFD cycles. The Figile_040 and the Figile_050 SWBs are ‘at risk’ of failing their WFD objectives while the Figile_060 SWB is ‘not at risk’. Peat drainage and extraction is identified significant pressure on Figile_040 SWB while agriculture and peat drainage and extraction are identified significant pressures on the Figile_050 SWB.

Within the Slate_SC_010 river sub-catchment, the Slate_050 to 070 SWBs achieved “Moderate” status in the 3 no. latest WFD cycles and are ‘at risk’ of failing to achieve their WFD objectives.

Hydromorphology and peat drainage and extraction are identified as the significant pressures on the Slate_050 SWB, urban run-off is the identified significant pressure on the Slate_060 SWB and agriculture, hydromorphology, urban wastewater and peat drainage and extraction are the identified significant pressures on the Slate_070 SWB.

Within the Boyne_SC_010 river sub-catchment, the status of the Boyne_010 SWB declined from “Moderate” to “Poor” status in the latest cycle. The status of the Boyne_020 SWB declined from “Moderate” (2013-2018) to “Poor” (2016-2021) before it improved to “Moderate” (2019-2024). The status of the Boyne_030 SWB improved from “Moderate” (2013-2018) to “Good” (2016-2021 and 2019-2024). The Boyne_010 and Boyne_020 SWBs are ‘at risk’ of failing to achieve their WFD objectives while the Boyne_030 SWB is ‘not at risk’. Domestic wastewater, hydromorphology and peat drainage and extraction are identified significant pressures on the Boyne_010 SWB. Agriculture, hydromorphology and urban run-off are identified significant pressures on the Boyne_020 SWB.

Table 6-9 Summary WFD Information for Surface Water Bodies

River Waterbody	Status 2010-2015	Status 2013-2018	Status 2016-2021	Status 2019-2024	3 rd Cycle Risk Status	WFD Pressures
Figile_SC_010 river sub-catchment						
Abbeylough_010	Unassigned	Poor	Moderate	Moderate	At Risk	Peat Drainage and Extraction
Figile_010	Poor	Poor	Poor	Poor	At Risk	Hydromorphology, Industry, Urban Wastewater and Peat Drainage and Extraction
Figile_020	Moderate	Moderate	Moderate	Moderate	At Risk	Peat Drainage and Extraction
Figile_030	Moderate	Moderate	Moderate	Moderate	At Risk	Peat Drainage and Extraction
Figile_SC_020 river sub-catchment						
Figile_040	Moderate	Moderate	Moderate	Poor	At Risk	Peat Drainage and Extraction
Figile_050	Good	Good	Poor	Poor	At Risk	Agriculture and Peat Drainage and Extraction
Figile_060	Good	Good	Good	Good	Not at Risk	None
Slate_SC_010 river sub-catchment						
Slate_050	Moderate	Moderate	Moderate	Moderate	At Risk	Hydromorphology and Peat Drainage and Extraction

River Waterbody	Status 2010-2015	Status 2013-2018	Status 2016-2021	Status 2019-2024	3 rd Cycle Risk Status	WFD Pressures
Slate_060	Moderate	Moderate	Moderate	Moderate	At Risk	Urban run-off
Slate_070	Good	Moderate	Moderate	Moderate	At Risk	Agriculture, Hydromorphology, Urban Wastewater and Peat Drainage and Extraction
Boyne_SC_010 river sub-catchment						
Boyne_010	Moderate	Moderate	Moderate	Poor	At Risk	Domestic Wastewater, Hydromorphology and Peat Drainage and Extraction
Boyne_020	Moderate	Moderate	Poor	Moderate	At Risk	Agriculture, Hydromorphology and Urban Run-off
Boyne_030	Good	Moderate	Good	Good	Not at Risk	None

6.3.1.3.3 EPA Biological Q-Rating Monitoring

The Biological Q-Rating is a water quality rating system based on both the habitat and the invertebrate community assessment and is divided into status categories ranging from 0-1 (Poor) to 4-5 (Good/High). EPA Q-rating monitoring (i.e. biological monitoring data) of river waterbodies began in the early 1970s and continues to the present day. The result of this monitoring provides an indication of water quality trends in the streams and rivers downstream of the Application Site.

Pre-1988

Prior to July 1988, historic Q-data is available from 1971 to 1986 for the Figile, Slate and Boyne rivers in the vicinity and downstream of the Application Site. Table 6-10 shows that the historic Q-values ranged from Q1 (Bad Status) to Q5 (High Status) during this time period.

Within the Figile_SC_010 river sub-catchment, Q-ratings are available for this period on the Figile River in the vicinity of the Application Site at Cushaling Bridge (Station Code: RS14F010100) and at Kilcumber Bridge (Station ID: RS14F010200). The Figile River achieved a Q3-4 rating (Moderate Q-status) at both of these stations in 1986. There are no Q-ratings available for watercourses upstreams of the Application Site for the period predating 1988.

Within the Figile_SC_20 river sub-catchment, EPA Q-ratings are available on the Figile River at Clonbulloge (RS14F010300). During this period Q-rating at this station ranged from Q3-4 (Moderate Q-status) in 1975 to Q4 (Good Q-status in 1986). Further downstream at Ardra Bridge (Station Code: RS14F010500) near Bracknagh, the status ranged from Q4 (Good Q-status) in 1976 and 1986 to Q5 (High Q-status) in 1979.

Within the Slate_SC_10 river sub-catchment, the Q-rating of the Slate River at Agar Bridge (Station ID: RS14S010100) ranged from Moderate Q-status in 1985 to High Q-status in 1978 and 1980. The Slate River 100m upstream of Spencer Bridge in Rathangan (Station ID: RS14S010200) achieved a Q-rating of Q3-4 (Moderate Q-status) in 1976 and 1985 and Q4 (Good Q-status) in 1978 and 1980. The Slate River 100m downstream of Spencer Bridge (Station ID: RS14S010210) achieved Q-rating of Q1 (Bad Q-status) in 1976, Q3 (Poor Q-status) in 1978 and Q4 (Good Q-status) in 1980 and 1985. Further downstream and upstream of its confluence with the Figile River, the Slate River (Station ID: RS14S010300) achieved a Q-rating of Q3-4 (Moderate Q-status) in 1976 and 1985, Q4-5 (High Q-status) in 1978 and Q4 (Good Q-status) in 1980.

Within the Boyne_SC_10 river sub-catchment, the River Boyne at River Bridge (Station ID: RS07B040100), upstream of the Application Site, achieved Q-rating of Q3-4 (Moderate Q-status) in 1981. The River Boyne at Boyne Bridge (Station ID: RS07B040200), downstream of the Application Site, achieved a Q-rating of Q3-4 (Moderate Q-status) in 1973 and 1975, Q3 (Poor Q-status) in 1977 and Q4 (Good Q-status) in 1979 and 1981.

The available Q-rating data does not indicate any significant deterioration in water quality during the period prior to July 1988.

Table 6- 10 EPA Q-Rating Status (Pre-1988)

River	Station ID	Location	EPA Q-Ratings			
Figile_SC_010 river sub-catchment						
Figile River	RS14F010100	Cushaling Bridge	1986 – Q3-4			
Figile River	RS14F010200	Kilcumber Bridge	1986 – Q3-4			
Figile_SC_020 river sub-catchment						
Figile River	RS14F010300	Bridge in Clonbulloge	1975 -Q3-4	1976 – Q4	1979 – Q4	1986 – Q4
Figile River	RS14F010500	Ardra Bridge	1976 – Q4		1979 – Q5	1986 – Q4
Slate_SC_010 river sub-catchment						
Slate River	RS14S010100	Agar Bridge	1976 – Q4	1978 – Q5	1980 – Q4-5	1985 – Q3-4
Slate River	RS14S010200	Slate - 100m u/s Spencer Bridge	1976 – Q3-4	1978 – Q4	1980 – Q4	1985 – Q3-4
Slate River	RS14S010210	Slate - 100m d/s Spencer Bridge	1976 – Q1	1978 – Q3	1980 – Q4	1985 – Q4
Slate River	RS14S010300	River Bridge	1976 – Q3-4	1978 – Q4-5	1980 – Q4	1985 – Q3-4
Boyne_SC_010 river sub-catchment						
Boyne River	RS07B040100	River Bridge	1981 – Q3-4			
Boyne River	RS07B040200	Boyne Bridge	1973 – Q3-4	1975 – Q3-4	1977 – Q3	1979 – Q4 1981 – Q4

July 1988 Baseline

Biological Q-rating data is not specifically available for the year of 1988 at all EPA monitoring locations in the vicinity and downstream of the Application Site. This is to be expected as the EPA do not complete annual monitoring but rather across intervals of several years. Therefore, for locations where no monitoring was completed in 1988, the Q-ratings from other years was taken as the baseline Q-rating. This is specified in Table 6-11.

Within the Figile_SC_010 river sub-catchment, the Figile River was assigned a Q-rating of Q3-4 (Moderate Q-status) at Cushaling Bridge (Station ID: RS14F010100) and Kilcumber Bridge (Station ID: RS14F010200) in 1986.

Within the Figile_SC_020 river sub-catchment, The Figile River at a bridge in Clonbulloge (Station ID: RS14F010300), at Derrygarran Bridge (Station ID: RS14F010400) and at Ardra Bridge (Station ID: RS14F010500) achieved Q4 (Good Q-status) in 1986.

Within the Slate_SC_010 river sub-catchment, the Slate River achieved a Q3-4 rating (Moderate Q-status) at Agar Bridge (Station ID: RS14S010100), 100m upstream of Spencer Bridge (Station ID: RS14S010200) and upstream of its confluence with the Figile River (Station ID: RS14S010300) in 1985. The Slate River 100m downstream of Spencer Bridge (Station ID: RS14S010210) achieved a Q4 Rating (Good Q-status) in 1985.

Within the Boyne_SC_010 river sub-catchment, the River Boyne River was assigned a Q-rating of Q4 (Good Q-status) upstream of the Application Site at River Bridge (Station ID: RS07B040100), and downstream of the Application Site Boyne Bridge (Station ID: RS07B040200) and Kinnafad Bridge (Station ID: RS07B040300) in 1986. Note that by 1988, all drainage within Ticknevin Bog was directed to settlement ponds, located at the south of the bog which discharged to the Codd Stream, a tributary of the Figile River. There was no discharge to the River Boyne or any of its tributaries.

Table 6- 11 Baseline (July 1988) Q-ratings

River	Station ID	Location	EPA Q-Ratings
Figile_SC_010 river sub-catchment			
Figile River	RS14F010100	Cushaling Bridge	1986 – Q3-4
Figile River	RS14F010200	Kilcumber Bridge	1986 – Q3-4
Figile_SC_020 river sub-catchment			
Figile River	RS14F010300	Figile - Bridge in Clonbulloge	1986 – Q4
Figile River	RS14F010400	Derrygarran Bridge	1986 – Q4
Figile River	RS14F010500	Ardra Bridge	1986 – Q4
Slate_SC_010 river sub-catchment			
Slate River	RS14S010100	Agar Bridge	1985 – Q3-4
Slate River	RS14S010200	Slate - 100 m u/s Bridge near Spencer Br	1985 – Q3-4
Slate River	RS14S010210	Slate - 100 m d/s Bridge near Spencer Br	1985 – Q4
Slate River	RS14S010300	River Bridge	1985 – Q3-4
Boyne_SC_010 river sub-catchment			
Boyne River	RS07B040100	River Bridge	1986 – Q4
Boyne River	RS07B040200	Boyne Bridge	1986 – Q4
Boyne River	RS07B040300	Kinnafad Bridge	1986 – Q4

Peat Extraction Phase (July 1988 – June 2020)

EPA Q-rating monitoring has been completed at several dates and at multiple locations on the Figile, Slate and Boyne rivers in the vicinity and downstream of the Application Site during the Peat Extraction Phase (July 1988 to June 2020). The Q-values over this period are summarised in Table 6-12.

Within the Figile_SC_010 river sub-catchment, the Figile River upstream of the Application Site at a bridge southwest of Killeaskin (Station ID: RS14F010010) achieved a Q-Rating of Q2-3 to Q3 (Poor Q-status) in 1989, 1993 and 2019. The Q-status of the Figile River at a bridge south of Ticknevin Bridge (Station ID: RS14F010050), also upstream of the Application Site, ranged between Q1 (Bad Q-Status) to Q3 (Poor Q-Status) during the Peat Extraction Phase. This data indicates that the water quality upstream of the Application Site was poor. In the vicinity of the Application site, the status of the Figile River at Cushaling Bridge (Station ID: RS14F010100) ranged between Q2 (Bad Q-status) and Q3-4 (Moderate Q-status). At Kilcumber Bridge (Station ID: RS14F010200) the status ranged between Q3 (Poor Q-status) and Q3-4 (Moderate Q-status).

Within the Figile_SC_020 river sub-catchment, the status of the Figile River at Clonbulloge (Station ID: RS14F010300) ranged from Q3-4 (Moderate Q-status) to Q4-5 (High Q-status). The status of the Figile River at Derrygarra Bridge (Station ID: RS14F010400) ranged from Q3 (Poor Q-status) to Q4 (Good Q-status) whilst at Ardra Bridge (Station ID: RS14F010500) the Q-rating ranged from Q3-4 (Moderate Q-status) to Q4 (Good Q-status).

Within the Slate_SC_010 river sub-catchment, the Q-rating of the Slate River upstream of the Application Site at Quigley's Bridge (Station ID: RS14S010020) ranged between Q2 (Bad Q-status) and Q3 (Poor Q-status), whilst at Ford Bridge (Station ID: RS14S010050) the Q-rating ranged from Q2-3 and Q3 (Poor Q-status). Downstream of the Application Site, the Q-rating of the Slate River at Agar Bridge (Station ID: RS14S010100) ranged between Q3 (Poor Q-status) and Q3-4 (Moderate Q-status). Further downstream, the Q-rating ranged from Q-Rating of Q3-4 (Moderate Q-status) to Q4 (Good Q-status) 100m upstream of Spencer Bridge (Station ID: RS14S010200). At River Bridge (Stations ID: RS14F010500) the Q-status ranged between Q3-4 (Moderate Q-status) and Q4 (Good Q-status).

Within the Boyne_SC_010 river sub-catchment, the Q-rating of the River Boyne upstream of the Application Site ranged between Q3 (Poor Q-Status) and Q4 (Good Q-status). Downstream of the Application Site (Station ID: RS07B040200) the status of the River Boyne ranged between Q2-3 (Poor Q-status) and Q4 (Good Q-Status). At Kinnafad Bridge (Station ID: RS07B040300) the Q-status ranged between Q1 (Bad Q-status) and Q3 (Poor Q-status). During the Peat Extraction Phase there was no discharge to the River Boyne or any of its tributaries.

Table 6- 12 Summary of Q-Ratings During the Peat Extraction Phase (July 1988 – June 2020)

River	Station ID	Location	EPA Q-Rating (Years)	Q-Value Status Range	
Figure_SC_010 river sub-catchment					
Figure River	RS14F010010	Figure - Bridge SW of Killeaskin	2.5 – 3 (1989 – 2019)	Poor	
Figure River	RS14F010050	Bridge S of Ticknevin Bridge	1 – 3 (1989 – 2020)	Bad	Poor
Figure River	RS14F010100	Cushaling Bridge	2 – 3.5 (1989 – 2020)	Bad	Moderate
Figure River	RS14F010200	Kilcumber Bridge	3 – 3.5 (1989 – 2020)	Poor	Moderate
Figure_SC_020 river sub-catchment					
Figure River	RS14F010300	Figure - Bridge in Clonbulloge	3.5 – 4.5 (1989 – 2020)	Moderate	High
Figure River	RS14F010400	Derrygarra Bridge	3 – 4 (1989 – 2020)	Poor	Good
Figure River	RS14F010500	Ardra Bridge	3.5 – 4 (1989 – 2020)	Moderate	Good
Slate_SC_010 river sub-catchment					
Slate River	RS14S010020	Quigley's Bridge	2 – 3 (1989 – 2020)	Bad	Poor
Slate River	RS14S010050	Ford Bridge	2.5 – 3 (1989 – 2020)	Poor	
Slate River	RS14S010100	Agar Bridge	3 – 3.5 (1989 – 2020)	Poor	Moderate

River	Station ID	Location	EPA Q-Rating (Years)	Q-Value Status Range	
Slate River	RS14S010150	E Bridge Rathangan (Opp Church)	3.5 – 4 (1997 – 2020)	Moderate	Good
Slate River	RS14S010200	Slate - 100 m u/s Bridge near Spencer Br	3.5 – 4 (1989 – 1993)	Moderate	Good
Slate River	RS14S010210	Slate - 100 m d/s Bridge near Spencer Br	3 – 3.5 (1989 – 2020)	Poor	Moderate
Slate River	RS14S010300	River Bridge	3.5 – 4 (1989 – 2020)	Moderate	Good
Boyne_SC_010 river sub-catchment					
Boyne River	RS07B040100	River Bridge	3 – 4 (1990 – 2003)	Poor	Good
Boyne River	RS07B040200	Boyne Bridge	2.5 – 4 (1990 – 2020)	Poor	Good
Boyne River	RS07B040300	Kinnafad Bridge	1.5 – 3.5 (1994 – 2020)	Bad	Moderate

EPA Q-Ratings During Current Phase (June 2020 - Present)

The most recent Q-rating data for EPA monitoring points on the Figile, Slate and Boyne rivers are shown in Table 6-13 below.

Within the Figile_SC_010 river sub-catchment, the Figile River achieved a Q2-3 rating (Poor Q-status) upstream of the Application Site at Ticknevin Bridge (Station Code: RS14F010050) and a Q3-4 rating (Moderate Q-status) downstream at Cushaling Bridge (Station Code: RS14F010100) and at Kilcumber Bridge (Station ID: RS14F010200) of the Application Site in 2023.

Within the Figile_SC_020 river sub-catchment, the Figile River achieved a Q3 rating (Poor Q-status) downstream of the Application Site in Clonbulloge (Station Code: RS14F010300) in 2024 and at also at Derrygarran Bridge (Station ID: RS14F010400) in 2023.

Within the Slate_SC_010 river sub-catchment, the Slate River achieved a Q3 rating (Poor Q-status) upstream of the Application Site at Quigley's Bridge (Station Code: RS14S010020) and at Ford Bridge (Station ID: RS14S010050). Downstream of the Application Site the Slate River achieved a Q3-4 rating (Moderate Q-status) at Agar Bridge (Station Code: RS14S010100), at a bridge opposite the church in Rathangan (Station ID: RS14S010150), 100m downstream of Spencer Bridge (Station ID: RS14S010210) and upstream of its confluence with the Figile River (Station ID: RS14S010300) in 2023.

Within the Boyne_SC_010 river sub-catchment, the River Boyne achieved a Q3-4 rating (Moderate Q-status) downstream of the Application Site at Boyne Bridge (Station Code: RS07B040200) and at Kinnafad Bridge (Station ID: RS07B040300) in 2024. During the Current Phase there was no discharge to the River Boyne or any of its tributaries.

Table 6-13 Most Recent (2021-2024) Q-ratings downstream of the Application Site

River	Station ID	Location	EPA Q-Rating (Year)	Q-Value Status
Figile_SC_010 river sub-catchment				
Figile River	RS14F010050	Bridge S of Ticknevin Bridge	2023	Q2-3 (Poor)
Figile River	RS14F010100	Cushaling Bridge	2023	Q3-4 (Moderate)
Figile River	RS14F010200	Kilcumber Bridge	2023	Q3-4 (Moderate)
Figile_SC_020 river sub-catchment				

River	Station ID	Location	EPA Q-Rating (Year)	Q-Value Status
Figile River	RS14F010300	Figile - Bridge in Clonbulloge	2024	Q3 (Poor)
Figile River	RS14F010400	Derrygarran Bridge	2023	Q3 (Poor)
Slate_SC_010 river sub-catchment				
Slate River	RS14S010020	Quigley's Bridge	2023	Q3 (Poor)
Slate River	RS14S010050	Ford Bridge	2023	Q3 (Poor)
Slate River	RS14S010100	Agar Bridge	2023	Q3-4 (Moderate)
Slate River	RS14S010150	E Bridge Rathangan (Opp Church)	2023	Q3-4 (Moderate)
Slate River	RS14S010210	Slate - 100 m d/s Bridge near Spencer Br	2023	Q3-4 (Moderate)
Slate River	RS14S010300	River Bridge	2023	Q3-4 (Moderate)
Boyne_SC_010 river sub-catchment				
Boyne River	RS07B040200	Boyne Bridge	2024	Q3-4 (Moderate)
Boyne River	RS07B040300	Kinnafad Bridge	2024	Q3-4 (Moderate)

6.3.1.4 Bird Records

Bird Atlases – 1988 Baseline

Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland' (Balmer *et al.*, 2013) is the most recent comprehensive work on wintering and breeding birds in Ireland.

Previous Bird Atlases have been the primary source of information on the distribution and abundance of British and Irish birds prior to Bird Atlas 2007–11. The three previously published atlases were:

- Sharrock, J.T.R. (1976) The atlas of breeding birds in Britain and Ireland.
- Lack, P.C. (1986) The atlas of wintering birds in Britain and Ireland.
- Gibbons, D.W., Reid, J.B. & Chapman, R.A. (1993) The new atlas of breeding birds in Britain and Ireland: 1988-1991.

The Application Site lies within hectads N62, N63 and N72. Table 6-14 presents a list of bird species of conservation interest recorded from the relevant hectads for the periods 1968-1972, 1988-1991 (1988 Baseline) and 2007 – 2011, the latter period coinciding with the Peat Extraction Phase. The data for time periods before and after the 1988 Baseline are presented to provide context for breeding birds species over time.

Table 6-14 Breeding Bird Atlas Data (Hectads N62, N63 and N72)

Species Name	Breeding Atlas 68-72			Breeding Atlas 88-91 (1988 Baseline)			Breeding Atlas 07-11			Conservation Status
	N62	N63	N72	N62	N63	N72	N62	N63	N72	
Barn Owl (<i>Tyto alba</i>)	Conf	Conf			Seen		Poss	Poss		RL
Corncrake (<i>Crex crex</i>)	Prob		Prob	-		- Seen	-	-		BD, RL

Species Name	Breeding Atlas 68-72			Breeding Atlas 88-91 (1988 Baseline)			Breeding Atlas 07-11			Conservation Status
	N62	N63	N72	N62	N63	N72	N62	N63	N72	
Curlew (<i>Numenius arquata</i>)	Conf		Prob	Seen	Seen	Bred			Conf	RL
Grey Partridge (<i>Perdix perdix</i>)			Poss	Bred		Bred	Poss			RL
Grey Wagtail (<i>Motacilla cinerea</i>)	Conf	Prob	Conf	Seen	Seen		Conf	Conf	Conf	RL
Hen Harrier (<i>Circus cyaneus</i>)	Poss									BD
Kestrel (<i>Falco tinnunculus</i>)	Conf	Poss	Conf	Seen	Bred	Seen	Poss	Conf	Conf	RL
Kingfisher (<i>Alcedo atthis</i>)	Conf	Prob	Conf	Seen	Seen	Seen	Poss		Poss	BD
Lapwing (<i>Vanellus vanellus</i>)	Conf		Conf	Seen	Bred	Seen	Conf		Conf	RL
Meadow Pipit (<i>Anthus pratensis</i>)	Conf	Conf	Conf	Seen	Bred	Seen	Poss	Conf	Conf	RL
Merlin (<i>Falco columbarius</i>)				Seen					Poss	BD
Nightjar (<i>Caprimulgus europaeus</i>)		Prob	Poss							RL, BD
Quail (<i>Coturnix coturnix</i>)					Bred					RL
Red Grouse (<i>Lagopus lagopus</i>)			Prob			Seen				RL
Snipe (<i>Gallinago gallinago</i>)	Conf	Prob	Prob	Bred	Bred	Bred	Prob	Prob	Conf	RL
Stock Dove (<i>Columba oenas</i>)	Conf		Conf	Seen	Bred		Prob			RL
Swift (<i>Apus apus</i>)	Conf	Conf	Conf	Seen	Bred	Seen	Poss	Prob	Poss	RL
Whinchat (<i>Saxicola rubetra</i>)	Prob		Conf	Bred	Seen	Seen			Conf	RL
Woodcock (<i>Scolopax rusticola</i>)					Bred		Prob		Poss	RL
Yellowhammer (<i>Emberiza cintrinella</i>)	Conf	Prob	Prob	Seen	Bred	Seen	Prob	Prob	Prob	RL

Seen = recorded; Poss = possible breeding; Prob = probable breeding; Conf = confirmed breeding; - = not-recorded; Non-B = Non-Breeding Record; Bred = Breeding Record. Conservation Status: BD = Annex I of the Birds Directive, RL = BoCCI Red Listed

Table 6-15 shows those species recorded in the relevant hectads (N62, N63 and N72) in the wintering birds' atlases that are listed on Annex I of the EU Birds Directive or mentioned on the Birds of

Conservation Concern in Ireland (BoCCI) red list for the periods 1981-1984 (1988 Baseline) and 2007 – 2011. The time periods after the 1988 Baseline are presented to provide context of the wintering birds species over time:

Table 6-15 Wintering Bird Atlas Data (Hectads N62, N63 and N72)

Species Name	Wintering Atlas 81-84			Wintering Atlas 07-11			Conservation Status
	N62	N63	N72	N62	N63	N72	
Barn Owl (<i>Tyto alba</i>)	Pres	Pres		Pres	Pres		RL
Curlew (<i>Numenius arquata</i>)	Pres		Pres	Pres		Pres	RL
Golden Plover (<i>Pluvialis apricaria</i>)	Pres				Pres	Pres	BD, RL
Grey Heron (<i>Ardea cinerea</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Grey Partridge (<i>Perdix perdix</i>)	Pres		Pres				RL
Grey Wagtail (<i>Motacilla cinerea</i>)	Pres		Pres		Pres	Pres	RL
Hen Harrier (<i>Circus cyaneus</i>)	Pres			Pres		Pres	BD
Herring Gull (<i>Larus argentatus</i>)			Pres			Pres	RL
Kestrel (<i>Falco tinnunculus</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Kingfisher (<i>Alcedo atthis</i>)		Pres	Pres			Pres	BD
Lapwing (<i>Vanellus vanellus</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Little Egret (<i>Egretta garzetta</i>)						Pres	BD
Meadow Pipit (<i>Anthus pratensis</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Merlin (<i>Falco columbarius</i>)		Pres		Pres	Pres	Pres	BD
Peregrine Falcon (<i>Falco peregrinus</i>)		Pres	Pres		Pres	Pres	BD
Redwing (<i>Turdus iliacus</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Snipe (<i>Gallinago gallinago</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Stock Dove (<i>Columba oenas</i>)	Pres		Pres	Pres		Pres	RL
Whooper Swan (<i>Cygnus cygnus</i>)				Pres			BD
Woodcock (<i>Scolopax rusticola</i>)	Pres	Pres	Pres	Pres	Pres	Pres	RL
Yellowhammer (<i>Emberiza cintrinella</i>)	Pres	Pres		Pres	Pres	Pres	RL

Pres = present in hectad; - = not recorded. Conservation Status: BD = Annex I of the Birds Directive, RL = BoCCI Red Listed

Bird Surveys of Ballydermot Bog (BnM) – 2018 to 2020 (Peat Extraction Phase)

Breeding Bird Surveys

Inis Environmental Consultants Ltd. undertook breeding bird surveys (April to September inclusive) of the Application Site on behalf of BnM in 2019 and Malachy Walsh and Partners undertook breeding bird surveys (April to September inclusive) in 2016. The bird species of conservation concern i.e. listed either on Annex I of the EU Birds Directive or on the Birds of Conservation Concern Ireland (BoCCI) recorded within the Application Site during the surveys are shown in Table 6-16. Species marked with an asterisk were not recorded breeding within the Application Site, whereas those without an asterisk were classified as breeding (possible, probable or confirmed according to the breeding status codes of the Bird Atlas 2007-2011).

Table 6- 16 Annex I and BoCCI red-listed bird species recorded on the Application Site during breeding bird surveys undertaken in 2016-2020

Common Name	Scientific name	Year (Yes/No)		Designation
		2016	2019	
*Merlin	<i>Falco columbarius</i>	Y	N	Annex I
*Hen Harrier	<i>Circus cyaneus</i>	N	N	Annex I
*White-tailed Eagle	<i>Haliaeetus albicilla</i>	N	Y	Annex I
*Peregrine	<i>Falco peregrinus</i>	Y	Y	Annex I
*Kestrel	<i>Falco tinnunculus</i>	Y	Y	BoCCI Redlist
Curlew	<i>Numenius arquata</i>	Y	Y	BoCCI Redlist
Snipe	<i>Gallinago gallinago</i>	Y	Y	BoCCI Redlist
Lapwing	<i>Vanellus vanellus</i>	Y	Y	BoCCI Redlist
Woodcock	<i>Scolopax rusticola</i>	Y	Y	BoCCI Redlist
Meadow Pipit	<i>Anthus pratensis</i>	Y	Y	BoCCI Redlist
Yellowhammer	<i>Emberiza citrinella</i>	Y	Y	BoCCI Redlist
*Golden Plover	<i>Pluvialis apricaria</i>	Y	Y	Annex I, BoCCI Redlist

* Non-breeding within the Application Site

Annex I of EU Birds Directive, BoCCI = Birds of Conservation Concern Ireland

Wintering Bird Surveys

Wintering bird surveys (October to March inclusive) were undertaken by Inis Environmental Consultants Ltd in 2018/2019 and 2019/2020. The bird species of conservation concern i.e. listed either on Annex I of the EU Birds Directive or on the Birds of Conservation Concern Ireland (BoCCI) recorded utilising the Application Site during wintering bird surveys are listed in Table 6-17 below.

Table 6- 17 Bird species listed on Annex I of the EU Birds Directive or the BoCCI red list recorded at the Application Site during wintering bird surveys

Common Name	Scientific Name	Year		Designation
		2018-2019	2019-2020	
Whooper Swan	<i>Cygnus cygnus</i>	Y	Y	Annex I
Greenland White-fronted Goose	<i>Anser albifrons flavirostris</i>	Y	N	Annex I
Hen Harrier	<i>Circus cyaneus</i>	N	N	Annex I
Merlin	<i>Falco columbarius</i>	Y	N	Annex I
Peregrine	<i>Falco peregrinus</i>	N	Y	Annex I
Kestrel	<i>Falco tinnunculus</i>	Y	Y	BoCCI Redlist
Curlew	<i>Numenius arquata</i>	Y	N	BoCCI Redlist
Snipe	<i>Gallinago gallinago</i>	Y	Y	BoCCI Redlist
Golden Plover	<i>Pluvialis apricaria</i>	Y	Y	Annex I, BoCCI Redlist
Lapwing	<i>Vanellus vanellus</i>	Y	Y	BoCCI Redlist
Woodcock	<i>Scolopax rusticola</i>	Y	Y	BoCCI Redlist
Meadow Pipit	<i>Anthus pratensis</i>	Y	Y	BoCCI Redlist
Redwing	<i>Turdus iliacus</i>	Y	Y	BoCCI Redlist

Annex I of EU Birds Directive, BoCCI = Birds of Conservation Concern Ireland

6.3.1.5 Other Protected Species and Habitats Records

The following sections present the results of a search for records (historical and current) of protected species from the area surrounding the Application Site, with a focus on hectads N62, N63 and N72 within which the Application Site is located. The desk study aims to provide a baseline of the Application Site for 1988, but records before and after 1988 are also included to provide a temporal understanding of the Application Site.

6.3.1.5.1 Vascular plants

A search was conducted in the New Atlas of the British and Irish Flora (Preston *et al*, 2002) to investigate whether any rare or unusual plant species listed under Annex II of the EU Habitats Directive, The Irish Red Data Book - 1 Vascular Plants (Curtis, 1988 and Wyse Jackson *et al*. 2016) or the Flora (Protection) Order (1999, as amended 2022) had been recorded in the relevant 10km squares in which the Application Site is situated (N62, N63 and N72). Each hectad contains 100 whole one-kilometre squares containing terrestrial habitats. Species of conservation concern are listed in Table 6-18. The dates shown in Table 6-18 reflect the recording periods used in the New Atlas of the British and Irish Flora, indicating when species were observed in the field.

Table 6- 18 Species listed designated under the Flora Protection Order or the Irish Red Data Book within Hectads N62, N63 and N72 – Pre 1970 - 1999

Common name	Scientific name	Designation	Date	Hectad
Fragrant Agrimony	<i>Agrimonia procera</i>	Near Threatened (NT)	1987-1999	N62
Slender Thistle	<i>Carduus tenuiflorus</i>	Near Threatened (NT)	1987-1999, Pre 1970	N63, N72
Basil Thyme	<i>Clinopodium acinos</i>	Near Threatened (NT)	1987-1999, Pre 1970	N62, N63
Frog Orchid	<i>Coeloglossum viride</i>	Near Threatened (NT)	Pre 1970	N63, N72
Red Hemp-nettle	<i>Galeopsis angustifolia</i>	Vulnerable (VU)	1987-1999	N62
Autumn gentian	<i>Gentianella amarella</i>	Near Threatened (NT)	1987-1999, Pre 1970	N62, N63
Opposite-leaved Pondweed	<i>Groenlandia densa</i>	Near Threatened (NT)	1987-1999	N72
Green-winged orchid	<i>Orchis morio</i>	Vulnerable (VU)	1987-1999	N62, N63
Brown Beak-sedge	<i>Rhynchospora fusca</i>	Near Threatened (NT)	Pre 1970	N72
Green Figwort	<i>Scrophularia umbrosa</i>	Near Threatened (NT)	1987-1999	N63, N72
Least bur-reed	<i>Sparganium natans</i>	Near Threatened (NT)	1987-1999	N63
Marsh Fern	<i>Thelypteris palustris</i>	Near Threatened (NT)	Pre 1970	N62
Black Horehound	<i>Ballota nigra</i>	Near Threatened (NT)	1987-1999, Pre-1970	N63
Rough Chervil	<i>Chaerophyllum temulum</i>	Vulnerable (VU)	Pre-1970	N63
Dwarf Spurge	<i>Euphorbia exigua</i>	Near Threatened (NT)	Pre-1970	N63
Henbane	<i>Hyoscyamus niger</i>	Near Threatened (NT)	Pre-1970	N63
Round-leaved Wintergreen	<i>Pyrola rotundifolia</i> <i>subsp. rotundifolia</i>	Near Threatened (NT)	1987-1999	N63
Narrow-fruited Cornsalad	<i>Valerianella dentata</i>	Vulnerable (VU)	Pre-1970	N63
Corn Marigold	<i>Chrysanthemum segetum</i>	Near Threatened (NT)	1987-1999	N72

6.3.1.5.2 Bryophytes

A search of the NPWS online data map for bryophytes (NPWS, 2022) was undertaken to establish whether there are records for protected bryophytes within and in the vicinity of the Application Site. The online map shows no records for protected bryophytes within or adjacent to the Application Site.

6.3.1.5.3 NPWS Protected Species Records

National Parks and Wildlife Service (NPWS) online records were searched to see if any rare or protected species of flora or fauna have been recorded from hectads N62, N63 and N72. An information request was also sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database. These records are included in Table 6-19.

Table 6-19 NPWS records for rare and protected species

Common name	Scientific name	Designation	Hectad
Badger	<i>Meles meles</i>	WA, LC	N62, N63, N72
Basil Thyme	<i>Clinopodium acinos</i>	NT	N62, N63, N72
<i>Cladonia ciliata</i> var. <i>tenuis</i>	<i>Cladonia ciliata</i> var. <i>tenuis</i>	Annex V	N62, N72
Common Frog	<i>Rana temporaria</i>	Annex V, WA, LC	N62, N63, N72
Common Lizard	<i>Zootoca vivipara</i>	WA, LC	N72
Desmoulin's Whorl Snail	<i>Vertigo moulinsiana</i>	Annex II, WA, EN	N72
Fallow Deer	<i>Dama dama</i>	WA, LC	N63
Green-winged Orchid	<i>Orchis morio</i>	VU	N62, N63
Hedgehog	<i>Erinaceus europaeus</i>	WA, LC	N62, N63
Henbane	<i>Hyoscyamus niger</i>	NT	N63
Irish Hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>	Annex V, WA, LC	N62, N63, N72
Irish Stoat	<i>Mustela erminea</i> subsp. <i>hibernica</i>	WA, LC	N63
Marsh Fritillary	<i>Euphydryas aurinia</i>	Annex II, VU	N62
Opposite-leaved Pondweed	<i>Groenlandia densa</i>	FPO, NT	N72
Otter	<i>Lutra lutra</i>	Annex II, IV, WA, LC	N62, N63, N72
Pine Marten	<i>Martes martes</i>	Annex V, WA, LC	N62, N63
Pygmy Shrew	<i>Sorex minutus</i>	WA, LC	N62, N63, N72
Red Hemp Nettle	<i>Galeopsis angustifolia</i>	FPO, VU	N62
Red Squirrel	<i>Sciurus vulgaris</i>	WA, LC	N62, N63, N72
Reindeer Lichen	<i>Cladonia portentosa</i>	Annex V	N62, N72
Round-leaved Wintergreen	<i>Pyrola rotundifolia</i> subsp. <i>rotundifolia</i>	NT	N63

Common name	Scientific name	Designation	Hectad
Smooth Newt	<i>Lissotriton vulgaris</i>	WA, LC	N62
Upright Brome	<i>Bromopsis erecta</i>	NT	N72
White-clawed Crayfish	<i>Austropotamobius pallipes</i>	Annex II, V, WA	N62, N63, N72

Annex II, Annex IV, Annex V – of EU Habitats Directive; WA –Wildlife Acts (as amended); Red List Status – LC – Least Concern, NT – Near Threatened, VU – Vulnerable, EN – Endangered (Byrne et al., 2009; King et al., 2011; Wyse-Jackson et al., 2016; Marnell et al., 2019; Hodgetts and Lockhart, 2025).

6.3.1.5.4 National Biodiversity Data Centre (NBDC) Records

A search of the National Biodiversity Data Centre (NBDC) website was conducted in April 2025. Records of protected flora and fauna (excluding birds) recorded from hectads N62, N63 and N72 are provided in Table 6-20. The time periods before and after the 1988 Baseline are presented to provide context of the protected species over time.

Table 6- 20 NBDC records for species of conservation interest in hectads N62, N63 and N72

Common name	Scientific name	Designation	Year	Hectad
Common Lizard	<i>Zootoca vivipara</i>	WA	1972/2019	N72
Common frog	<i>Rana temporaria</i>	HD Annex V, WA	1999/2019, 1979/2016, 1979/2020	N62, N63, N72
Brown Long-eared Bat	<i>Plecotus auritus</i>	HD Annex IV, WA	2008, 1999/2021, 2005	N62, N63, N72
Common Newt	<i>Lissotriton vulgaris</i>	WA	2013, 2010, 2011/2012	N62, N63, N72
Badger	<i>Meles meles</i>	WA	1991/2015, 1981/2015, 1992/2015	N62, N63, N72
Fallow Deer	<i>Dama dama</i>	WA	2010/2015, 1991, 2010/2015	N62, N63, N72
Marsh fritillary	<i>Euphydryas aurinia</i>	HD Annex II	1960-1975/2024, 1970-1982/2020, 1960-1975/2021	N62, N63, N72
White-clawed Crayfish	<i>Austropotamobius pallipes</i>	HD Annex II, V, WA	2006/2017, 1993/2022	N62, N72
Common pipistrelle	<i>Pipistrelle (Pipistrellus pipistrellus sensu lato)</i>	HD Annex IV, WA	2008/2019, 2006/2021, 2005/2019	N62, N63, N72
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	HD Annex IV, WA	2008/2019, 2006/2021, 2005/2019	N62, N63, N72

Common name	Scientific name	Designation	Year	Hectad
Daubenton's Bat	<i>Myotis daubentonii</i>	HD Annex IV, WA	2008/2021, 2008/2017, 2008/2017	N62, N63, N72
Leisler's bat	<i>Nyctalus leisleri</i>	HD Annex IV, WA	2017/2019, 1999/2017, 2008/2011	N62, N63, N72
Whiskered bat	<i>Myotis mystacinus</i>	HD Annex IV, WA	2017/2017, 1989/2008	N62, N63
Natterer's Bat	<i>Myotis nattereri</i>	HD Annex IV, WA	2017	N72
Otter	<i>Lutra lutra</i>	HD Annex II, IV, WA	1991/2018, 1980/2016, 1992/2015	N62, N63, N72
Pine Marten	<i>Martes martes</i>	HD Annex V, WA	2007/2021, 22006/020, 2010/2021	N62, N63, N72
Eurasian Pygmy shrew	<i>Sorex minutus</i>	WA	2015, 2019, 2013	N62, N63, N72
Eurasian red squirrel	<i>Sciurus vulgaris</i>	WA	2007/2023, 1980/2015, 2010/2015	N62, N63, N72
Irish hare	<i>Lepus timidus subsp. hibernicus</i>	WA	1991/2020, 1981/2018, 1992/2023	N62, N63, N72
Irish stoat	<i>Mustela erminea subsp. hibernica</i>	WA	2010/2023, 1981/2020	N62, N63
West European hedgehog	<i>Erinaceus europaeus</i>	WA	2012/2021, 1981/2023, 2012/2023	N62, N63, N72

HD = EU Habitats Directive; WA = Wildlife Acts (Ireland).

6.3.1.5.5 Bat Records

Records from the National Bat Database of Ireland and National Biodiversity Data Centre (NBDC) were reviewed for the 10km grid squares N62, N63 and N72. These identified historical records for seven bat species in the area: common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), leisler's bat (*Nyctalus leisleri*), brown long-eared bat (*Plecotus auritus*), daubenton's bat (*Myotis daubentonii*), whiskered bat (*Myotis mystacinus*) and Natterer's Bat (*Myotis nattereri*).

The Application Site is within the known national range of all Irish bat species except for lesser horseshoe bat (*Rhinolophus hipposideros*), which are currently considered to occur outside or at the margins of this area. No designated sites for the conservation of bats were identified within 10km of the Application Site.

Landscape and habitat suitability assessments indicated that the Application Site comprises predominantly bare cutaway peat, with revegetation of bare peat, degraded blanket bog, scrub, bog

woodland, remnants of high bog and areas of conifer plantation. No natural or manmade subterranean features (e.g., caves or souterrains) were identified within 10km based on a review of geological and archaeological databases. According to NBDC habitat modelling, the Application Site falls within a low to moderate bat habitat suitability index range, reflecting the limited availability of high-quality roosting and foraging habitat within the bog landscape.

6.3.1.5.6 **Freshwater Pearl Mussel (*Margaritifera margaritifera*)**

The NPWS *Margaritifera* Sensitive Area map (Version 10, 2020) was consulted during the desk study. The Application Site is located within a *Margaritifera* sensitive catchment listed as *Catchments with previous records of Margaritifera, but current status unknown*.

6.3.1.5.7 **Inland Fisheries Ireland Data**

The IFI online database was reviewed for fish species records within the catchments downstream of the Application Site. The Application Site drains into the Abbeylough Stream (EPA Code: 14A01) and the Figile River (EPA Code: 14F01) which are located within the Figile_SC_010 river sub-catchment.

Several streams are mapped to originate at the western boundary of the Application Site. The Clonbulloge Stream (EPA Code: 14C53) to the west of Ballydermot North Bog and the Ballygarrett Stream (EPA Code: 14B30) to the west of Ballydermot South Bog. These streams merge just upstream of their confluence with the Figile River.

The Killinagh Upper Stream (EPA Code: 14K17) is mapped to flow along the southeastern boundary of Lodge Bog before it discharges into the Slate River (EPA Code: 14S01).

Fish stock assessments were undertaken by IFI in 2020, within the Figile_010, approximately 3.8km upstream of the Application Site. Brown trout (*Salmo trutta*), stone loach (*Barbatula barbatula*) and three-spined stickleback (*Gasterosteus aculeatus*) were recorded, and it was assigned a WFD fish ecological status of 'Moderate'. In 2015, European eel (*Anguilla anguilla*) and lamprey spp. (*Lampetra* sp.) were recorded, it was assigned a WFD fish ecological status of 'Poor'.

Fish stock assessments were undertaken by IFI in 2021, within the Figile_020 within the boundary of the Application Site. Dace (*Leuciscus leuciscus*) and roach (*Rutilus rutilus*) were recorded, and it was assigned a WFD fish ecological status of 'Bad' and assigned 'Deterioration' in Fish Status. Species recorded here during previous surveys in 2015 included brown trout, dace, minnow (*Phoxinus phoxinus*), perch (*Perca fluviatilis*) and roach.

Fish stock assessments undertaken by IFI in 2021, within the Figile_030, approximately 1.3km downstream of the Application Site. Dace, perch, pike (*Esox lucius*) and roach were recorded, and it was assigned a WFD fish ecological status of 'Bad' and assigned 'No change' in Fish Status.

Fish stock assessments undertaken by IFI in 2015, within the Figile_040, approximately 3.5km downstream of the Application Site. Dace, perch, pike and roach were recorded, and it was assigned a WFD fish ecological status of 'Bad'.

Further downstream fish stock assessments undertaken by IFI in 2015 in the Barrow_090 approximately 20.7km downstream of the Application Site recorded dace, minnow, perch and pike and it was assigned a WFD fish ecological status of 'Poor' and assigned 'No change' in Fish Status. Further downstream, approximately 21km downstream of the Application Site, brown trout; dace, gudgeon (*Gobio gobio*), minnow, perch, pike, roach, salmon and stone loach were recorded, and it was assigned a WFD fish ecological status of 'Moderate' and assigned 'Deterioration' in Fish Status.

Fish stock assessments undertaken by IFI in 2020, within the Slate_050 river at a site approximately 2.8km downstream of the Application Site. European eel and stone loach were recorded, and it was assigned a WFD fish ecological status of 'Bad'.

Fish stock assessments undertaken by IFI in 2020, within the Slate_060 river approximately 3.1km downstream of the Application Site. European eel, minnow, roach and stone loach were recorded, and it was assigned a WFD fish ecological status of 'Poor'. Further downstream, approximately 7km and 7.2km downstream of Application Site, brown trout, salmon (*Salmo salar*) and minnow were recorded, and it was assigned a WFD fish ecological status of 'Good'.

European eel is classified as 'critically endangered' in 'Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish' (King et al., 2011). Lamprey are classified as 'near threatened' in 'Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish' (King et al., 2011). All three species of Ireland's lamprey are protected under Annex II of the EU habitats directive, with River Lamprey classified under Annex II and Annex V. Salmon (in freshwater) is listed on Annexes II and V of the EU Habitats Directive, and is listed as "Vulnerable," on King *et al.*'s Red list (2011).

6.3.1.5.8 **Marsh Fritillary**

Records from the National Biodiversity Data Centre (NBDC) indicate that Marsh Fritillary (*Euphydryas aurinia*) has been recorded in hectads N62, N63 and N72 in years prior to and during the Peat Extraction Phase and during the Current Phase, with the most recent records on the database dating from 2024.

The Bord na Móna Biodiversity Action Plan 2016-2021 states that marsh fritillary, listed in Annex II of the EU Habitats Directive, are known to occur on '*marginal areas of regenerating cutaway*' of Lullymore (Lullybeg) Bog, which is located within the Application Site (Bord na Móna, 2016).

6.3.1.5.9 **NPWS Article 17 Reporting**

The most recent National Parks and Wildlife Service (NPWS, 2025) data on the recorded distribution of EU Habitats Directive Annex I listed habitats was reviewed in relation to the Application Site. Data is available in the form of the NPWS (2025) Article 17 reporting, and the 2019 GIS data, on '*The Status of EU Protected Habitats and Species in Ireland*' (NPWS, 2019).

The NPWS GIS datasets contain polygon data within the Application Site classified as Raised bog (active) (7110) and Orchid-rich calcareous grassland (6210) (within the Long Derries, Edenderry SAC). Old oak woodland (91A0) is also present adjacent to and overlapping with the Application Site boundary and Bog woodland (91D0) directly adjacent to the Application Site.

Areas of mapped Active raised bog (7110) are present approximately 5.5 km west and 7.8 km southeast of the Application Site. An area of mapped as Annex I Molinia meadows (6410) are present approximately 5.4 km southwest of the Application Site. Areas of mapped Alkaline fen (7230) habitat are present approximately 7 km west, 8.4 km southwest, 8.7 km southeast and 7.3 km east of the proposed Application Site. Mapped Dry heath (4030) habitats are present approximately 9 km from the Application Site. Areas of mapped Bog woodland (91D0) are mapped approximately 7.7 km east of the Application Site. Wet heaths (4010) and Alkaline fen (7230) habitats are also mapped east of the site approximately 8.7 km from the Application Site.

6.3.1.6 **Invasive Species**

The NBDC database contains records of invasive species identified within the relevant hectad. Records of 'high impact' invasive species for hectads N62, N63 and N72 are provided in Table 6-21. Records from before and after the 1988 baseline are presented to provide context of the invasive species over time.

Table 6- 21 NBDC records for invasive species (N62, N63 and N72)

Common Name	Scientific Name	Year	Hectad
Canadian waterweed	<i>Elodea canadensis</i>	2013, 1987/1999	N63, N72
Nuttall's waterweed	<i>Elodea nuttallii</i>	2013	N62, N63
Japanese knotweed	<i>Fallopia japonica</i>	2011, 2011/2013, 2005	N62, N63, N72
Spanish Bluebell	<i>Hyacinthoides hispanica</i>	2013	N62, N63
New Zealand Pigmyweed	<i>Crassula helmsii</i>	2018	N63
New Zealand Flatworm	<i>Arthurdendyus triangulatus</i>	1992/2019	N72
Rhododendron	<i>Rhododendron ponticum</i>	2005/2023, 2005/2010	N63, N72
Cherry laurel	<i>Prunus laurocerasus</i>	2005/2013	N63
Three-cornered Garlic	<i>Allium triquetrum</i>	2014	N63
Ferret	<i>Mustela putorius subsp. furo</i>	2013	N63
Brown Rat	<i>Rattus norvegicus</i>	2015/2016	N72
American Mink	<i>Mustela vison</i>	1991/2017, 1991/2015, 1992/2025	N62, N63, N72
Grey Squirrel	<i>Sciurus carolinensis</i>	2009/2012, 1980/2009, 2011	N62, N63, N72
Fallow deer	<i>Dama dama</i>	2010/2015, 1991, 2010/2015	N62, N63, N72

Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) include legislative measures to deal with the introduction, dispersal, dealing in and keeping of non-native species. Japanese knotweed (*fallopian japonica*), Rhododendron (*rhododendron ponticum*), Brown Rat (*Rattus norvegicus*) American Mink (*Mustela vison*) and Fallow Deer (*Dama dama*) are species subject to restrictions under Regulations 49 and 50 and are included in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

6.3.1.7 Conclusions of the Desktop Study

The desktop study has provided information on the ecological baseline at the Application Site both as it was in 1988 and during the Peat Extraction Phase, and as it exists in the present day, using information gathered from a variety of sources. It has also provided information on the ecology of the surrounding area with a focus on the hectads N62, N63 and N72 within which the Application Site is located. Both historical and recent records and information have been provided to assist in providing a comprehensive description of the ecology of the area.

In 1988, the majority of the Application Site had been drained, was undergoing peat extraction and ancillary activities and would have been dominated by bare peat at these locations. Where peat

extraction and ancillary activities had ceased for some time, the habitats would have comprised scrub, heath type vegetation, woodland and pioneer open cutaway habitats. Small areas of remnant uncut raised bog would have been present, primarily present at the margins of the Application Site. The Application Site was likely utilised by bird species typical of cutover bog and associated habitats including meadow pipit and skylark. Faunal diversity in raised bog habitats is generally poor and therefore the Application Site in 1988 is unlikely to have supported a rich faunal diversity. However, it is likely that hare, badger, fox, otter, common frog and a range of invertebrates including marsh fritillary would have utilised parts of the Application Site.

During the Peat Extraction Phase, peat extraction and ancillary activities were active across much of the Application Site. At the time of the BnM ecological surveys (2009–2016), drainage works were ongoing in active production zones across multiple bogs, with pumps and silt ponds present to manage water levels across the Application Site, particularly around works areas and riparian zones. The Application Site contained a mosaic of active production fields dominated by bare peat and abandoned or regenerating cutaway areas at varying stages of development, supporting pioneer poor fen, heath type communities, birch scrub and birch woodland, dry calcareous grassland. Peat type and depth varied considerably across the Application Site; fen peat dominated the majority of production areas, with Sphagnum peat present at Ticknevin and black fen peat at Lodge Bog. Shell marl underlay substantial portions of the eastern areas of Ballydermot North and Blackriver and was exposed at the bog surface in places. Gravel and mixed till sub-soils were exposed at field ends and along drain profiles across several bogs, with gravel mounds and esker ridges (most notably the Long Derries) showing colonisation by calcareous grassland and scrub vegetation. Remnant raised bog was present at the margins of several bogs, generally degraded and drained, with the most intact example recorded at Ticknevin west of the Edenderry Road. The BnM railway network extended throughout the Application Site, connecting all bogs, and supported notable populations of basil thyme and blue fleabane along gravel embankments across the complex.

In the Current Phase, the habitats present within the Application Site comprise a mosaic of cutover bog habitats including areas of bare peat, scrub, bog woodland, secondary heath type vegetation, pioneer open cutaway habitats, fen and grassland. Fragmented areas of remnant uncut raised bog are present, primarily at the bog margins. The majority of Lodge Bog was rehabilitated by 2023

A review of Article 17 reporting identified that Annex I habitats are present within the Application Site including Raised bog (active) (7110) and Orchid-rich calcareous grassland (6210) (within the Long Derries, Edenderry SAC). An area mapped as Old oak woodland (91A0) is also present adjacent to and overlapping with the Application Site boundary and Bog woodland (91D0) directly adjacent to the Application Site.

The Application Site is located primarily within the River Barrow surface water catchment within Hydrometric Area 14 of the South Eastern River Basin District. A small area in the north of the Ticknevin Bog located in the River Boyne surface water catchment within Hydrometric Area 07 of the Eastern River Basin District. The Application Site drains via a network of watercourses including the Figile River, Slate River, Abbeylough Stream, Lullymore East Stream, Lullybeg Stream, Clonbrown Stream and associated tributaries. There is hydrological connectivity with the Long Derries, Edenderry SAC and pNHA, Grand Canal pNHA, the River Barrow and River Nore SAC. These European Sites are further considered in the Natura Impact Statement prepared for the assessment.

The desk study identified that a variety of protected faunal species are known to occur within and in the wider area surrounding the Application Site including bats, marsh fritillary, otter, badger and bird species. The mammal species records identified during the desk study informed the survey methodologies undertaken during the site visits. The mammal species recorded within the relevant

hectads have widespread range and distributions in Ireland and are likely to be recorded frequently throughout Ireland (Marnell *et al*, 2009⁸).

The Application Site is located within a *Margaritifera* sensitive catchment listed as Catchments with previous records of *Margaritifera*, but current status unknown.

A number of bird species listed on Annex I of the EU Birds Directive and the BoCCI red list have been recorded within the Application Site and surrounding area.

The desk study also provided useful information to inform the ecological surveys undertaken on the Application Site as well as the identification of pathways for potential impact on sensitive ecological receptors.

6.3.2 Ecological Walkover Survey Results: 2020-2025

6.3.2.1 Description of Habitats and Flora within the Application Site

Between 2021 and 2025, MKO ecologists visited the Application Site to ground-truth the results of the BnM habitat surveys and mapping and to undertake detailed habitat and botanical surveys. The habitat descriptions in this section are based on the walkover surveys and detailed vegetation surveys undertaken by MKO in 2024, 2025 and 2026. A habitat map of the Application Site is provided in Figure 6-5. All habitats described below have been classified in accordance with Fossitt (2000).

The Application Site comprises 14 no. large cutover raised bogs classified as **Cutover Bog (PB4)**. Large areas of the cutover bog have been in commercial peat production by BnM until relatively recently (up to 2020) and are characterised by bare peat. Where areas of the cutover bog have been out of industrial peat extraction for a significant period of time, i.e. since the early 90s, these areas have since largely revegetated, primarily by dry heath type vegetation dominated by ling heather (*Calluna vulgaris*), birch (*Betula* spp.) dominated scrub and bog woodland, pioneer poor fen communities characterised by common cottongrass (*Eriophorum angustifolium*) and small areas of grassland which occur mostly along the existing railway tracks traversing the Application Site. The habitats described above occur in variable habitat mosaics within the Application Site as shown in the habitat map in Figure 6-5 which show the location and relative cover of the habitats recorded within the site at a high level. The habitats are described in greater details in the sections below.

In addition to the habitats of the cutover bog, there are also a number of small areas of remnant uncut raised bog at various locations throughout the Application Site, predominantly around the margins of the Application Site.

Waterbodies within the Application Site include a network of drainage ditches, small streams/watercourses classified as lowland depositing rivers, small areas of standing open water and artificial silt ponds. The watercourses including streams and drainage ditches provide hydrological connectivity with downstream EU and Nationally designated sites and are described in more detail below.

6.3.2.1.1 Raised bog (PB1)

There are a number of areas of remnant uncut raised bog habitat within the Application Site. These are classified as **Raised bog (PB1)**. Large sections of this habitat are located within Glashabaun South, Blackriver and Ballydermot South bogs, with smaller remnant areas also present elsewhere in a number

⁸Marnell, F., Kingston, N. & Looney, D. (2009) Ireland Red List No. 3: Terrestrial Mammals, National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

of locations along the margins of the Application Site. Large areas are also present beyond the Application Site boundary in Ticknevin and Lodge Bogs.

These habitats are generally bordered by a tall (2-5m), vertical facebanks with man-made drains around the margins (Plate 6-1) and are degraded in nature due to the presence of drainage ditches throughout as well as ongoing turbary in several sections. These drains are generally inserted in parallel channels which result in firm, dry ground conditions in several areas, such as in Glashabaun South Bog and in the marginal areas of the majority of the remnant raised bogs throughout the Application Site. The vegetation communities in these areas are typically characterised by a high cover of ling heather (*Calluna vulgaris*) with cross-leaved heath (*Erica tetralix*), deergrass (*Trichophorum germanicum*), common cottongrass (*Eriophorum angustifolium*) and hare's-tail cottongrass (*Eriophorum vaginatum*) frequently recorded (Plate 6-2). Species occurring in smaller amounts also include round-leaved sundew (*Drosera rotundifolia*), bog asphodel (*Narthecium ossifragum*), bog-rosemary (*Andromeda polifolia*) and white-beak sedge (*Rhynchospora alba*). Cover of *Sphagnum* bog mosses is generally low in these areas, comprising the species *Sphagnum capillifolium*, *S. rubellum*, *S. tenellum* and *S. papillosum* most frequently. Where ground conditions are slightly wetter, including within the man-made drains, the species *S. cuspidatum* is also present. Other bryophytes and lichens recorded include *Hypnum jutlandicum*, *Cladonia portentosa*, *Cladonia uncialis*, *Odontoschisma sphagni* and, where areas of bare eroding peat are present, *Campylopus introflexus*. These dry, degraded sections of raised bog which generally lack any pools or microtopography correlate most closely to the *Marginal* ecotope per Fernandez *et al.* (2014), grading towards *Facebank* ecotope at the very margins, where erosion channels were also occasionally present.

The wettest areas of remnant raised bog within the Application Site support a greater abundance of bog asphodel (*Narthecium ossifragum*) and white beak sedge (*Rhynchospora alba*) in lawns, with a greater abundance, cover and diversity of *Sphagnum* species, including *S. subnitens*, *S. medium* and *S. pulchrum*. However, while in general these wetter areas were softer underfoot, they were not quaking in nature and were not characterised by standing water/pools or associated with lawns of *Sphagnum*. These more central sections of uncut raised bog, such as in the area in Ballydermot South Bog, best align with the *Sub-marginal* ecotope per Fernandez *et al.* (2014), with drainage ditches largely present throughout.

The potential for areas of remnant raised bog to conform to the Annex I habitats Active raised bog [7110] (ARB) and Degraded raised bog still capable of natural regeneration [7120] (DRB) was considered. According to the latest Article 17 report (NPWS, 2025), “ARB is characterised by the presence of an acrotelm, which is defined as the living, actively growing upper layer of a raised bog, the surface of which is composed mainly of living bog bosses (*Sphagnum* spp.)”. In addition, as outlined in Smith and Crowley (2020), previous raised bog research in Ireland indicated that ARB, at least in the midlands, generally supports cover of *Sphagnum* greater than 40% (Fernandez Valverde *et al.* 2005, 2012).

Considering the vegetation communities outlined above, in wetter areas where a high *Sphagnum* cover and a high water table are present, areas of remnant raised bog within the Application Site are considered to have potential to correspond to Annex I ARB [7110], particularly towards the central sections of the large remnant areas, such as in Clonroosk Bog in Ballydermot South.

However, the majority of the remnant areas within the Application Site are dry raised bog of lower ecological value. Some areas such as in Blackriver and Glashabaun South Bogs, are dry and degraded in nature with altered vegetation and *Sphagnum* compositions which best correspond to the Annex I habitat DRB [7120].



Plate 6-1 A high vertical facebank and drainage ditch at the margins of the remnant Raised bog (PB1) in the north of Blackriver Bog



Plate 6-2 The area of Raised bog (PB1) in the north of Glashabaun South Bog, which is dry and degraded in nature.

6.3.2.1.2 Cutover Bog (PB4)

The vast majority of the Application Site, with the exception of small remnant sections of raised bog, comprises cutover raised bog or cutaway peat classified as **Cutover bog (PB4)**. Where peat cutting has ceased near the end of the Peat Extraction Phase on large areas of the site, e.g. large parts of Ballydermot South Bog, Ticknevin Bog, Barnaran Bog and Codd 2 Bog, these areas are dominated by bare peat with little growth of vegetation (Plate 6-3). Evidence of recent turbary activity was also observed in some areas (Plate 6-4).

Where peat extraction has ceased relatively recently and the cutover bog is in the early stages of recolonisation, areas consist of mosaics of bare peat and pioneer open cutaway communities, including pioneer ling heather (*Calluna vulgaris*) dominated secondary heath vegetation (Plate 6-5), pioneer **Poor fen (PF2)**, **Scrub (WS1)** and dry grassland habitats.

Where peat production/extraction has ceased for some time, e.g. much of Lullybeg Bog and Glashabaun South Bog, mosaics of well-established secondary dry heath, **Poor fen (PF2)** type communities as well as downy birch (*Betula pubescens*) and grey willow (*Salix cinerea*) dominated **Scrub (WS1)** and dry **Bog woodland (WN7)** are present.

A small number of areas of cutover bog within the site, particularly those in low lying areas, are much wetter in nature with some standing water. These often occur in association with areas **Poor fen and flush (PF2)** communities.

The following sub-sections provide a description of the secondary habitats that have begun to form on the cutover bog following cessation of peat extraction/milling.



Plate 6-3 Cutover bog (PB4) dominated by bare peat in Ballydermot North.



Plate 6-4 Freshly cut peat sods left out for drying in Blackriver Bog.



Plate 6-5 Cutover bog dominated by bare peat, in the early stages of recolonisation by ling heather (*Calluna vulgaris*) secondary dry heath community in Ballydermot South Bog.

6.3.2.1.3 *Calluna*-dominated Communities on Cutover Bog

Secondary *Calluna*-dominated communities within the Application Site are largely dominated by ling heather (*Calluna vulgaris*) (Plate 6-6), common cottongrass (*Eriophorum angustifolium*) and purple moor grass (*Molinia caerulea*) on dry, drained peat with a low cover of *Sphagnum* species. The invasive bryophyte heath star moss (*Campylopus introflexus*) was also recorded regularly throughout the Application Site within this habitat.

This habitat regularly occurs alongside and forms mosaics with other habitats including scrub, with immature self-seeded birches (*Betula* spp.) and willows (*Salix* spp.) frequently growing throughout these communities (Plate 6-7). Other encroaching species recorded include sitka spruce (*Picea sitchensis*), rowan (*Sorbus aucuparia*), scot's pine (*Picea abies*) and European gorse (*Ulex europaeus*). This habitat also frequently grades into bare peat, with pockets of bare peat also common within the habitat blocks as *Calluna* revegetates more recently cutover areas.

Where ground conditions are wetter, species including cross-leaved heath (*Erica tetralix*), white beak sedge (*Rhynchospora alba*), bog asphodel (*Narthecium ossifragum*), tormentil (*Potentilla erecta*) and *Sphagnum* bog mosses are present in greater abundances (Plate 6-8).

Revegetating cutover bog habitats within the Application Site do not conform to Annex I or non-Annex I heath habitats as defined by the Irish Wildlife Manual (Perrin *et.al.* 2014). As stated by Smith and Crowley (2020):

“Cutover bog habitats should only rarely be considered examples of dry siliceous heath (HH1) or wet heath (HH3). These habitats are defined by peat depths of less than 0.5 m (Fossitt, 2000), which seldom occur on cutover bog. Only where a habitat is underlain by shallow peat and good indicators of heath are present, such as Carex binervis, Galium saxatile and Juncus squarrosus, should heath habitats be considered for cutover bog.”

The *Calluna*-dominated communities which have established on the cutover bog within the Application Site occur on peat with a depth of >0.5m and none of the good heath indicator species were recorded within these habitats during the field surveys undertaken. Therefore, the *Calluna*-dominated communities growing on cutover bog within the Application Site do not conform to Annex I heath habitats. They are secondary, cutover raised bog habitats that are located on deep peat and level ground. They do not conform to Annex I wet heath habitat as defined by the Irish Wildlife Manual (Perrin *et.al.* 2014). Neither do they conform to Annex I raised bog habitats or any other Annex I habitat.



Plate 6-6 Ling heather (*Calluna vulgaris*) dominated secondary community.



Plate 6-7 Secondary *Calluna*-dominated) community with encroaching downy birch (*Betula pubescens*) scrub (WS1)



Plate 6-8 Secondary *Calluna*-dominated community with higher abundance of white-beak sedge (*Rhynchospora alba*) and *Sphagnum* bog mosses

6.3.2.1.4 Scrub (WS1)

Throughout the Application Site, **Scrub (WS1)** is common where it is developing on drier areas of cutover bog.

This habitat is generally dominated by downy birch (*Betula pubescens*), silver birch (*Betula pendula*) and grey willow (*Salix cinerea*) (Plate 6-9), with smaller amounts of eared willow (*Salix aurita*) and goat willow (*Salix caprea*) also common. The understorey within this habitat is generally dry in nature and species-poor, comprising various mixes of ling heather (*Calluna vulgaris*), brambles (*Rubus fruticosus*) and purple moor grass (*Molinia caerulea*). Other species less commonly recorded within scrub habitats include gorse (*Ulex europaeus*), raspberry (*Rubus idaeus*), tormentil (*Potentilla erecta*), lodgepole pine (*Pinus contorta*), sessile oak (*Quercus petraea*), soft rush (*Juncus effusus*), sweet vernal grass (*Anthoxanthum odoratum*), marsh arrowgrass (*Triglochin palustris*), marsh thistle (*Cirsium palustre*), rowan (*Sorbus aucuparia*), colt's foot (*Tussilago farfara*), marsh horsetail (*Equisetum palustre*), wild carrot (*Daucus carota*), fireweed (*Chamaenerion angustifolium*), devil's-bit scabious (*Succisa pratensis*), wild angelica (*Angelica sylvestris*), tormentil (*Potentilla erecta*) and common knapweed (*Centaurea nigra*).

Where grasses or heath species are present in higher abundances, scrub commonly forms mosaics with habitats including dry meadows and grassy verges, *Calluna*-dominated vegetation and pioneer poor fen communities. Where scrub species were found growing greater than 4 metres in height, it was classified as bog woodland (WN7 as per Fossitt, 2000). These habitats are described in detail in the relevant sections below.



Plate 6-9 Area of downy birch (*Betula pubescens*)-dominated Scrub (WS1) in Glashabaun North.

6.3.2.1.5 Bog woodland (WN7)

Birch-dominated **Bog woodland (WN7)** is common throughout the Application Site and is present in large areas particularly within Glashabaun North, Glashabaun South, Ballydermot North and Barnaran Bogs. These woodlands are commonly found growing in blocks separated by large drainage ditches (FW4) and rides usually dominated by grasses or bracken (Plate 6-10). This habitat also commonly occurs as narrow linear strips in association with drainage ditches (Plate 6-11). Where these linear habitats are >4m in width, they are classified as linear bog woodland (as per Fossitt, 2000).

Bog woodland within the Application Site is largely dominated by downy birch (*Betula pubescens*) and silver birch (*Betula pendula*) (Plate 6-12) with and grey willow (*Salix cinerea*) also abundant in some areas. Other occasional tree species include eared willow (*Salix aurita*), hawthorn (*Crataegus monogyna*), rowan (*Sorbus aucuparia*), scot's pine (*Pinus sylvestris*), lodgepole pine (*Pinus contorta*) and oak saplings (*Quercus* spp.). The shrub layer commonly consists of brambles (*Rubus fruticosus*), ivy (*Hedera helix*) and bracken (*Pteridium aquilinum*) with honeysuckle (*Lonicera periclymenum*), wild raspberry (*Rubus idaeus*), golden scaly male fern (*Dryopteris affinis*), broad buckler fern (*Dryopteris dilatata*), ling heather (*Calluna vulgaris*) and broom (*Cytisus scoparius*) also frequently recorded. The ground flora is often of low diversity, however where the canopy is less dense, grasses including purple moor grass (*Molinia caerulea*), sweet vernal grass (*Anthoxanthum odoratum*), common bent grass (*Agrostis capillaris*), false oat grass (*Arrhenatherum elatius*), are found growing abundantly, and rarely floating sweet grass (*Glyceria fluitans*) where ground conditions are wetter. Other species recorded within bog woodland on site include herb Robert (*Geranium robertianum*), common dog violet (*Viola riviniana*), marsh horsetail (*Equisetum palustre*), wild strawberry (*Fragaria vesca*), marsh willowherb (*Epilobium palustre*), marsh bedstraw (*Galium palustre*), and the rushes hard rush (*Juncus inflexus*), soft rush (*Juncus effusus*) and jointed rush (*Juncus articulatus*).

The bryophytes recorded within the bog woodlands on site include common tamarisk moss (*Thuidium tamariscinum*), common feather-moss (*Kindbergia praelonga*), common striated feather moss

(*Eurhynchium striatum*), wood bristle moss (*Orthotrichum affine*), short-beaked wood moss (*Loeskeobryum brevirostre*), juniper haircap moss (*Polytrichum juniperinum*), pointed spear moss (*Calliergonella cuspidata*), heath star moss (*Lophocolea bidentata*) and dilated scalewort (*Frullania dilatata*).

The bog woodlands on site are growing on cutover bog which is predominantly dry in nature with little to no *Sphagnum* cover. As such, no areas of this habitat growing upon cutover bog were found to conform to Annex I Bog Woodland [91D0].



Plate 6-10 Area of Dry meadows and grassy verges (GS2) and Dense bracken (HD1) separating two blocks of Bog woodland (WN7) in Barnaran Bog.



Plate 6-11 Linear areas of Bog woodland (WN7) located in Ballydermot South Bog.



Plate 6-12 Downy birch (*Betula pubescens*) dominated Bog woodland (WN7) in Codd 2.

6.3.2.1.6 Poor fen and flush (PF2)

Poor fen and flush (PF2) occurs within the Application Site predominantly as pioneer poor fen vegetation following the cessation of peat harvesting, with some areas of established poor fen and flush where the habitats have developed over longer timeframes. The habitat was widespread but highly variable, mostly occurring as a mosaic along with bare peat and often with encroaching scrub.

Areas of pioneer fen are most commonly dominated by common cottongrass (*Eriophorum angustifolium*) with other sedges and rushes including soft rush (*Juncus effusus*), sharp-flowered rush (*Juncus acutiflorus*), jointed rush (*Juncus articulatus*), toad rush (*Juncus bufonius*), common yellow sedge (*Carex viridula*) and hare's tail cottongrass (*Eriophorum vaginatum*) also frequent (Plate 6-13). Other commonly recorded species within these pioneer habitats include water mint (*Mentha aquatica*), marsh willowherb (*Epilobium palustre*), great willowherb (*Epilobium hirsutum*), bulrush (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), marsh arrowgrass (*Triglochin palustre*), with encroaching ling heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*) and downy birch (*Betula pubescens*) where ground conditions are wetter.

Wetter areas of poor fen with standing water are associated with more established poor fen communities (Plate 6-14). These habitats have a greater diversity of species, particularly within the broadleaved component, and were found to include marsh pennywort (*Hydrocotyle vulgaris*), lesser spearwort (*Ranunculus flammula*), round-leaved sundew (*Drosera rotundifolia*), bog pondweed (*Potamogeton polygonifolia*), lesser bladderwort (*Utricularia minor*), meadowsweet (*Filipendula ulmaria*), common valerian (*Valeriana officinalis*), tormentil (*Potentilla erecta*), bog rosemary (*Andromeda polifolia*), water plantain (*Alisma plantago-aquatica*), gypsywort (*Lycopus europaeus*) and white beak sedge (*Rhynchospora alba*). Bryophytes identified within these areas of poor fen also include marsh Bryum (*Bryum pseudotriquetrum*), pointed spear moss (*Calliergonella cuspidata*), star-headed liverwort (*Marchantia polymorpha*) and greasewort (*Aneura pinguis*).

Established poor fen is scattered across the Application Site.



Plate 6-13 Area of pioneer Poor fen (PF2) dominated by common cottongrass (*Eriophorum angustifolium*) in Lodge Bog, in a mosaic with areas of bare peat.



Plate 6-14 Area of more developed Poor fen (PF2) with standing water in Blackriver.

6.3.2.1.7 Reed and large sedge swamps (FS1)

Where cutover bog has become waterlogged and dominated by reeds, large grasses or sedges, it is classified as **Reed and large sedge swamps (FS1)**. This habitat is sparse across the Application Site, generally occurring only in small pockets. A larger area of reed swamp is located in the west of Glashabaun South (Plate 6-15).

This area of habitat comprises a high proportion of standing water, with vegetation dominated by common cottongrass (*Eriophorum angustifolium*), marsh arrowgrass (*Triglochin palustris*) and bulrush (*Typha latifolia*). Other species commonly recorded in reed swamps within the Application Site include soft rush (*Juncus effusus*), jointed rush (*Juncus articulatus*), water horsetail (*Equisetum fluviatile*), watercress (*Nasturtium officinale*), slender rush (*Juncus tenuis*), marsh willowherb (*Epilobium palustre*) and redshank (*Persicaria maculosa*), as well as grey willow (*Salix cinerea*) and downy birch (*Betula pubescens*) saplings.



Plate 6-15 Area of Reed and large sedge swamp (FS1) in Glashabaun South.

6.3.2.1.8 Open water

Several areas of open water are present in the wettest and lower lying areas of the Application Site, often associated with poor fen and flush and reed and large sedge swamp communities, as outlined in the preceding sections. The areas of open water in these habitats were generally small in size at the time of survey but are subject to seasonal fluxes in water levels (Plate 6-16). Open water also occurs commonly within mosaics of bare peat where ground conditions naturally flood, as well as where deep excavations of peat have created permanent pools of water (Plate 6-17).

A larger area of open water is present in Ballydermot North (Plate 6-18) in which soft rush (*Juncus effusus*) and common reed (*Phragmites australis*) are growing at the edges. This area is surrounded by predominantly bare peat.



Plate 6-16 Areas of open water associated with pioneer Poor fen (PF2) communities in Derrybrennan Bog.



Plate 6-17 Area of open water where deep excavations have resulted in permanent pools of water in Glashabaun South bog.



Plate 6-18 Area of open water in Ballydermot North Bog, with little revegetation.

6.3.2.1.9 **Other artificial lakes and ponds (FL8)**

Silt ponds are present at various locations throughout the Application Site and have been classified as **Other artificial lakes and ponds (FL8)** (Plate 6-19). As bogs have been developed and the draining of areas of bog by gravity was no longer feasible, pumping stations were installed at several of these silt ponds in order to drain part or all of the catchment.



Plate 6-19 Pumping station and silt pond located in Ballydermot South Bog

6.3.2.1.10 Drainage ditches (FW4)

The Application Site is extensively drained with **Drainage ditches (FW4)** that run throughout the site. These channels range from approximately 0.5m in width up to 8m in width, with water flow generally very slow to stagnant and a silty peat substrate. Where the drains were more recently dug for peat extraction, the banks are generally devoid of vegetation, vertical-sided and over 1m deep (Plate 6-20), however over time many of the drains throughout the site have eroded, now with much shallower, vegetated banks (Plate 6-21). Common components of vegetated drains include bulrush (*Typha latifolia*), water mint (*Mentha aquatica*), marsh horsetail (*Equisetum palustre*), yellow flag iris (*Iris pseudacorus*), soft rush (*Juncus effusus*), toad rush (*Juncus bufonius*), lesser spearwort (*Ranunculus flammula*) and marsh pennywort (*Hydrocotyle vulgaris*), as well as floating vegetation including pondweeds (*Potamogeton* spp.) and common duckweed (*Lemna minor*). Small saplings of scrubby species such as grey willow (*Salix cinerea*), downy birch (*Betula pubescens*) and ling heather (*Calluna vulgaris*) were also regularly recorded as riparian vegetation.

The drains within large areas of Lodge Bog and Lullymore Bog have undergone drain blocking as part of peatland enhancement and rehabilitation measures.



Plate 6-20 Narrow, vertical-sided Drainage ditch (FW4) on bare peat in Blackriver.



Plate 6-21 Wet, vegetated Drainage ditch (FW4) with eroded banks in Ballydermot South Bog.

6.3.2.1.11 **Lowland depositing rivers (FW2)**

The Application Site is drained by a number of EPA mapped watercourses within and surrounding the site, as outlined in Section 6.3.1.3.1 above. These are classified as **Lowland depositing rivers (FW2)** and include a number of tributaries of the Figile River (Plate 6-22) and the Slate River which both discharge downstream into the River Barrow. The River Barrow is designated as the River Barrow and River Nore SAC approximately 9.7km south of the Application Site (approximately 20.8km downstream distance). A small tributary of the River Boyne is also present in the northernmost area of the Application Site, to the north of Ticknevin Bog.

These mapped watercourses have been modified and straightened in several areas in association with historical turbary activities within the Application Site. Detailed surveys of watercourses within and adjacent to the Application Site were undertaken by Triturus Environmental Ltd. as part of the baseline aquatic surveys, and are fully described in the Aquatic Baseline Report, which is included as Appendix 6-3 of this rEiAR.



Plate 6-22 Tributary of the River Figile, a Lowland depositing river (FW2), located in Blackriver Bog.

6.3.2.1.12 **Grassland Habitats**

Dry calcareous and neutral grassland (GS1)

Small areas of **Dry calcareous and neutral grassland (GS1)** were recorded growing along the decommissioned railway lines throughout the Application Site (Plate 6-23). These areas were frequently recorded as early recolonising habitats upon the calcareous substrate of the decommissioned railway lines (Plate 6-24). The lines have been removed in recent years, however the limestone gravel that formerly underlay the railway lines remains along many of its stretches, creating calcareous ground conditions.

A diversity of plant species were identified growing along these areas, predominantly comprising calcareous species along with a mixture of species characteristic of the surrounding scrub and peatland. These include yellow-wort (*Blackstonia perfoliata*), wild carrot (*Daucus carota*), glaucous sedge (*Carex flacca*), yellow mignonette (*Reseda lutea*), fairy flax (*Linum catharticum*), salad burnet (*Sanguisorba minor*), colt's foot (*Tussilago farfara*), ribwort plantain (*Plantago lanceolata*), black medick (*Medicago lupulina*), fern-grass (*Catapodium rigidum*), yarrow (*Achillea millefolium*), fireweed (*Chamaenerion angustifolium*), common knapweed (*Centaurea nigra*), silverweed (*Potentilla anserina*), common ragwort (*Jacobaea vulgaris*), yellow rattle (*Rhinanthus minor*), red fescue (*Festuca rubra*), glaucous sedge (*Carex flacca*), false oat grass (*Arrhenatherum elatius*), tormentil (*Potentilla erecta*), dandelion (*Taraxacum officinale*), wild strawberry (*Fragaria vesca*), purple moor grass (*Molinia caerulea*), yarrow (*Achillea millefolium*), bird's foot trefoil (*Lotus corniculatus*), sweet vernal grass (*Anthoxanthum odoratum*), quaking grass (*Briza media*), cow parsley (*Anthriscus sylvestris*), field horsetail (*Equisetum arvense*), cock's-foot grass (*Dactylis glomerata*), self-heal (*Prunella vulgaris*) and common centaury (*Centaureum erythraea*). The Red-listed species basil thyme (*Clinopodium acinos*) was also frequently recorded along the decommissioned railway lines, as described in Section 6.2.3.2 below. Few bryophytes such as slender ditrichum (*Flexitrichum gracile*), common pocketmoss (*Fissidens taxifolius*) and spiral extinguisher-moss (*Encalypta streptocarpa*) were also identified along these former railways. Small pockets of calcareous grassland were also infrequently recorded in scattered areas throughout the Application Site outside of these linear railways (Plate 6-25).



Plate 6-23 Area of Dry calcareous and neutral grassland (GS1) growing along a former railway line in Glashabaun North Bog.



Plate 6-24 Calcareous species recolonising along a former railway track adjacent to Edenderry Power Station.



Plate 6-25 Area of developed Dry calcareous and neutral grassland (GS1) in Ballydermot North Bog.

Dry meadows and grassy verges (GS2)

Small areas of dry grassland classified as **Dry meadows and grassy verges (GS2)** were encountered on the driest areas of cutover bog, frequently along the margins of existing machine tracks through cutover bog (Plate 6-26). The dominant grasses within this habitat across the Application Site were Yorkshire fog (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), rough meadow grass (*Poa trivialis*), purple moor grass (*Molinia caerulea*), creeping bent (*Agrostis stolonifera*), false oat grass (*Arrhenatherum elatius*), and quaking grass (*Briza media*). Other species commonly recorded within dry meadows included field horsetail (*Equisetum arvense*), silverweed (*Potentilla anserina*), meadowsweet (*Filipendula ulmaria*), cat's-ear (*Hypochaeris radicata*), knapweed (*Centaurea nigra*), meadow vetchling (*Lathyrus pratensis*), creeping cinquefoil (*Potentilla reptans*), coltsfoot (*Tussilago farfara*), tormentil (*Potentilla erecta*), great willowherb (*Epilobium hirsutum*), creeping thistle (*Cirsium arvense*), dandelion (*Taraxacum officinale*), creeping buttercup (*Ranunculus repens*), common ragwort (*Jacobaea vulgaris*), common hogweed (*Heracleum sphondylium*), bittersweet nightshade (*Solanum dulcamara*), devil's bit scabious (*Succisa pratensis*), spear thistle (*Cirsium vulgare*), bird's foot trefoil (*Lotus corniculatus*), common chickweed (*Stellaria media*), common spotted orchid (*Dactylorhiza fuchsii*), fragrant orchid (*Gymnadenia conopsea*), meadow thistle (*Cirsium dissectum*), ribwort plantain (*Plantago lanceolata*), fairy flax (*Linum catharticum*), carnation sedge (*Carex panicea*), hedge bindweed (*Calystegia sepium*), tufted vetch (*Vicia cracca*), fireweed (*Epilobium angustifolium*), common centaury (*Centaureum erythraea*), groundsel (*Senecio vulgaris*), field scabious (*Knautia arvensis*), lady's bedstraw (*Galium verum*) and hemp agrimony (*Eupatorium cannabinum*) (Plate 6-27). This habitat was regularly recorded as a mosaic with Scrub (WS1), with brambles (*Rubus fruticosus*), nettles (*Urtica dioica*), downy birch (*Betula pubescens*), grey willow (*Salix cinerea*), and ling heather (*Calluna vulgaris*) encroaching.



Plate 6-26 Grassy verges (GS2) present at the edges of existing machine tracks in Blackriver Bog.



Plate 6-27 Dry meadows and grassy verges (GS2) growing in association with Dense bracken (HD1) near the margins of Codd 2 Bog

Wet grassland (GS4)

Areas of cutover bog that have begun to revegetate with **Wet grassland (GS4)** were recorded within small areas of the Application Site. These habitats are most commonly dominated by purple moor grass (*Molinia caerulea*) (Plate 6-28). Other species recorded within revegetating wet grasslands commonly include jointed rush (*Juncus articulatus*), water mint (*Mentha aquatica*), sweet vernal grass (*Anthoxanthum odoratum*), Yorkshire fog (*Holcus lanatus*), marsh thistle (*Cirsium palustre*), cat's-ear (*Hypochaeris radicata*), yellow sedge (*Carex viridula*), glaucous sedge (*Carex flacca*), wild carrot (*Daucus carota*), colt's foot (*Tussilago farfara*) and more rarely wild angelica (*Angelica sylvestris*), common valerian (*Valeriana officinalis*), spear thistle (*Cirsium vulgare*), redshank (*Persicaria maculosa*), brooklime (*Veronica beccabunga*), knotgrass (*Polygonum aviculare*), slender St John's-wort (*Hypericum pulchrum*), groundsel (*Senecio vulgaris*) and common spotted orchid (*Dactylorhiza fuchsii*).

Areas of semi-improved wet grassland associated with agriculture also occur around the peripheries of the Application Site.



Plate 6-28 Area of purple moor grass (*Molinia caerulea*) dominated Wet grassland (GS4) that has recolonised cutover bog in Blackriver Bog.

Amenity Grassland (GA2)

Small areas of **Amenity grassland (GA2)** are associated with Premier Tyres Factory in the east of the site.

6.3.2.1.13 **Dense bracken (HD1)**

Areas of the habitat **Dense bracken (HD1)** are dominated by the fern bracken (*Pteridium aquilinum*). This habitat occurs in small pockets throughout the Application Site, along the edges of roads and tracks through the site, as well as in rides between areas of Bog woodland (WN7) (Plate 6-29).



Plate 6-29 Dense bracken (HD1) present within a ride between areas of Bog woodland (WN7) in Ballydermot North.

6.3.2.1.14 **Conifer plantation (WD4)**

A large area of **Conifer plantation (WD4)** managed by Coillte is located in the east and northeast of the site, within Killina, Lullybeg, Glashabaun South and other areas of Conifer plantation habitat are present in Derrybrennan and Ballydermot North Bogs. A number of forestry sub-compartments are present in this area, with the coniferous components of the plantations comprising mixes of sitka spruce (*Picea sitchensis*), Norway spruce (*Picea abies*), lodgepole pine (*Pinus contorta*), Corsican pine (*Pinus nigra*), and Monterey pine (*Pinus radiata*), with varying percentages of broadleaves including willows (*Salix* spp.), birches (*Betula* spp.), and oaks (*Quercus* spp.). These plantations are of mixed maturity, with planting dates between 1983 and 2019.

6.3.2.1.15 **Buildings and artificial surfaces (BL3)**

A number of existing public and private paved roads are present through the Application Site, and are classified as **Buildings and artificial surfaces (BL3)**. These include the L1001/L3001 local road that traverses the centre of the site in a north-south direction, as well as the R414 which traverses the eastern section of the site, to the west and north of Lodge Bog. A smaller gravel access road is also located in the southwest of the site (Plate 6-30), however this road deteriorates to Recolonising bare ground (ED3) as it traverses north.

The main access road to the Application Site is located to the north of this power station and overlaps with the existing access road to Cushaling Wind Farm station for a distance of approximately 850m (Plate 6-32).



Plate 6-30 Existing gravel road located in Ballydermot North, classified as Buildings and artificial surfaces (BL3).



Plate 6-31 Edenderry Power Station (background) in the west of the site is classified as Buildings and artificial surfaces (BL3).



Plate 6-32 The existing access road to Cushaling Wind Farm, classified as Buildings and artificial surfaces (BL3).

6.3.2.1.16 **Spoil and bare ground (ED2)**

A number of narrow, existing gravel access tracks are present throughout the Application Site and are classified as **Spoil and bare ground (ED2)** (Plate 6-33).



Plate 6-33 A small access track classified as Spoil and bare ground (ED2)

6.3.2.1.17 **Recolonising bare ground (ED3)**

Where these areas of Spoil and bare ground (ED2) have been left undisturbed, they have transitioned into **Recolonising bare ground (ED3)**. A large area of this habitat is present along the main access road in the west of the Application Site, where recolonising plants are underlain by dense wood chippings (Plate 6-34).

This habitat is also present in Ballydermot South Bog, where the species broadleaf plantain (*Plantago major*), jointed rush (*Juncus articulatus*), black medick (*Medicago lupulina*), devil's-bit scabious (*Succisa pratensis*), rough meadow grass (*Poa trivialis*), sweet vernal grass (*Anthoxanthum odoratum*), yarrow (*Achillea millefolium*) and cat's-ear (*Hypochaeris radicata*) have begun to recolonise (Plate 6-35).



Plate 6-34 Area of Recolonising bare ground (ED3) in the west of the site.



Plate 6-35 Area of Recolonising bare ground (ED3) in Ballydermot South.

6.3.2.1.18 Hedgerows (WL1) and Treelines (WL2)

Hedgerow (WL1) and **Treeline (WL2)** habitats make up a very small proportion of the habitats within the Application Site. Short hedgerows of grey willow (*Salix cinerea*) are located in the west of the Application Site, adjacent to Edenderry Power Station (Plate 6-36). As outlined in Section 6.3.2.1.4 above, many of the linear treelines within the Application Site, which are largely associated with drainage ditches, are over 4m in width and are therefore included as linear stretches of bog woodlands (WN7).



Plate 6-36 Short grey willow (*Salix cinerea*) Hedgerow (WL1) in the west of the Application Site

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730,000

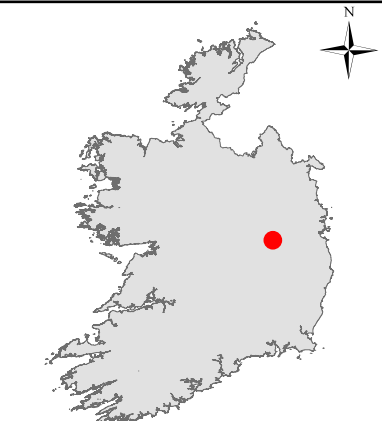
725,000



Map Legend

- Application Site Boundary
- BC1
- BL3
- ED3
- FL1
- FL8
- FS1
- FW2
- FW4
- GA1
- GA2
- GM1
- GS1
- GS2
- GS3
- GS4
- HD1
- HH1
- HH3
- PB1
- PB4
- PF1
- PF2
- WD1
- WD4
- WL1
- WL2
- WN2
- WN7
- WS1
- WS2
- Works Areas (can contain BL3, ED2, ED3, WS1, GS, HD1)

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator



SITE LOCATION - NOT TO SCALE

Drawing Title		
Habitats		
Project Title		
Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly		
Project No.	Drawing No.	Scale
250709	6-5	1:40,000
Drawn By	Checked By	Date
AMcL	JB	14/08/2026



Email: info@mkofireland.ie / Website: www.mkofireland.ie

665,000

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6.3.2.2 Protected, Rare and Threatened Flora

Two species listed on Ireland's Red List of Vascular Plants (Wyse Jackson *et al.*, 2016) were identified within the Application Site. Round-leaved wintergreen (*Pyrola rotundifolia* subsp. *rotundifolia*) was identified within Codd 2 Bog (Plate 6-58). This species is listed as Near Threatened (NT) on the Red List of Vascular Plants.

Basil thyme (*Clinopodium acinos*) was identified within Barnaran Bog and in several other locations throughout the Application Site within Ballydermot North, Ballydermot South, Blackriver, Codd 1, Glashabaun North, Glashabaun South and Lodge Bogs. This species was recorded particularly along the limestone gravel trackways associated with former Bord na Móna railways through the Application Site (Plate 6-59). This species is also listed as Near Threatened (NT) on the Red List of Vascular Plants.

No species protected under the Flora (Protection) Order 2022 were identified within the Application Site.



Plate 6-37 Round-leaved wintergreen (*Pyrola rotundifolia* subsp. *rotundifolia*).

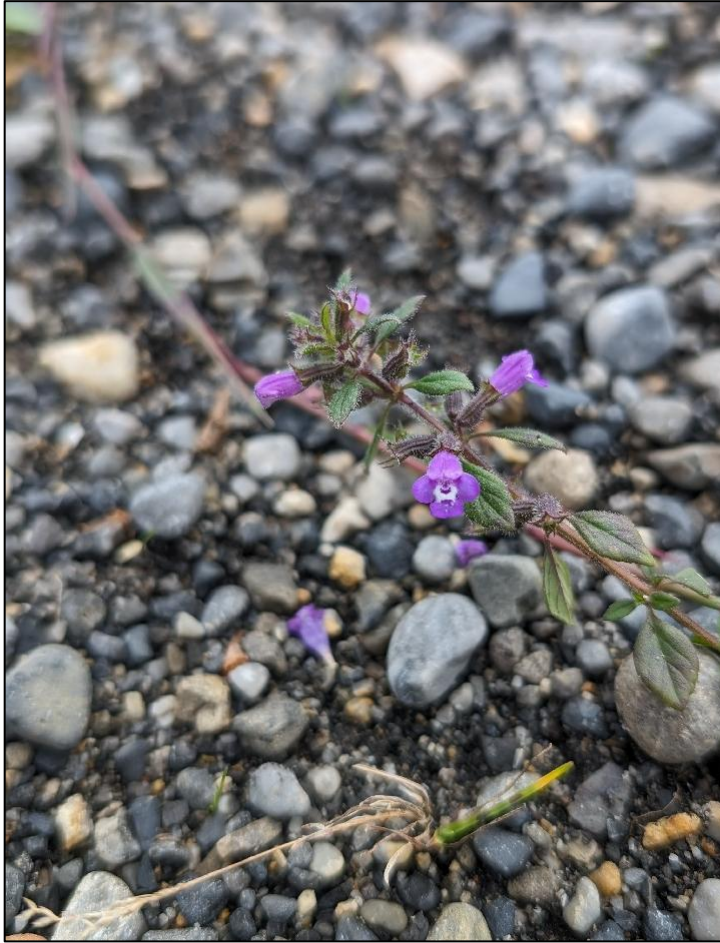


Plate 6-38 Basil thyme (*Clinopodium acinos*) growing along a former railway track in Glashabaun North Bog

6.3.2.3 Invasive Species

One invasive plant species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011, as amended) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was recorded during the surveys of the Application Site. Japanese knotweed (*Reynoutria japonica*) was identified growing on the margins of an unnamed watercourse located along the southwestern boundary of Ticknevin Bog. Two large, mature stands were identified in this location, which were flowering at the time of survey. Evidence of local spread was observed, with a number of immature individual saplings recorded up to 120m from the main stands.

Several medium to large stands of Japanese knotweed were also identified approximately 830m to the west of the Application Site boundary, along an existing access track in the west of Ticknevin Bog. This access track is used for ongoing turbary activities in the area. Many of these stands were in flower at the time of survey.

In addition, the non-native invasive plant species cherry laurel (*Prunus laurocerasus*), butterfly bush (*Buddleja davidii*), montbretia (*Crocsmia x crocosmiiflora*) and wall cotoneaster (*Cotoneaster horizontalis*) were also each recorded once within the Application Site, in Killina, Glashabaun North, Barnaran and Lodge Bogs, respectively. These species are not listed under the Third or First Schedules.



Plate 6-39 Japanese knotweed (*Reynoutria japonica*) located along an access track in the northernmost portion of the site.

6.3.2.4 Evaluation of Habitats

1988 Baseline

As much of the Application Site would have been drained by the 1988 baseline and characterised by dominant cutover bog, the habitats present then would have been similar to those present today, predominantly cutover bog with sections of remnant raised bog and scrub. The cutover bog habitat at the Application Site would have comprised predominantly of bare peat where large sections of the bogs had been drained and vegetation removed. The ecological evaluations of the habitats within the Application Site would have been the same as those provided below for the Current Phase habitats.

Peat Extraction Phase Habitats

During the Peat Extraction Phase, the Application Site was actively managed for industrial peat production. The habitats present at that time were similar to those currently present, consisting predominantly of cutover bog and early successional habitats subject to ongoing disturbance, with small areas of remnant raised bog. As such, the ecological evaluations of the habitats during this phase would align with those provided below for the Current Phase.

Current Phase Habitats

Ecological evaluation follows a methodology that is set out in Chapter 3 of the TII Ecological Impact Assessment Guidelines (TII, 2009). The habitats within and adjacent to the Application Site were evaluated in accordance with the criteria developed by TII (2009), which classifies sites in terms of their ecological importance, *i.e.* 'International Importance', 'National Importance', 'County Importance', 'Local Importance (Higher Value)' or 'Local Importance (Lower Value)'.

Following the extensive surveys that were undertaken, it is concluded that the habitats of highest ecological significance within the Application Site are those that are most closely associated with the remnant fragmented areas of raised bog habitat. The areas of marginal remnant raised bog habitat have been assigned **County Importance** as they contain the only remaining examples of raised bog habitat in the area and although predominantly degraded and dry, some areas of remnant raised bog, particularly at Ballydermot South and Ticknevin, have potential to correspond to the Annex I habitat 'Degraded

raised bog still capable of natural regeneration'. These areas are a small remnant of the entire area of raised bog that would have dominated the Application Site prior to the commencement of peat extraction and ancillary activities. Large sections of remnant raised bog within the Application Site have been subject to drainage. The vast majority of the areas of remnant bog within the Application Site are small in size, degraded, largely dry underfoot and with little to no Sphagnum cover, however wetter areas of remnant raised bog are present at locations throughout the site, and the area of intact raised bog at Ticknevin west of the Edenderry Road represents the best remaining example within the Application Site.

Cutover bog and the secondary habitats recorded on the cutaway sections of the Application Site including bog woodland and scrub, mosaics of *Calluna*-dominated communities and poor fen with some open water habitats and embryonic Sphagnum communities are assigned **Local Importance (Higher Value)**. This is on the basis that they consist of a large area of semi-natural habitats with a high biodiversity value in the local context but do not correspond to habitats that are listed on Annex I of the EU Habitats Directive. The bog woodland within the Application Site is generally dry underfoot with little to no Sphagnum cover and does not correspond to the Annex I habitat Bog woodland (91D0).

In Ireland there is currently no recognition or definition of Annex I Active Raised Bog (7110) on cutover raised bog. NPWS (2019) states '*Although ARB is currently described as confined to the high bog, surveys in recent years have indicated the occurrence of peat-forming vegetation on cutover areas at some sites. These areas occasionally correspond to regenerating ombrotrophic vegetation characterised by Sphagnum cover greater than 40–50%, but they generally lack the diversity and abundance of Sphagnum species, micro-topographical features and good quality indicators associated with ARB. These cutover areas have the capacity to develop into embryonic ARB but longer time periods (50-100 years) are likely to be required for high quality ARB to develop*'. The majority of the cutover habitats within the Application Site generally did not support high *Sphagnum* cover (40% or more) and where Sphagnum was abundant on cutover habitats, the habitats lacked other indicator species and microtopographical features associated with active raised bog.

The cutover bog habitats on the site do not correspond to either Active Raised Bog (7110) or Degraded Raised Bog still capable of Natural Regeneration (7120). The NPWS Article 17 Reporting for 2019 states:

"In an Irish context, ARB (which is currently defined as occurring only on the high bog) encompasses active peat --forming ecotopes (central and sub-central) as defined by Kelly (1993) and Kelly & Schouten (2002), and actively peat --forming flushes."

The 2025 Article 17 Report (NPWS 2025) recognises the publication of the classification and appraisal system for cutover raised bog habitats (Smith et al. 2020). Regarding this system it is stated,

This is the first time that ARB has been recognised as occurring on cutover in the Irish context. In general, however, regenerating ombrotrophic vegetation on cutover characterised by a high Sphagnum cover (i.e. greater than 40- 50% cover), lacks the diversity of Sphagnum species, microtopographical features and good quality indicators associated with ARB. These cutover areas have the capacity to develop into embryonic ARB but longer time periods (>30 years) are likely to be required for high quality ARB to develop.

With regard to the definition of Degraded Raised Bog (DRB), the 2025 Article 17 Report states,

Currently cutover areas are not considered to support DRB. However, the potential of cutovers to support peat-forming vegetation is recognised. Potential peat-forming habitat (PPFH) on cutover is defined using similar methods to that for DRB on the high bog. PPFH is not included under the definition of DRB as it is believed that these areas will require periods longer than 30 years to develop into ARB.

These Annex I habitats do not occur on the cutover habitats in the Application Site. They do not conform to Annex I Heath habitat as defined by the Irish Wildlife Manual (Perrin *et.al.* 2014). As stated by Smith *et al.* (2020):

Cutover bog habitats should only rarely be considered examples of dry siliceous heath (HH1) or wet heath (HH3). These habitats are defined by peat depths of less than 0.5 m (Fossitt, 2000), which seldom occur on cutover bog. Only where a habitat is underlain by shallow peat and good indicators of heath are present, such as Carex binervis, Galium saxatile and Juncus squarrosus, should heath habitats be considered for cutover bog.'

In light of the above, given the habitat history, peat depth in this area and the plant species present, the *Calluna*-dominated communities do not correspond with Annex I habitat.

The bare peat habitats and drainage ditches throughout the Application Site are of low ecological significance in their current state and have been assigned **Local Importance (Lower Value)**. However, following cessation of peat extraction, the bare peat habitats will inevitably revegetate in a similar manner to the rest of the Application Site. Small natural watercourses, including streams and rivers draining the Application Site have been assigned **Local Importance (Higher Value)** in line with the Aquatic Survey report (Appendix 6-3).

Two species listed as Near Threatened (NT) on Ireland's Red List of Vascular Plants (Wyse Jackson *et al.*, 2016) were recorded within the Application Site during 2024 surveys: round-leaved wintergreen basil thyme, recorded at several locations throughout the site, particularly along limestone gravel trackways associated with former BnM railways. It is noted that while basil thyme was listed on the Flora Protection Order 1999, it is not listed on the Flora (Protection) Order 2022. No species protected under the Flora (Protection) Order 2022 were recorded within the Application Site. Both red-listed species are assigned **Local Importance (Higher Value)**.

6.3.2.5 Fauna in the Existing Environment

The following subsections provide the results of the faunal surveys undertaken within the Application Site during the site visits and assessments as outlined in Section 6.2.3.

6.3.2.6 Non-Volant Mammals

Irish hare (*Lepus timidus* subsp. *hibernicus*) was frequently documented across the Application Site, both through observations of individuals as well as identification of scat. This species is likely to be breeding within the site.

Signs of fox (*Vulpes vulpes*) were also recorded within the Application Site through sightings and identification of scat. On one occasion, three individual fox cubs were observed playing adjacent to an area of bog woodland in Codd 2 Bog. A fox and cub were also regularly observed commuting past the trail camera set up at the active badger sett northwest of Glashabaun South.

Deer tracks were also identified within the Application Site, to the north of Ballydermot North Bog, adjacent to the existing track, and in Lullybeg Bog.

6.3.2.6.1 Badger

One active badger sett was identified within the Application Site, in an area of bog woodland in Glashabaun North bog, (Plate 6-48). This sett consisted of three sett entrances which showed signs of recent activity, with entrances being well worn with signs of freshly dug earth, and two potential sett entrances which showed low to moderate signs of use. Trail cameras were deployed to monitor this sett for activity and it was found to be active with a minimum of three badgers present, including at least

one juvenile. This sett was therefore classified as a main sett as per Smal (1995)⁹ and may potentially be used as a breeding sett.

Trail camera footage from 20th of June to 19th July 2022 showed extensive footage of badger activity at the sett locations. A minimum of two adult badgers were recorded and two cubs. Some evidence of aggressive behaviour was recorded, which indicates breeding behaviour and presence of cubs, particularly due to the time of year, as cubs are born towards the end of January (NRA 2006).

Evidence of badger activity also recorded within the Application Site included foraging signs in several areas across the site and a potential attempted burrow dig within bog woodland to the northwest of Ballydermot South Bog. The area of bog woodland was searched thoroughly for badger, however, no setts were identified.



Plate 6-40 Badger sett entrance in the northwest of Glashabaun North Bog

⁹ Smal, C. (1995) *The Badger and Habitat Survey of Ireland. Unpublished Report to the Department of Agriculture and the National Parks & Wildlife Service.*

6.3.2.6.2 Otter

Desk-based review identified that otter are widespread in wider area surrounding the Application Site. Watercourses within and adjacent to the Application Site provide suitable habitat for otter.

No otter resting or breeding sites were recorded within the Application Site. Potential otter slides were identified near the watercourse crossing located northeast Ballydermot North, however no holts, spraints, couches or any other evidence of breeding otter were identified within the area or across the rest of the site.

An otter was also observed as an incidental record during bird surveys on a single occasion within the Application Site, within a large drain through Lodge Bog. This drain was searched thoroughly for otter breeding sites, however, no holts were identified.

During otter surveys carried out by Triturus Environmental Ltd. (full results and survey site locations in Appendix 6-3), evidence of otter presence was recorded at a number of locations as follows:

- A latrine and prints were identified at survey site B2. This survey location is situated outside of the Application Site, within the River Barrow. This is located downstream of watercourses which flow through the Application Site.
- A spraint site was identified at survey site C2. This survey location is situated outside of the Application Site within the Slate River. This is located downstream of watercourses which flow through the Application Site.
- A regular otter spraint site was identified at survey site A14, under the bridge (ITM 665011, 725886). This survey site is located on the Figile River, immediately south of Edenderry Power Station.
- An otter spraint site was recorded at survey site A15, on a boulder under the bridge (ITM 661001, 726836). This survey site is located at Cushaling Bridge along the L3001 road.

No otter holts were identified during any of the surveys undertaken.

6.3.2.6.3 Pine Marten

Pine marten have been observed in several locations across the Application Site as incidental records during the extensive breeding and wintering bird surveys carried out across the site in 2023 and 2024. Sightings of the species occurred to the northwest of Derrybrennan Bog, southwest and northwest of Glashabaun North, southwest of Derrybrennan Bog, north of Ticknevin Bog, and in Killina Bog.

A pine marten was also observed commuting past the trail camera set up at the active badger sett northwest of Glashabaun South.

No dens were recorded within the Application Site.

6.3.2.6.4 Irish Stoat

Irish stoat (*Mustela erminia* subsp. *hibernica*) was observed as an incidental record during bird surveys on a single occasion within the Application Site, in Lullybeg adjacent to the site boundary.

No breeding sites for Irish stoat were recorded within the Application Site.

6.3.2.6.5 Bats

The results of bat desk study and surveys undertaken at the Application Site are described in full in the Bat Report in Appendix 6-2 and summarised below. Six bat species (including *Myotis* spp. as a genus) were recorded across the Application Site. No bat roosts were identified within the Application Site boundary, and the site overall provides suboptimal roosting opportunities.

Roost Surveys

Daytime Roost Inspections

A total of 68 structures were recorded during the desktop study, historically associated with peat extraction and ancillary activities. These include workshops, works offices, welfare facilities and railway infrastructure such as bridges and culverts. Of these, 38 structures remain present within the Application Site. These structures are outlined in detail with photos included in Appendix 6-2. No evidence of bat roosts was identified at any of the structures during the inspections.

Ground-level Tree Assessments

Trees within these bog woodlands, conifer plantations and treelines were assessed for their potential to support roosting bats. These assessments considered key factors such as tree size, presence of cavities, cracks, or crevices, and other structural features typically associated with bat roosting. Although no confirmed roosts or Potential Roost Features (PRF) were identified within the Application Site during the 2024 and 2026 surveys, areas of more mature woodland at the bog margins and along established treelines are considered to provide comparatively greater potential for opportunistic roosting opportunities than the wider open bog landscape.

The trees and associated woodland habitats at the Application Site were assessed as having *None* to *Low* suitability to host roosting bats.

Manual Activity Surveys

Manual transect surveys were undertaken in spring, summer, and autumn 2024. Bat activity was recorded across all survey periods, with a total of 406 bat passes recorded. Common pipistrelle was the most frequently recorded species (n=184), followed by soprano pipistrelle (n=161) and Leisler's bat (n=59). Brown long-eared bat and *Myotis* spp. were rarely recorded (n=1 for both).

Bat activity levels varied between seasons. Soprano pipistrelle showed highest activity in summer (3.8 passes/km), with reduced activity in autumn (0.6 passes/km). Common pipistrelle activity peaked notably in summer (6.3 passes/km), with lower activity in spring (0.7 passes/km) and autumn (0.04 passes/km). Leisler's bat was most active in summer (1.7 passes/km), with lower levels in spring (0.4 passes/km) and autumn (0.2 passes/km). Activity by *Myotis* spp. and brown long-eared bat was minimal across all survey periods.

Ground-level Static Surveys

Ground-level static detectors were deployed across the Application Site during spring, summer, and autumn 2024. In total, 84,138 bat passes were recorded across all deployments. Common pipistrelle was the most frequently recorded species (n=39,702), followed by soprano pipistrelle (n=22,118) and Leisler's bat (n=20,428). *Myotis* spp. (n=1,192), brown long-eared bat (n=355), and Nathusius' pipistrelle (n=343) were recorded at considerably lower levels.

Bat activity, expressed as bat passes per hour (bp/h), was highest during summer (153.75 bp/h median), followed by autumn (100.80 bp/h) and spring (52.60 bp/h). Common pipistrelle dominated

activity across all seasons, accounting for 42.4%, 43.8%, and 56.8% of bat passes in spring, summer, and autumn respectively. Soprano pipistrelle was the second most active species in spring (33.2%) and autumn (24.4%), while Leisler's bat was notably active in summer (29.3%). *Myotis* spp. increased across the seasons (spring to autumn), while brown long-eared bat and *Nathusius*' pipistrelle were consistently recorded at low levels throughout.

6.3.2.6.6 Birds

A description of bird species recorded during ornithological surveys undertaken at the Application Site from 2020 to 2026 is included in Appendix 6-4, including Figures of locations. The species recorded were predominantly typical of cutover bog and surrounding habitats.

The target species listed below were recorded within the Application Site during the ornithological surveys. The list is ordered in accordance with conservation significance: Annex I species, SCIs of designated sites, Red listed species and raptors.

- > Common Crane (Annex I)
- > Golden Plover (Annex I)
- > Great White Egret (Annex I)
- > Greenland White-fronted Goose (Annex I)
- > Hen Harrier (Annex I)
- > Kingfisher (Annex I & SCI species of the River Boyne & River Blackwater SPA)
- > Little Egret (Annex I)
- > Merlin (Annex I)
- > Nightjar (Annex I)
- > Peregrine (Annex I)
- > Red Kite (Annex I)
- > Short-eared Owl (Annex I)
- > White-tailed Eagle (Annex I)
- > Whooper Swan (Annex I)
- > Barn Owl (BoCCI Red Listed)
- > Curlew (BoCCI Red Listed)
- > Grey Partridge (BoCCI Red Listed)
- > Kestrel (BoCCI Red Listed)
- > Lapwing (BoCCI Red Listed)
- > Redshank (BoCCI Red Listed)
- > Snipe (BoCCI Red Listed)
- > Woodcock (BoCCI Red Listed)
- > Buzzard (Raptor)
- > Hobby (Raptor)
- > Long-eared Owl (Raptor)
- > Sparrowhawk (Raptor)
- > BoCCI Red listed passerine species (Grey Wagtail, Meadow Pipit, Redwing, Stock Dove, Swift, Whinchat, Yellowhammer)

Whooper swan were recorded roosting across 13 areas within the Application Site over the six winter seasons surveyed. Roosting flocks varied considerably between seasons, with peak counts of up to 131 birds recorded in Winter 2025/26 and 117 birds in Winter 2023/24. Roost locations shifted between seasons in response to the managed flooding of the bogs, and no single roost area was used consistently across the survey period.

Golden plover were the most frequently recorded Annex I species, observed on 746 occasions. The species was recorded predominantly between September and April, with 78 observations of flocks landing on bog within or adjacent to the Application Site. Roosting flocks of up to 1,500 birds were recorded.

Hen harrier were regularly recorded commuting and hunting within or adjacent to the Application Site, with 210 total observations. Eleven confirmed roost events were recorded at various locations within or adjacent to the site across the survey period, however, no regularly used roost site was identified within the Application Site boundary.

Peregrine falcon were regularly recorded commuting, hunting and perching within or adjacent to the Application Site, with 214 total observations. A nest box located 660 m from the Application Site boundary was confirmed as a breeding site in 2020, 2022, 2023 and 2025, with breeding probable in 2021 and 2024. An additional probable breeding territory was identified approximately 1.7 km from the Application Site boundary in 2024.

Merlin were regularly recorded commuting, perching and hunting within or adjacent to the Application Site, with 83 total observations. Observations of juvenile birds in 2022 and 2024 indicate breeding in the wider area, although no confirmed breeding territories were identified within the Application Site boundary.

Kingfisher were recorded commuting, perching and foraging within or adjacent to the Application Site on 65 occasions. Kingfisher is a SCI species of the River Boyne & River Blackwater SPA.

Little egret were recorded commuting, perching and foraging within or adjacent to the Application Site on 70 occasions, with up to seven birds in a single observation. Great White Egret were recorded on two occasions, comprising individual birds commuting within or adjacent to the Application Site in December 2025 and February 2026.

Short-eared owl were recorded commuting within or adjacent to the Application Site on nine occasions, with one bird observed leaving a roost within the Application Site in November 2023. White-tailed eagle were recorded on five occasions, comprising individual birds commuting or calling within or adjacent to the Application Site.

Greenland white-fronted goose were recorded on two occasions, comprising flocks of four and 104 birds commuting over the Application Site in November 2023 and March 2024.

Common crane were recorded on three occasions in August 2024, comprising a single individual that landed within the Application Site. The bird was recorded on three separate occasions during the same day.

Nightjar were recorded on one occasion, comprising a single bird calling within the Application Site in June 2023. No further records were obtained despite dedicated follow-up Nightjar surveys in the area.

Red kite were recorded on one occasion, comprising a single bird commuting within the Application Site in October 2020.

Kestrel were the most frequently observed Red Listed raptor, recorded on 541 occasions. Confirmed and/or probable breeding territories were identified in all six breeding seasons (2020–2025), with the number of territories ranging from five in 2020, 2021 and 2023 to eight in 2024. All seven territories identified in 2025 were within the Application Site.

Lapwing were recorded on 340 occasions, including roosting flocks of up to 350 birds. Breeding was recorded in all six seasons surveyed (2020–2026), with the number of estimated breeding pairs increasing from a minimum of seven pairs in 2020 to a minimum of 24 pairs across 14 breeding areas in 2025. In 2026, three probable breeding areas and a minimum of three pairs were identified within the Application Site.

Snipe were regularly recorded commuting, calling and being flushed throughout the survey period, with 2,274 observations recorded in total. Probable breeding Snipe were identified in all areas of suitable habitat within the Application Site across all survey years.

Woodcock were regularly recorded during dedicated breeding surveys, with probable breeding confirmed in all areas of suitable habitat within the Application Site across all survey years. The majority of observations comprised male birds roding.

Barn owl were recorded commuting, perching and foraging within or adjacent to the Application Site on 38 occasions. Breeding was confirmed at a structure 487 m from the Application Site boundary in 2021 and 2022. No breeding activity was recorded at this location in 2024 or 2025. An active nest was confirmed at a separate location approximately 1.5 km from the Application Site boundary in 2025.

Curlew were recorded on 63 occasions, with observations of up to eight birds commuting and calling within or adjacent to the Application Site. Birds were observed in both the breeding and non-breeding seasons, with 49 and 14 observations in each season respectively. Probable breeding behaviour was observed in 2020 and 2023 at a historically known nest site, and at one additional location within the Application Site in 2021, however, breeding was not confirmed at any location despite targeted survey effort.

Redshank were recorded on one occasion, comprising a single bird flushed from within the Application Site in May 2021. Grey Partridge were recorded on two occasions, comprising a single bird within the Application Site in June 2020 and October 2022.

Buzzard were regularly recorded commuting, hunting and soaring within or adjacent to the Application Site, with 3,215 observations recorded across the survey period. Confirmed and/or probable breeding territories were identified in all six breeding seasons. The number of territories ranged from nine in 2022 to 18 in 2024. In 2025, 13 territories were identified, all within the Application Site, comprising five confirmed and eight probable breeding territories.

Sparrowhawk were regularly recorded commuting, hunting and soaring within or adjacent to the Application Site, with 544 observations. Confirmed and/or probable breeding territories were identified in all six breeding seasons, with between two and seven territories recorded per year. In 2025, five territories were identified (all confirmed), three of which were within the Application Site.

Long-eared owl were recorded on 33 occasions, including during dedicated nocturnal surveys. Confirmed breeding territories were identified within the Application Site in 2021 and 2023, and adjacent to the Application Site in 2020 and 2024.

Hobby were recorded on one occasion, comprising a single bird commuting within the Application Site in July 2020.

Shoveler were recorded on one occasion, comprising a single bird on water within the Application Site in November 2022. Lesser black-backed gull were recorded on 197 occasions. The majority of observations comprised birds travelling or circling overhead, with 12 observations of birds landing, foraging or roosting within, or adjacent to, the Application Site. Of the 197 observations, 74 occurred during winter seasons.

The BoCCI Red Listed passerine species grey wagtail, meadow pipit, redwing, stock dove, swift, whinchat and yellowhammer were recorded during the surveys. Meadow pipit was the most frequently recorded, observed on 2,579 occasions with up to 116 birds recorded. Yellowhammer were recorded on 544 occasions with up to 12 birds, and swift on 301 occasions with up to 60 birds. Redwing were recorded on 173 occasions with a maximum count of 165 birds. Grey wagtail, whinchat and stock dove were recorded less frequently, on 21, four and three occasions respectively.

Full details of the results of the ornithological surveys are included in Appendix 6-4.

6.3.2.7 Marsh Fritillary

Over 150 marsh fritillary larval webs were recorded during the dedicated larval web surveys, with the most webs in Lullmore/Lullybeg Bogs. Larval webs were also recorded in Ballydermot North and South, Blackriver, Glashabaun North and Barnaran Bogs.



Plate 6-41 Marsh fritillary larval web identified within the Application Site.

6.3.2.8 Reptiles and Amphibians

As outlined in the desk study, common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) have been recorded within hectads N62, N63 and N72 in which the Application Site is located, while common lizard (*Zootoca vivipara*) has also been recorded within hectad N72.

Common frog was recorded on a number of occasions throughout the site. The species is likely to breed in the drainage ditches, wetlands and waterlogged areas within the Application Site.

Smooth newt, while not recorded during the surveys of the site, is likely to occur within the site. This species is found in a range of wetland habitats including marshes, bogs, ponds and drains¹⁰. As such, the Application Site provides abundant suitable habitat for this species and it is likely found throughout the site.

In relation to common lizard, although not recorded on site there is suitable habitat for this species. Common lizard hibernate throughout October to March, often in groups. The species can be found in

¹⁰ <https://www.arguk.org/info-advice/id-guides/529-dragons-in-the-hills-the-amphibian-and-reptiles-of-northern-ireland/file> [Accessed 18/11/2024]

a range of habitats including woodlands, marshes, heathlands, bogs and hedgerows¹¹. They have a preference to hibernate in sheltered frost-free spots, under rubble or stones, or old tree roots and in hedge banks¹². Suitable habitats were recorded within the Application Site in the form of scrub and *Calluna*-dominated communities, and as such is likely present within the site.

In addition to these native species, the non-native species slow worm (*Anguis fragilis*) was also recorded on two occasions within the Application Site, to the south of Codd 1 along an existing track, and south of Codd 2 being carried as prey by a buzzard. This reptile was first introduced to Ireland in the early 20th century¹³ and is not protected under Irish or EU law.

6.3.2.9 Fisheries and Aquatic Fauna

Full details of results of aquatic surveys undertaken in July-August 2024 are provided in the Aquatic Baseline Report (Appendix 6-3) and are summarised in this section. Previous surveys undertaken during 2021 in relation to the Application Site were also considered in this report. All survey locations (n=22) are shown in Figure 2-1 of the Aquatic Baseline Report (Appendix 6-3). The following summary has been extracted from the baseline report.

6.3.2.9.1 Watercourses

The surveyed watercourses in the vicinity of the Application Site were typically small lowland channels draining areas of peatland that experienced low summer flows. Historical drainage pressures (straightening, deepening) and ongoing peat escapement (siltation) had significantly reduced the quality of aquatic habitats and biological water quality on the majority of surveyed watercourses. Sites were often evaluated as *Local Importance (lower value)*. However, in keeping with previous 2021 surveys, several species of high conservation value were recorded in the survey area, including Annex II Atlantic salmon, lamprey (*Lampetra* sp.) and otter as well as Red-listed European eel. This resulted in the aquatic evaluation of 10 no. sites on the Figile River (A8, A14, A15, A18), Lullymore East River (A11), Clonkeen Stream (B1), River Boyne (B2), Slate River (C2) as *Local Importance (higher value)*.

6.3.2.9.2 Fish Species

The following paragraphs summarise the fish species that were found during the aquatic baseline surveys. The below paragraphs should be read in conjunction with Figure 2-1 (survey locations) in the Aquatic Baseline Report (Appendix 6-3). Siltation and eutrophication pressures were significant throughout much of the survey area and were evidently contributing to a reduction in the quality of fisheries habitat, particularly for salmonids and lamprey:

- Salmonid populations were restricted in their distribution, with low densities of brown trout (*Salmo trutta*) being recorded from a total of 6 no. sites on the Figile River (A8, A14, A18), Lullymore East River (A11), River Boyne (B2) and the Slate River (C2). Annex II Atlantic salmon (*Salmo salar*) were only recorded from sites A18 on the Figile River (Millgrove Bridge) and C2 on the Slate River (Agar Bridge).
- As per previous surveys, lamprey ammocoetes (*Lampetra* sp.) were only recorded from a single site on the River Boyne at Kishawanny Bridge (B2), where low densities were present. The quality of lamprey habitat was generally poor across the survey area given widespread hydromorphological and siltation pressures.
- Red-listed European eel (*Anguilla anguilla*) were also restricted in their distribution, being recorded from sites A11 on the Clonkeen Stream (a Figile tributary) and B2 on the River Boyne.

¹¹ <https://iwt.ie/wp-content/uploads/2017/09/WL42-Lizzards-eng.pdf> [Accessed 18/11/2024]

¹² <https://www.arguk.org/info-advice/id-guides/529-dragons-in-the-hills-the-amphibian-and-reptiles-of-northern-ireland/file> [Accessed 18/11/2024]

¹³ <https://biodiversityireland.ie/seeking-out-irelands-fragile-snakes/> [Accessed 18/11/2024]

6.3.2.9.3 White-clawed crayfish & crayfish plague

Despite local habitat suitability and numerous available records within the study area, including on the Figle and Slate rivers (1986-2020), no white-clawed crayfish were recorded during the 2024 survey. No crayfish were recorded during the previous 2021 surveys (Triturus, 2021). The limited distribution would appear to be reflective of not only peat harvesting and historical drainage pressures but also of the spread of crayfish plague. The Boyne catchment suffered crayfish plague outbreaks in the late 1980s (Demers *et al.*, 2005) and in more recent years, crayfish plague has been confirmed on the Slate River in the vicinity of Rathangan (NPWS, 2019). However, white-clawed crayfish were detected via eDNA sampling on the Figle River as recently as 2020 (near Bracknagh) as part of the National Crayfish Plague Surveillance Programme (NCPSP), although most crayfish records within the wider survey area are from 2015 or before (NPWS, EPA & Triturus data).

6.3.2.9.4 eDNA analysis

No white-clawed crayfish, crayfish plague or freshwater pearl mussel eDNA was detected in composite water samples collected from the Figle River (sites A15 & A18), River Boyne (B2) or Slate River (C2). These results were considered as evidence of the species' absence at or upstream of the sampling locations.

6.3.2.9.5 Kick-sampling and Q-Value

The following summarise the results of kick-sampling and Q-Value evaluation carried out:

No rare or protected macro-invertebrate species (according to national red lists) were recorded in the biological water quality samples taken from a total of 24 no. wetted riverine sites in July-August 2024, i.e. none of greater than Least Concern.

None of the survey sites achieved greater than Q3-4 (moderate status) and thus all failed to meet the target good status ($\geq Q4$) requirements of the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 and the Water Framework Directive (2000/60/EC). Whilst not all of the current survey sites were directly comparable to previous surveys (Triturus, 2021), biological water quality results were broadly similar in the wider survey area (i.e. less than good status). Low summer flows and hydromorphological modifications often resulted in tentative Q-ratings for the survey sites, as per the guidelines of Toner *et al.* (2005). In general, the biological water quality of the survey area was of poor status (Q2-3 or Q3) with significant siltation, eutrophication and hydromorphological impacts evidently contributing to a reduction in aquatic habitat quality. Arterial drainage (hydromorphological) and peat harvesting have been identified as the major pressures impacting water quality in the upper Barrow and Boyne catchments (EPA data¹⁴) and this was observed during the current and previous surveys.

6.3.2.10 Other Fauna

Other faunal species observed during site surveys include the following: comma butterfly, meadow brown butterfly, ringlet butterfly, silver-washed fritillary butterfly, small copper butterfly, peacock butterfly, small heath butterfly, meadow brown butterfly, common blue butterfly, small tortoiseshell butterfly, green veined white butterfly, orange tip butterfly, buff-tailed bumblebee, common carder bee, emperor dragonfly, common hawker dragonfly, four-spotted chaser dragonfly, common darter dragonfly, blue-tailed damselfly, common blue damselfly, variable damselfly, azure damselfly and tiger beetle.

¹⁴ www.catchments.ie/data/

665,000

670,000

730,000

725,000

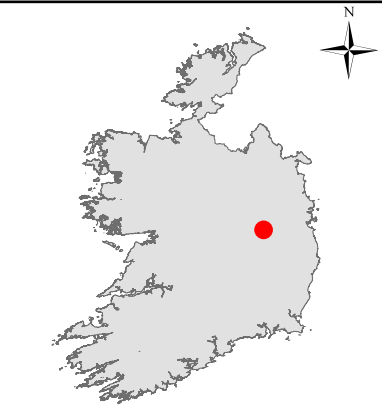
665,000

670,000

Map Legend

- Application Site Boundary
- Larval Webs
- Marsh Fritillary Habitat

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
Datum: IRENET95
Projection: Transverse Mercator



SITE LOCATION - NOT TO SCALE

Drawing Title		
Marsh Fritillary Habitat and Larval Webs		
Project Title		
Peat Extraction at Ballydermot, Co. Kildare and Co. Offaly		
Project No.	Drawing No.	Scale
250709	6-6	1:40,000
Drawn By	Checked By	Date
TS	JB	31/07/2026



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6.3.3 Identification of Key Ecological Receptors (KERs)

The preceding sections have provided data on the ecology of Application Site through desk studies and field surveys, which have helped inform the 1988 baseline, as well as the current ecology baseline of the Application Site. Using the 1988 baseline and the additional information data above, Table 6-22 identifies all receptors from all three phases of the Project (Peat Extraction Phase, Current Phase, and Remedial Phase) and assigns them an ecological importance in accordance with the TII Ecological Impact Assessment Guidelines (TII, 2009). This table also provides the rationale for this determination and identifies the habitats and species that are Key Ecological Receptors (KERs). These likely significant effects on receptors identified as KERs is considered in Section 6.4 of this report.

Table 6-22 Key Ecological Receptors identified during the assessment

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
Designated Sites	Nationally Designated Sites The following pNHAs are located within or downstream of the Application Site via watercourses draining the Application Site. These sites have been assessed as of National Importance in line with TII (2009) guidelines as they are proposed as Natural Heritage Areas (NHA). ➤ The Long Derries, Edenderry pNHA ➤ Grand Canal pNHA Taking a precautionary approach, the above listed downstream pNHAs were identified in Table 6-6 above as occurring within the Zone of Influence and are included as a KER.	Yes	Peat Extraction Phase Current Phase Remedial Phase
	European Designated Sites The following Special Area of Conservation (SAC) and Special Protection Area (SPA) are located within or downstream of the Application Site via watercourses draining the Application Site that ultimately discharge to the River Barrow. They are identified in the AA Screening as being within the Likely Zone of influence and are assessed fully in the rNIS that accompanies this Substitute Consent application: ➤ The Long Derries, Edenderry SAC ➤ River Barrow and River Nore SAC These sites are assigned International Importance and included as a KER as a potential pathway for indirect effects on these sites via water pollution was identified. Refer to the rNIS submitted as part of this Substitute Consent application for full details. The Long Derries, Edenderry SAC was proposed as a Site of Community Importance (SCI) in 1997 under the EU Habitats Directive. It was subsequently designated as a Special Area of Conservation (SAC) in Irish law in 2016 through S.I. No. 528/2016. The River Barrow and River Nore SAC was proposed as a Site of Community	Yes	Peat Extraction Phase Current Phase Remedial Phase

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
	Importance (SCI) in 2002 under the EU Habitats Directive. It was subsequently designated as a Special Area of Conservation (SAC) in Irish law in 2024 through S.I. No. 648/2024. Therefore these European sites would not have been assessed as Internationally Important at the 1988 baseline.		
Aquatic Habitats and Related Species	Drainage Ditches The Application Site is drained by numerous drainage ditches. These are small man-made channels that are often devoid of vegetation and regularly maintained or choked with vegetation and are slow flowing. These drains are assigned Local Importance (Lower Value) .	No	N/A
	Rivers and Streams (Including FW2) The Application Site drains via a network of watercourses including the Figile River, Slate River, Abbeylough Stream, Lullymore East Stream, Lullybeg Stream, Clonbrown Stream and associated tributaries. These rivers and streams have been assigned Local Importance (Higher Value) in that whilst many are highly modified where they adjoin the Application Site, they are conduits to waterbodies with a high biodiversity value in the local area. They also provide a conduit to downstream designated sites of national and international importance.	Yes	Peat Extraction Phase Current Phase Remedial Phase
	Aquatic and Fisheries Species The aquatic species that are associated with the rivers and streams located within and surrounding the Application Site are assigned Local Importance (Higher Value) in that they have a high biodiversity value in the local context. There is potential for indirect effect on these receptors in the form of water pollution. These species include salmonid and coarse fish, white-clawed crayfish (<i>Austropotamobius pallipes</i>), lamprey species, European eel (<i>Anguila anguila</i>), aquatic invertebrates and other aquatic species.	Yes	Peat Extraction Phase Current Phase Remedial Phase
Uncut Raised Bog	Raised Bog (PB1) Areas of remnant uncut raised bog that are located primarily at the peripheries of the Application Site are assigned County Importance . This is because the larger areas of this habitat, i.e. those >30ha in size which contain drains which have been or could be blocked and which support typical bog vegetation, are considered to conform to the Annex I Habitat 'Degraded Raised Bog still Capable of Natural Regeneration (7120)'. Areas of remnant raised bog within the Application Site are considered to have potential to correspond to Annex I ARB [7110], particularly towards the central sections of the large remnant areas, such as in Clonroos Bog in Ballydermot South.	Yes	Peat Extraction Phase Current Phase Remedial Phase

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
Cutover Bog and Associated Secondary Habitats	Bare Peat (PB4) The bare peat habitats are of low ecological importance in their current state and have been assigned Local Importance (Lower Value) .	No	N/A
	Calluna-dominated Communities on Cutover Bog This habitat is assigned Local Importance (Higher Value) . This is on the basis that it consists of semi-natural (although they have arisen due to past human activities and drainage of the bog) habitats with a high biodiversity value in the local area but does not correspond to habitats that are listed on Annex I of the EU Habitats Directive.	Yes	Peat Extraction Phase Current Phase Remedial Phase
	Bog Woodland (WN7) and Pioneering Scrub (WS1) These habitats are assigned Local Importance (Higher Value) . This is on the basis that they consist of semi-natural habitats with a high biodiversity value in the local area but do not correspond to habitats that are listed on Annex I of the EU Habitats Directive. Note: The bog woodland within the Application Site does not correspond to the Annex I Habitat Bog Woodland (91D0).	Yes	Peat Extraction Phase Current Phase Remedial Phase
	Poor Fen and Flush (PF2) This habitat is assigned Local Importance (Higher Value) . This is on the basis that it consists of semi-natural (although they have arisen due to past human activities and drainage of the bog) habitats with a high biodiversity value in the local area but do not correspond to habitats that are listed on Annex I of the EU Habitats Directive.	Yes	Peat Extraction Phase Current Phase Remedial Phase
	Reed and Large Sedge Swamp (FS1) This habitat is assigned Local Importance (Higher Value) . This is on the basis that it consists of semi-natural (although they have arisen due to past human activities and drainage of the bog) habitats with a high biodiversity value in the local area but do not correspond to habitats that are listed on Annex I of the EU Habitats Directive.	Yes	Peat Extraction Phase Current Phase Remedial Phase
	Dense Bracken (HD1) This habitat is assigned Local Importance (Lower Value) . It is common and widespread across the Application Site and the wider area, occurring in small pockets along road and track edges and in rides between areas of bog woodland. It is of low biodiversity value and is unlikely to be significantly impacted. Dense bracken is not included as a KER.	No	N/A

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
	Open Water and Other Artificial Lakes and Ponds (FL8) Areas of open water within the Application Site are generally small in extent and transient in nature, associated with lower-lying areas of cutover bog. Silt ponds present throughout the Application Site are artificial features installed as part of peat extraction infrastructure. Given the absence of significant or permanent areas of open water habitat within the Application Site, and the artificial nature of the silt ponds, these habitats are assigned Local Importance (Lower Value) and are not included as a KER	No	N/A
Grassland Habitats	Dry Calcareous and Neutral Grassland (GS1), Wet Grassland (GS4), Dry Meadows and Grassy Verges (GS2) These habitats have been assessed as of Local Importance (Higher Value) due to their role in supporting local biodiversity and contributing to habitat diversity within the Application Site. These habitats are largely associated with artificial site access tracks, are common and widespread in the wider area and are unlikely to be significantly impacted. For this reason, they have not been identified for further assessment and are not a KER.	No	N/A
	Amenity Grassland (GA2) This habitat is common and widespread in the wider area. The habitat has been assessed as Local Importance (Lower Value) as it is highly modified and of low biodiversity value. For this reason, is has not been identified for further assessment and is not a KER.	No	N/A
Conifer Plantation	Conifer Plantation (WD4) A large area of Conifer plantation (WD4) managed by Coillte is located in the east and northeast of the site, within Killina, Lullybeg, Glashabaun South and other Conifer plantation habitat is present in Derrybrennan and Ballydermot North Bogs. This habitat is of low biodiversity value in its current state and is common and widespread in the wider area. Conifer plantation is assigned Local Importance (Lower Value) and is not included as a KER	No	N/A
Bare Ground, Recolonising Bare Ground and Buildings and Artificial Surfaces	Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3) and Buildings and Artificial Surfaces (BL3) These habitats are common and widespread in the wider area. The habitats have been assessed as of Local Importance (Lower Value) as they are largely associated with artificial site access tracks and are of low biodiversity value. For this reason, they have not been identified for further assessment and are not included as a KER.	No	N/A

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
Hedgerows and Treelines	Hedgerows (WL1) and Treelines (WL2) These habitats have been assessed as of Local Importance (Higher Value) due to their role in supporting local biodiversity and contributing to habitat diversity and connectivity at the Application Site. These habitats make up a very small proportion of the habitats within the site and are present at the peripheries. They are common and widespread in the wider area and are unlikely to be significantly impacted. For this reason, they have not been identified for further assessment and are not included as a KER.	No	N/A
Protected, Rare and Threatened Flora	Two species listed on Ireland's Red List of Vascular Plants were identified within the Application Site. Round-leaved wintergreen and basil thyme. These species are of Local Importance (Higher Value) due to their Near Threatened, red-listed statuses. They were present historically in flora records for the relevant hectads (in 1987-1999 and Pre 1970). Basil thyme was previously recorded on surveys carried out by BnM in 2011, as well as blue fleabane, both of which were listed on the Flora Protection Order at that time but are not on the Flora Protection Order (2022). The spread of basil thyme and blue fleabane across the wider BnM railway network is considered to originate from the previous use of the Long Derries as a BnM gravel pit. Therefore, the construction of infrastructure associated with peat extraction and ancillary activities is likely to have resulted in the presence of this species. Significant impacts on these species during the Peat Extraction Phase and Current Phase are therefore considered unlikely. While decommissioning of railway infrastructure during the Remedial Phase has the potential to disturb the gravel embankment habitat supporting basil thyme and blue fleabane, the populations within the Application Site are secondary in nature, having established on artificial substrates as a consequence of peat extraction infrastructure. The primary designated source population at the Long Derries SAC will remain intact and protected, and both species are considered capable of natural recolonisation of suitable substrate. Therefore, these species are not included as a KER.	No	N/A
Otter	In July 1988 the Application Site would likely have supported similar populations of otter as it does today. There is likely to be a regularly occurring population utilising the watercourses within and downstream of the Application Site. While no holts or resting places were recorded, evidence of otter within and adjacent to the Application Site were recorded during surveys. Otters can utilise extensive territories, (approximately $7.5 \pm 1.5\text{km}$ for females and $13.2 \pm 5.3\text{km}$ for males (O'Neill, 2008)). On a precautionary basis, it is considered that otters potentially using watercourses within or	Yes	Peat Extraction Phase Current Phase Remedial Phase

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
	downstream of the Application Site may be associated with River Barrow and River Nore SAC (hydrological distance of approximately 17km). They are therefore assessed as being of International Importance. Peat extraction and ancillary activities at the Application Site are likely to have had indirect effects on otter as a result of deterioration in water quality (supporting habitat) or disturbance/displacement during peat extraction and ancillary activities. Therefore, otter is included as a KER.		
Badger	Although a badger sett was recorded within the Application Site, the Application Site in its unmodified state, as an active raised bog prior to peat extraction and ancillary activities, is unlikely to have supported significant woodland and scrub habitat suitable for badger habitat. Badger has been assessed as of Local Importance (Higher Value) due to its legal protection status and the confirmed presence of a sett within the Application Site. Whilst some limited potential badger habitat may have been present in 1988, there is unlikely to have been any significant loss of badger habitat as a result of peat extraction and ancillary activities since 1988 as the most suitable habitat would have occurred in areas of woodland at bog margins. It is likely that the dry bog woodland which has since regenerated on many areas of the cutover bog provides more suitable badger habitat than would have existed had peat extraction and ancillary activities not been undertaken prior to 1988. Therefore it is considered that there was no potential for likely significant effects. The implementation of the rehabilitation plans for the Application Site are unlikely to have a significant effect on this species. While there will be rewetting in areas, other parts of the bog will remain dry and continue to develop as woodland and scrub. Badger is therefore not included as a KER.	No	N/A
Bats	Bat species have been assessed as of Local Importance (Higher Value) as they represent a resident or regularly occurring populations assessed to be important at the local level and are listed in Annex IV of the EU Habitats Directive. Significant suitable habitat for bat species is unlikely to have existed at the Application Site in its unmodified state. The linear landscape features currently present within the Application Site as secondary habitats of cutover bog, including woodland and scrub habitat, have come about as a result of natural revegetation of the cutover bog following cessation of peat extraction. These areas of woodland and scrub provide foraging and commuting habitat for bats species would have been largely absent in remnant uncut raised bog and large areas of bare peat that would have existed in the July 1988 baseline environment. As no significant roosting habitat for bats was recorded on the	No	N/A

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
	Application Site and as the rehabilitation plans for the Application Site are unlikely to result in significant impacts on bat species, bats are not included as a KER. Additionally, whilst the Application Site may have provided some sub-optimal foraging or commuting habitat for bats in the form of raised bog, the majority of this habitat was removed prior to the 1988 baseline.		
Bird Species	In July 1988 the Application Site would likely have supported populations of bird species similar to those present today and typical of cutover bog habitats. Based on the bird species assemblages from the Bird Atlases and recorded utilising the Application Site during breeding and wintering bird surveys undertaken by MKO in 2020-2025, birds have been assigned County Importance. Peat extraction and ancillary activities had the potential to result in negative effects on bird species utilising the cutover habitats of the Application Site (including any areas of remnant raised bog that have subsequently been subject to peat extraction and ancillary activities) as a result of habitat loss, disturbance and direct mortality. Therefore, birds are included as a KER.	Yes	Peat Extraction Phase Current Phase Remedial Phase
Marsh Fritillary	The Application Site contains suitable marsh fritillary habitat, particularly within the grassy verges running parallel to tracks. During the targeted marsh fritillary surveys, a large number of larval webs were recorded in multiple bogs within the Application Site. Marsh fritillary has been assessed as being of Local Importance (Higher Value) due to the presence of suitable habitat and the conservation status of the species. Peat extraction and ancillary activities are unlikely to have resulted in loss of marsh fritillary habitat within the Application Site. The Application Site in its unmodified state, i.e. active raised bog, prior to peat extraction, is unlikely to have supported significant habitat for this species. Remnant raised bog habitat within the Application Site does not support areas of devil's bit scabious (the larval food plant for marsh fritillary). The construction of infrastructure associated with peat extraction and ancillary activities, particularly the removal of raised bog habitat and creation of railway lines, resulted in the creation of areas of cutover bog habitat and grassland. These habitats, where they support devil's bit scabious provide suitable habitat for this species. The majority of the works which would have resulted in the creation of grassland and cutover bog habitat within the Application Site occurred prior to 1988. Therefore, significant impacts, either positive or negative, on this receptor are unlikely to have occurred during the Peat Extraction Phase and Current Phase.	No	N/A

Ecological feature or species	Reason for inclusion as a KER	KER	Phase (s) During Which Feature is a KER
	The implementation of the rehabilitation plans for the Application Site during the Remedial Phase is unlikely to have a significant effect on this species, either positively or negatively. While there will be rewetting in sections of the Application Site, as part of the Remedial Phase, the majority of the identified marsh fritillary habitat was recorded along tracks and as small fragmented islands on revegetated bare peat. Given that suitable habitat is predominantly found adjacent to roads, the decommissioning and rehabilitation during the Remedial Phase are unlikely to impact the habitat. Therefore, this species is not included as a KER.		
Reptiles and Amphibians	Common frog, smooth newt and common lizard have been recorded within the hectads in which the Application Site is located. Common frog was recorded on a number of occasions throughout the Application Site during surveys and is likely to breed in the drainage ditches, wetlands and waterlogged areas present across the site. Smooth newt was not recorded during surveys but is considered likely to occur given the abundance of suitable wetland habitat including marshes, bogs, ponds and drains throughout the Application Site. Common lizard was not recorded during surveys but suitable habitat in the form of scrub and <i>Calluna</i>-dominated communities is present within the Application Site and the species is considered likely to occur. In July 1988 the Application Site would likely have supported populations of reptiles and amphibians similar to those present today, utilising wetland, <i>Calluna</i>-dominated communities and scrub habitats at the margins of the active production bog. Peat extraction and ancillary activities may have resulted in localised disturbance or displacement of these species, however suitable habitat is present in the wider area and no significant population-level effects are anticipated. All three species are common and widespread in Ireland and none are listed as threatened on the relevant Irish Red Lists. No evidence of populations of significance above local level was recorded. Reptiles and amphibians are therefore assigned Local Importance (Lower Value) and are not included as a KER.	No	N/A
Additional Fauna Species (e.g. Irish hare, fox etc).	The recorded evidence suggests that the Application Site is not utilised by populations of higher than local significance and no potential for significant effects have been identified at the population level. The Application Site surveys did not identify any other protected faunal species populations with the potential to be significantly affected by peat extraction and ancillary activities at the population level. Other faunal species are not considered further in this rEIR. Significant effects are not anticipated.	No	N/A

6.4 Ecological Impact Assessment

6.4.1 'Do-Nothing' Effect

As outlined in the EPA Guidelines (2022), the description of 'Do-Nothing Effects' relates to the environment as it would be in the future should the Project not be carried out. The assessment period of this rEIAR commenced in 1988, a time at which peat extraction and ancillary activities were already well-established at the Application Site. In the context of this rEIAR, the Project has been ongoing since the baseline assessment year of 1988. Peat extraction and ancillary activities commenced at the Application Site in 1935 with the installation of drainage.

The 'Do-Nothing' option is defined as the Project (as described in Section 4.2 of Chapter 4) 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 within the Application Site, 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. P0503-01 and associated ongoing decommissioning and planned rehabilitation would not have occurred.

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

Peat extraction and ancillary activities were 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 BnM 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 on site did not arise until 2019 and was not evident in 1988.

Therefore, this 'Do-Nothing' option was not the chosen option. Peat extraction and all ancillary works occurred at the Application Site from July 1988 onwards. A decision to cease peat extraction at the Application Site was taken in 2020 and the Application Site needs to be considered in the context of regularising (without prejudice) the planning status of the lands to facilitate future development (subject to planning consent as required). The Application Site has and will continue to revegetate, and there will be a change from areas of cutover peatland to revegetated peatland, as described in Section 4.8 of Chapter 4. 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 BnM'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.

6.4.2 Likely Significant Effects

6.4.2.1 Peat Extraction Phase: July 1988 – June 2020

The following sections describe the likely significant effects of peat extraction and ancillary activities at the Application Site on Key Ecological Receptors (KERS) during the Peat Extraction Phase which includes all works undertaken from July 1988 to the cessation of peat extraction in June 2020.

By 1988, peat extraction and ancillary activities were well established at the Application Site. Milled peat extraction, under the same processes described in Chapter 4 (Section 4.2.2), continued at the Application Site from 1988 until 2019. Sod moss extraction continued on the Application Site from 1988 to 2019 and bin sod from 2000 to 2019 at which point peat extraction paused across the Application Site until June 2020 where extraction commenced again for 3 weeks before ceasing permanently. Improvements and modernisation of machinery occurred between 1988 and 2020 which increased the efficiency and speed of operations over this time period. There were significant developments in diesel-powered engines which would have resulted in the use of more fuel-efficient tractors on the Application Sites with significantly cleaner exhaust emissions compared to the baseline year of 1988 or pre-1988.

The deepening and maintenance of drainage channels continued beyond 1988, up until the cessation of peat extraction in June 2020. As the areas subject to peat extraction from 1988 to June 2020 reduced in their extent (refer to Section 4.5.1 in Chapter 4 of this rEiAR) and the depth of peat available was subsequently reducing after each harvest, the extent and number of drains requiring deepening and maintenance reduced accordingly. Drainage was only inserted in one area of the Application Site during the Peat Extraction Phase, in Clonroosk in the southwest of Ballydermot South Bog.

During the latter part of the 1988 to 2020 assessment period (i.e., from late 1990s/2000 onwards), peat extraction gradually slowed down and then ceased permanently in June 2020 across the Application Site, with a corresponding reduction in fuel handling/refuelling, machinery maintenance and stockpile development.

Peat extraction maps for the years 1988, 1995, 2004, and 2020 are presented in Figure 4-6 to Figure 4-9 in Chapter 4, and illustrate the extent of extraction activity at the Application Site over time. Corresponding aerial images for the years 1995, 2004, and 2019 are included in Appendix 4-5.

6.4.2.1.1 Effects on Habitats

Table 6-23 below describes the likely significant effects of peat extraction and ancillary activities during the Peat Extraction Phase (July 1988 to June 2020) on the remnant uncut raised bog and cutover bog and associated secondary habitats at the Application Site.

Table 6-23 Likely significant effects on uncut raised bog and cutover bog and associated secondary habitats

Description of Effect	Since 1988, the main activities at the Application Site have included peat extraction, drainage and vegetation clearance/stripping. These activities have been largely confined to the area already affected by the original cutting and drainage which took place across the Application Site at different stages between 1935 and 1973. The impact of such activities was primarily the impediment and retardation of natural vegetation succession of the cutover bog and bare peat habitats present within the Application Site through continued operation.
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	The mosaic of habitats that existed on the Application Site predominantly includes the following: > Cutover bog > Poor fen > Bog woodland > Scrub > <i>Calluna</i>-dominated communities > Improved grassland > Conifer plantation > Remnant uncut raised bog In addition to the retardation of natural vegetation succession across the cutaway bog, there would also have been loss of an area of highly degraded, drained but uncut raised bog in Codd 1. This area had been drained by 1988 but peat extraction did not commence until post 1988. The drainage of Clonroosk (Ballydermot South, 78 ha drained area) which was first drained during this phase would also have resulted in the degradation of approximately 78ha of remnant undrained and uncut raised bog. Clonroosk was drained in 2013 but was never subject to peat extraction, with rehabilitation works to block the drains completed by 2014. Areas of remnant uncut raised bog which contain drains which have been or could be blocked, and which support typical bog vegetation, are considered to have potential to conform to the Annex I Habitat 'Degraded Raised Bog Still Capable of Natural Regeneration (7120)'. An area of bog at Clonroosk was mapped as Annex I Raised bog (active)(7110) in 2013.
Assessment of Significance prior to control measures	Following the initial drainage and cutting that occurred at the Application Site primarily between 1935 and 1973, the ongoing peat extraction and ancillary activities since 1988 are unlikely to have resulted in significant effects on the remaining bog habitats, which were highly modified from their natural state and in general of lower biodiversity value than the intact raised bog habitats that would have been on site prior to peat extraction and ancillary activities. It is considered that there would have been a long-term, negative effect, not significant at any geographic scale. With respect to Clonroosk, the installation of drainage in this area of remnant raised bog in 2013 is likely to have resulted in a significant negative effect on the habitat at that location.
Control Measures	No control measures were in place between July 1988 and June 2020 to mitigate against or compensate for the loss of uncut raised bog and cutover bog and associated secondary habitats

6.4.2.1.2 Effects on Water Quality and Aquatic Fauna

This section assesses the potential for likely significant effects on water quality and aquatic receptors including aquatic habitats (i.e. watercourses) and species including salmonids, lamprey, coarse fish, European eel, aquatic invertebrates including white-clawed crayfish and freshwater pearl mussel and other aquatic species identified as occurring within or likely to occur downstream of the Application Site.

Table 6-24 Likely significant effects on Aquatic Habitats and Related Species

Description of Effect	The Application Site is drained predominantly by a number of small streams and rivers within the River Barrow catchment, discharging ultimately to the River
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	Barrow. Although a small area of Ticknevin Bog lies within the River Boyne catchment, drainage from this area is directed south to the Figile River catchment, and there is no surface water discharge from the Application Site to the River Boyne.. The effects on water quality are fully described in Chapter 8 Hydrology and Hydrogeology of this rEiAR and are described here in relation specifically to ecology. Suspended Solids Taking 1988 as the baseline, peat extraction and ancillary activities which were undertaken at different times and at different levels of intensity throughout the Application Site, from July 1988 until the cessation of peat extraction in June 2020, are likely to have resulted in indirect effects on aquatic receptors within and downstream of the Application Site in the form of water pollution in particularly suspended solids. During this time there would have been potential for indirect effects on aquatic receptors in the form of deterioration of water quality of the watercourses within and downstream of the Application Site (and therefore degradation of supporting habitat for aquatic fauna) due to the release of pollutants such as suspended solids. This would have occurred primarily during the construction of drainage channels, removal of surface vegetation and during peat extraction itself. During the Peat Extraction Phase, there was also an ongoing risk of elevated concentrations of suspended solids making their way into downstream surface watercourses from the erosion of peat sediment via the bog drainage network. In addition, the release of dissolved nutrients, principally ammonia, resulting from the rapid breakdown of organic matter within peat once exposed to air, could also have resulted in deterioration of water quality of watercourses within and downstream of the Application Site. Within the Application Site, the first silt ponds were constructed prior to 1988. Some improved sediment control measures were installed at the Application Site in the late 1990s and early 2000s. Since 2000, the Application Site has been regulated by the EPA under IPC Licence Ref. P0503-01 and has been subject to the conditions of that licence which include emission limit values for suspended solids and other nutrients. Accidental Leakages and Spillage of Hydrocarbons During the Peat Extraction Phase there would also have been potential for pollution of surface water bodies and groundwater due to the accidental spillage of hydrocarbons during refuelling of machinery and plant. Discharges from wastewater systems (septic tanks) at office buildings, and at production centres and workshops could potentially also have caused surface and groundwater contamination. A review of available AERs (Annual Environmental Reports submitted to the EPA under the IPC licences included as Appendix 4-4 of this rEiAR) reports that no significant pollution events/spills to surface or groundwater have occurred since 2000 (refer to Chapter 8 Hydrology and Hydrogeology). Note: Whilst this impact assessment is in the aquatic habitats section, it also assesses the impact of the activities on aquatic species including salmonids, lamprey, coarse fish, European eel, aquatic invertebrates and other aquatic species. The activities would have had no direct impact on the aquatic habitat of these species and there is no potential for disturbance. The only pathway for effect to occur is as a result of water pollution and this is discussed in this section in relation to habitats and species.
Assessment of Significance prior to control measures	In the absence of mitigation , the indirect effect of water pollution on aquatic receptors during peat extraction and ancillary activities is likely to have been a significant, long-term, negative and indirect effect. These effects are considered to have arisen primarily from increased suspended solids and nutrients associated

	with bog drainage and peat extraction and ancillary activities. The greatest effects would have occurred in the receiving streams closer to the Application Site, with the significance of effects decreasing progressively downstream along each waterbody. There was also potential for pollution of surface water and groundwater due to accidental spillages of hydrocarbons during refuelling of machinery and discharges from wastewater systems at site facilities. The effect of such spillages is considered to have been a significant, long-term, negative, indirect and unlikely effect on surface water quality and downstream aquatic ecosystems.
Control Measures	Suspended Solids <u>Pre-IPC Licence</u> Prior to the regulation of activities at the Allen Bog Group by the EPA which commenced in 2000, the Applicant was implementing several control measures to protect surface water quality in downstream waterbodies. These measures primarily relate to the concentrations of suspended sediments in discharge from the bog and are summarised below: ➤ Internal drains cleaned on a regular basis in suitable weather. This was completed to remove sludge from the bottom of ditches, allowing them to retain full functionality. The sludge was disposed of by spreading it on the adjacent production fields where it was dried and harvested; ➤ Drain maintenance was carried out using draglines and excavators, ensuring that these drains were fit for purpose; ➤ Drain maintenance was carried out mainly prior to and post the harvesting season. ➤ Silt ponds were utilised to control the amount of sediment being discharged at outfalls. At this time, silt ponds were designed for an upper limit of 100mg/l suspended sediment; ➤ Silt ponds were upgraded in the 1990s to cater for the settling of sufficient amount of silt. This often included the construction of a second silt pond adjacent to the first, which was used as a backup and to facilitate desludging of the primary pond; and, ➤ Silt ponds were deslugged twice per annum. <u>Active IPC Licence:</u> The Application Site has been regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000. The drainage system in place at the bog comprises field drains, main drains, piped drains, silt ponds upstream of outfall locations, is designed to prevent the release of elevated concentrations of suspended sediments into nearby surface waterbodies. As part of the IPC Licence, there is a limit of 35mg/l for suspended solids. Monitoring only recorded 3 no. exceedances at the Application Site from a total of 124 no. samples from 2000 to 2024). Existing control measures which were implemented under the IPC licence are also designed to limit runoff rates from the bog units. These include: ➤ Silt ponds to attenuate surface water and limit runoff during periods of intense rainfall; and, ➤ Continuous mitigation included maintaining the schedule of cleaning the silt ponds at a minimum of twice per year. Accidental Leaks and Spillages <u>Pre IPC Licence</u>

Prior to the regulation of activities at the Application Site by the EPA which commenced in 2000, the Applicant was implementing several control measures to reduce the risk of contamination by spills and leakages. These measures primarily relate to the storage of peat harvesting machinery, refuelling procedures and waste management. These measures are summarised below and outlined in full in Chapter 4 at Section 4.3:

- All machinery were stored local holding areas or at the Ballydermot Works at the end of each workday;
- All machinery were regularly inspected, serviced and cleaned. Cleaning was completed at a wash bay which drained towards an interceptor tank and associated soak pit;
- Where possible all refuelling was completed at the Ballydermot Works;
- In the event that on-site refuelling was required, it was done with a mobile fuelling unit;
- In the event of an emergency spill, the following procedures were in place:
 - The General Manager (GM) was immediately informed of the incident.
 - The spill was assessed by the GM to assess the potential for environmental and/or health consequences.
 - The spill would have been sourced, isolated and contained with polystyrene booms or dry peat.
 - Every effort would have been made to prevent the spill from entering the nearest drain or outfall.
 - Once the spill was contained, a suitable absorbent (typically dry peat) was used to soak the spillage.
 - Follow up measures were taken to prevent such a spillage recurring in the future.
 - In the event of a spillage the GM notified the local authority.
- All waste oil and break fluids drained from machinery were collected in drums and emptied into a waste oil storage tank which were transported off-site by a licenced disposal contractor;
- All used oil and fuel filters and used batteries were collected by licenced disposal and battery collection contractors respectively; and,
- All washing from the self-contained machine parts washer was collected within a sludge tank at the Ballydermot Works.

Active IPC Licence:

The refuelling procedures and control measures implemented by the Applicant were upgraded and enhanced in order to comply with IPC licence conditions with the Application Site being regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000. No additional control measures, other than compliance with the control measures regulated by the EPA, are considered necessary in terms of protecting groundwater quality. The list below outlines control measures conditioned under the IPC licencing regime, as regulated by the EPA:

- Effective spill/leak management of mobile fuelling units was undertaken;
- Replacement (and remediation where necessary) of all underground fuel tanks was undertaken;
- There were no other emissions to water of environmental significance;
- All tank and drum storage areas were rendered impervious to the materials stored therein. In addition, tank and drum storage areas was bunded;
- Drainage from bunded areas was diverted for collection and safe disposal;
- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein was tested and demonstrated by the licensee to the satisfaction of the Agency and shall be reported to the Agency within eighteen months from the date of grant of this licence and every two years thereafter;

	> The loading and unloading of fuel oils was carried out in designated areas protected against spillage and leachate run-off; > While awaiting disposal, all materials were collected and stored in designated areas protected against spillage and leachate run-off; > Except for roof water, all surface water discharges from workshop areas were fitted with oil interceptors; > An inspection for leaks on all flanges and valves on over-ground pipes used to transport materials other than water was carried out weekly; > The Applicant undertook a programme of testing and inspection of underground fuel pipelines to ensure that all underground fuel lines were tested at least every three years; and, > The Applicant maintained (in storage) an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage.
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6.4.2.1.3 Effects on Fauna

Peat extraction and ancillary activities were likely to have resulted in some habitat loss and disturbance impacts for a number of faunal species including otter, aquatic fauna and bird species. The potential effects on these species are assessed in the tables below. The potential for significant effects on aquatic species is restricted to indirect effects on their habitat resulting from water pollution. This has been assessed in Section 6.4.2.1.2 above and is not repeated below.

With the exception of the above species, it is unlikely that peat extraction and ancillary activities would have resulted in significant negative effects on any other protected faunal species. The habitats present at the Application Site at the time i.e. bare peat, cutover bog, raised bog remnants are unlikely to have provided significant supporting habitat for populations of mammal, reptile/amphibian species of greater than local importance.

The peat extraction and ancillary activities that took place at the Application Site during the Peat Extraction Phase are unlikely to have resulted in significant negative effects on any additional fauna species other than otter and bird species.

Assessment of Potential Effects on Otter

Table 6-25 Assessment of likely significant effects on otter

Description of Effect	Habitat Loss/Degradation
	The potential for impacts on otter as a result of peat extraction and ancillary activities would mainly have been in the form of indirect impacts on otter habitat as a result of deterioration of water quality. This is assessed in Table 6-24 above 'Likely significant effects on Aquatic Habitats and Related Species'.
	Disturbance There would have been potential for disturbance of otter where they occurred within and adjacent to the Application Site during peat extraction and ancillary activities. Potential for effects on otter has been considered with regard to NPWS 'Threat Response Plan'¹⁵ (TRP) which identifies four significant threats facing

¹⁵ NPWS (2009) Threat Response Plan: Otter (2009-2011). National Parks & Wildlife Service, Department of the Environment, Heritage & Local Government, Dublin.

	otter in an Irish context: habitat destruction, water pollution, disturbance (recreational sources) and accidental death/persecution.
Assessment of Significance prior to control measures	Habitat Loss/Degradation The likely effects due to deterioration in water quality are assessed in Table 6-24 above 'Likely significant effects on Aquatic Habitats and Related Species'.
	Disturbance Otter are predominantly crepuscular in nature and most peat extraction and ancillary activities would have been confined to daytime hours, thus minimising potential disturbance related impacts to the species. Channin (2003) provides a literary review with regard to anthropogenic disturbance and refers to several reports which have found that disturbance is not detrimental to otters (Jefferies, 1987; Durbin, 1993; Green & Green 1997). Irish Wildlife Manual No 76 (National Otter Survey of Ireland 2010/2012) notes that the occurrence of otter was unaffected by perceived levels of disturbance at the survey sites. It also notes that there is little published evidence demonstrating any consistent relationship between otter occurrence and human disturbance (Mason & Macdonald, 1986; Delibes <i>et al.</i> 1991; Bailey & Rochford, 2006). Although a small number of streams and rivers drain the Application Site, the majority of these are located near its peripheries and the vast majority of watercourses within the Application Site are artificial drainage channels with low suitability for otter, and indirect impacts on otter as a result of disturbance during peat extraction and ancillary activities works are not likely to have been significant. Therefore, effects on otter were negative, short-term, and unlikely to have occurred, given the limited suitability of habitats and daytime nature of works, and not considered significant at any geographic scale.
Control Measures	Habitat Loss/Degradation Mitigation to prevent indirect impacts on water quality is as per Table 6-24 above 'Likely significant effects on Aquatic Habitats and Related Species'.
	Disturbance No control measures would have been required during the Peat Extraction Phase.

Assessment of Potential Effects on Bird Species

Peat extraction and ancillary activities are likely to have had an indirect effect on wetland bird species where they occurred within and downstream of the Application Site, as a result of habitat degradation due to deterioration on water quality. The potential impacts on water quality, and therefore on supporting wetland habitat for bird species, is as described in Table 6-24 above 'Likely significant effects on Aquatic Habitats and Related Species'.

An assessment of the likely potential effects on bird species during the Peat Extraction Phase is provided in Table 6-26 below.

Table 6-26 Assessment of likely significant effects on birds

Description of Effect	Habitat Loss/Degradation The main impact of peat extraction and ancillary activities works during the Peat Extraction Phase was primarily the impediment and retardation of natural vegetation and habitat succession throughout the Application Site through continued operation. Where peat extraction and ancillary activities had ceased for some time, the habitats present have revegetated at different rates throughout the Application Site. As the habitats on site revegetated to form the current mosaic of cutover habitats, including scrub and <i>Calluna</i>-dominated communities, this would have created suitable habitat for a variety of other bird species including meadow pipit and snipe. Areas under active peat milling would have been unlikely to attract breeding waders. As areas came out of peat production, they are likely to have been increasingly selected by breeding waders over time, particularly depressions where more permanent standing water and emergent vegetation developed. With respect to the area of Clonroosk (Ballydermot South) the installation of drainage in this area of remnant raised bog is likely to have resulted in some loss of habitat for species typical of raised bog including red grouse, curlew etc. Disturbance/Displacement Any disturbance related effects on birds would have been predominantly restricted to species typical of the cutover bog habitats in the Application Site, e.g. snipe, meadow pipit and lapwing. There are likely to have been some levels of disturbance to these species from activities including the ongoing use of peat harvesting machinery and construction of the railway tracks and works areas. Disturbance effects on wintering bird species, such as foraging flocks of golden plover, may also have occurred as a result of ongoing activities during this period. Where vegetation removal had not yet occurred by 1988, there would have been potential for some disturbance and/or direct mortality of nesting birds when vegetation was being removed during the Peat Extraction Phase.
Assessment of Significance prior to control measures	Habitat Loss/Degradation Peat extraction and ancillary activities at the Application Site during the Peat Extraction Phase was confined largely to the area already affected by the original cutting and drainage. There are unlikely to have been significant effects on birds as a result of habitat loss during this time given the highly modified nature (from their original state) of the majority of the habitats on site by 1988. Therefore, effects are considered to be negative, long-term and unlikely, given the low suitability of affected habitats, their previously modified condition, and the limited geographic extent of works. As such, the effect is assessed as not significant at any geographic scale Disturbance/Displacement Peat extraction and ancillary activities at the Application Site during the Peat Extraction Phase were largely confined to the area already affected by the original cutting and drainage and ongoing effects with regard to disturbance and/or mortality was likely to have been a slight negative effect. Any direct mortality of nesting birds during vegetation removal after 1988 would have been incidental and confined to the limited areas where clearance occurred

	during that time, and is not considered to have resulted in population-level effects on any species. Any disturbance effects on bird species utilising the Application Site during this period are unlikely to have been significant given the highly mobile nature of many of the species recorded (e.g. golden plover), which would have utilised alternative foraging and roosting habitats within the wider landscape Therefore, effects are considered to be negative, short-term and unlikely, given the low suitability of affected habitats, their previously modified condition, and the limited geographic extent of works. As such, the effect is assessed as not significant at any geographic scale. Mortality effects are considered to be negative, permanent but isolated in occurrence and not significant at any geographic scale
Control Measures	No known control measures were in place during the Peat Extraction Phase to mitigate against or compensate for the loss of raised bog and habitats of cutover raised bog, or to prevent disturbance or mortality of bird species.

6.4.2.1.4 Effects on Designated Sites

In relation to European sites, an Appropriate Assessment Screening Report and remedial Natura Impact Statement (rNIS) have been prepared to provide the competent authorities with the information necessary to complete an Appropriate Assessment in compliance with Article 6(3) of the Habitats Directive.

As per EPA Guidance (2022), “a biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European sites contained in a Natura Impact Statement” but should “incorporate their key findings as available and appropriate”. This section provides a summary of the key assessment findings with regard to Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

The Screening for Appropriate Assessment concluded as follows:

‘it cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the above described peat extraction activities and ancillary works, individually or in combination with other plans and projects, would be likely to have or have had a significant effect on the following sites:

- *The Long Derries, Edenderry SAC*
- *River Barrow and River Nore SAC*

As a result, an Appropriate Assessment is required, and a remedial Natura Impact Statement shall be prepared in respect of the above-described peat extraction activities and all ancillary works in order to assess whether they have had the potential to adversely impact the integrity of these European Sites or have the potential do so in the future.’

The rNIS concluded that, taking into account the control measures implemented prior to and after 2000, the Project has not resulted in adverse effects on the integrity of any European Sites.

The Application Site has been regulated by the EPA under IPC Licence Registration No. P0503-01 since 2000. In addition, the drainage system has been designed to limit runoff from the Application Site via low-gradient field drains, mains drains, and silt ponds. Control measures relating to the protection of water quality are outlined in Table 6-24 above. Given the control measures that have been in place since regulation of the Application Site under IPC licence, no potential for adverse effects on these European Sites was identified.

The following pNHAs were identified in Table 6-6 above as being within the likely Zone of Influence of the Project:

- The Long Derries, Edenderry pNHA
- Grand Canal pNHA

Prior to the regulation of activities at the Application Site by the EPA which commenced in 2000, the Applicant was implementing several control measures to protect surface water quality in downstream waterbodies, as detailed in Table 6-24. With these control measures in place, it was unlikely that significant effects on the above National Sites occurred, as a result of the Peat Extraction Phase of the Project.

6.4.2.2 Current Phase June 2020 - Present

The Current Phase of the Project encompasses the period of time between the cessation of peat extraction at the Application Site in June 2020 to the present day. Since the cessation of peat extraction in June 2020, all industrial peat extraction ceased and subsequent activity has been minimal. To date, the only decommissioning undertaken at the Application Site has been the removal of the remaining peat stockpiles from the bog, which was completed by 2024 and decommissioning of some ancillary infrastructure and the permanent rail line. Maintenance of surface water management infrastructure, including drainage outfalls and silt traps, is ongoing to ensure appropriate control of runoff and local hydrology. The peat surface across much of the Application Site remains exposed, with some areas showing stages of natural colonisation by vegetation. Routine inspections and environmental monitoring have been conducted to assess site stability and water quality.

The Application Site still operates under the requirements of IPC Licence P0503-01, and any decommissioning works undertaken with respect to peat extraction activities and all ancillary works are in accordance with Condition 10 of the IPC Licence.

6.4.2.2.1 Effects on Habitats (Habitat Loss, Fragmentation, Degradation)

Table 6-27 describes the likely significant effects on Habitats during the Current Phase (June 2020 to Present).

Table 6-27 Likely significant effects on uncut raised bog and cutover bog and associated secondary habitats

Description of Effect	Since the cessation of peat extraction at the Application Site in June 2020, there has been no additional loss or drainage of any of the cutover or remnant raised bog habitats within the Application Site. Activities have been confined to removal of stockpiled peat at the Application Site, decommissioning of some ancillary infrastructure and the permanent rail line and rehabilitation works in Lodge Bog (which have been completed). Access to these areas is via existing machinery tracks.
Assessment of Significance prior to control measures	There has been no additional loss, degradation or fragmentation of habitat as a result of removal of peat stockpiles. Machinery accessing the stockpiles on the Application Site was confined to areas already subject to peat extraction and ancillary activities. No additional drainage, vegetation removal, peat harvesting has been undertaken. No significant effects on uncut raised bog and cutover bog and associated secondary habitats are likely to have occurred during the Current Phase of the Project, as a result of habitat loss/degradation, or fragmentation, at any geographic scale.
Control Measures	No control measures

6.4.2.2.2 Effects on Water Quality and Aquatic Fauna

Table 6-28 describes the likely significant effects on Water Quality and Aquatic Fauna during the Current Phase (June 2020 to Present).

Table 6-28 Likely Significant Effects on Aquatic Habitats and Related Species

Description of Effect	Since the cessation of peat extraction at the Application Site in June 2020, there was less potential for release of suspended sediments and pollution of water quality. There was also less potential for accidental spillage of pollutants due to the reduced machinery operating on site. These risks are the same as those outlined in Section 6.4.2.1.2 above but to a lesser extent due to the lower volumes of plant, machinery and workers operating at the Application Site during the Current Phase. During the Current Phase the Application Site drainage still operated under the same drainage systems as during the Peat Extraction Phase i.e. field drains, main drains, silt ponds and discharge outlets etc. Therefore, discharge volumes from the Application Site to nearby surface watercourses will be comparable to surface water discharges during the Peat Extraction Phase Similar to the Peat Extraction Phase, the greatest potential for effects occurred in the receiving streams. Further downstream, the Figile, Slate and Barrow rivers are less susceptible to potential effects due to the increasing flow volumes. Nevertheless, the Current Phase of the Project did not rely on the dilution or assimilative capacity of any downstream watercourse. The control measures implemented in this phase, associated with the IPC licence, ensured that there would be no negative effect on any watercourse downstream of the Application Site. Note: Whilst this impact assessment is in the aquatic habitats section, it also assesses the impact of the Project on aquatic species including salmonids, lamprey, coarse fish, European eel, aquatic invertebrates and other aquatic species. The Project had no direct impact on the aquatic habitat of these species and therefore there was no potential for disturbance. The only pathway for effect to occur is as a result of water pollution and this is discussed in this section in relation to habitats and species.
Assessment of Significance prior to control measures	Even in the absence of control measures there are no significant effects on downstream watercourses due to the restricted nature of the works completed in this phase. However, in the absence of control measures relating to hydrocarbons, the effect would be negative, short-term, indirect, unlikely effect on surface water quality.
Control Measures	During the Current Phase the Application Site continued to operate under IPC licensing requirements with respect to surface water discharge quality and quantity. Control measures are as outlined in Table 6-24 above.

6.4.2.2.3 Effects on Fauna

Effects on fauna as a result of the Current Phase would have been limited to the potential for degradation of water quality affecting aquatic habitats and related species, as well as disturbance of otter and bird species due to the operation of plant and machinery.

The likely significant effects on water quality and supporting habitat for aquatic species are as described in Table 6-24 above but at a reduced scale and intensity during the Current Phase compared to the Peat Extraction Phase due to the lower volumes of plant, machinery, and workers present on site. As a result, these effects are assessed to be not significant.

The likely significant effects on otter and bird species, due to disturbance and displacement are as per Tables 6-25 and 6-26 above, however, at a reduced scale and intensity during the Current Phase compared to the Peat Extraction Phase due to the lower volumes of plant, machinery, and workers present on site. Accessing peat stockpiles in the Application Site was via existing machine passes and therefore no vegetation removal and therefore no significant loss of supporting habitat for faunal species would have occurred. These effects are therefore assessed to be not significant.

6.4.2.2.4 **Effects on Designated Sites**

Despite the cessation of peat extraction at the Application Site, there was still some limited activity at the Application Site involving machinery and plant (removal of stockpiles ceased in 2024), the maintenance of the existing drainage network and environmental monitoring.

The Application Site is hydrologically linked with the River Barrow and River Nore SAC, The Long Derries, Edenderry SAC/pNHA and the Grand Canal pNHA. The risks to the receiving waters (in terms of water quantity and water quality) are the same as those outlined in Section 6.4.2.1.2 but to a much lesser extent due to the lower intensity of works being completed at the Application Site. Less activity on-site has decreased the likelihood of pollution incidents or exceedances of discharge limits occurring. The risk is much reduced in comparison to the Peat-Extraction Phase of the Project and these effects are assessed to be not significant

Where decommissioning works are ongoing at the Application Site as part of the condition 10 of the IPC licence, as described in Section 6.4.2.2 above, these works operate within the constraints of the relevant IPC licence (EPA IPC Licence - Ref. P0503-01). There will be no deterioration of water quality and thus, no impacts on any National or European Sites.

6.4.2.3 **Remedial Phase**

BnM have produced a draft Cutaway Bog Decommissioning and Rehabilitation Plan for 10 of the bogs within the Application Site (i.e., Ballydermot, Blackriver, Barnaran, Killina, Lullymore, Lullybeg, Derrybrennan, Glashabaun, Codd and Ticknevin). The draft Cutaway Bog Decommissioning and Rehabilitation Plans for Ballydermot North, Ballydermot South, Glashabaun North, Glashabaun South, Codd 1 and Codd 2 have been combined into the respective Ballydermot, Glashabaun and Codd draft Cutaway Bog Decommissioning and Rehabilitation Plans. These plans are included in Appendix 4-2 of the rEIAR. It is the intention of BnM to rehabilitate the bogs in a phased approach under the requirements of the IPC Licence. The Remedial Phase involves the implementation of the rehabilitation plan.

The current plans also take cognisance of the EPA Guidance on the Process of Preparing and Implementing a Bog Rehabilitation Plan (2020). Each plan contains within a detailed ecological report and GIS mapping pack. The key objective of BnM peatland rehabilitation is environmental stabilisation. The rehabilitation of the bogs will support biodiversity e.g., plants, insects, bird and mammals, and the formation of wetland habitats. In addition, peatland rehabilitation will bring a range of benefits to the local community via improvements in the local landscape and it is also complying with national policies and strategies regarding the reduction of carbon emissions, supporting biodiversity and enhancing water quality. It is anticipated it will take up to 30 years for naturally functioning wetland and peatland ecosystems to fully re-establish.

To inform the final rehabilitation plan for each bog, both national and local stakeholders, including neighbours whose land adjoins the relevant bog units and local representatives of national bodies (such as Regional National Parks and Wildlife Service staff) and relevant offices in County Councils (such as the Heritage or Environmental Offices) will be contacted. Any identified local interest groups will be sought and informed of the opportunity to engage with this rehabilitation plan, and when identified invited to submit their comments or observations in relation to the proposed rehabilitation. All

correspondence received will be acknowledged and evaluated against the rehabilitation work proposed and the final draft of plans will contain a review of the consultation.

Prior to the submission of the rehabilitation plans to the EPA for agreement, a baseline ecology survey will be carried out to determine the status of natural colonisation, the potential for targeted revegetation and/or rewetting and the future development at the Application Site to ensure stabilisation of the future cutaway.

It is not expected that the majority of the Application Site has the potential to develop active raised bog analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c. 50 years). Furthermore, only a small proportion of the bog has potential to develop Sphagnum-rich habitats in this timeframe. Nevertheless, re-wetting across the entire bog will improve overall habitat conditions. Other peatland and wetland habitats will develop in a wider mosaic that reflects the underlying conditions and hydrology of the Application Site.

Rehabilitating the former cutaway bog will also, in the longer term, support other ecosystem services such as the development of new habitats to support biodiversity and the local attenuation of water flows from the bog.

6.4.2.3.1 *Effects on Habitats*

Table 6-29 describes the likely significant effects on Habitats during the Remedial Phase.

Table 6- 29 Likely significant effects on uncut raised bog and cutover bog and associated secondary habitats

Description of Effect	The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans at the Application Site will involve a combination of rehabilitation measures and natural colonisation (as well as continued vegetational succession) of cutaway/cutover habitats within the Application Site. Natural colonisation will form the basis for the environmental stabilisation of the bare peat areas. Re-wetting of the cutaway, where possible, is a general rehabilitation strategy. The main target will be to maintain water-levels close to the peat surface, and to avoid the creation of large-water bodies. Re-wetting and water levels close to the peat surface accelerates the re-vegetation processes, the development of vegetation cover and therefore environmental stabilisation. A widespread drain-blocking programme will be implemented across the cutaway, where possible. In general, field drains will be blocked where possible to re-wet cutaway and re-wet to the optimum water-level. More intensive measures will be targeted towards the bare peat. Less intensive measures (targeted drain-blocking) will be used in areas where habitats have already established. Wetland measures including blocking outfalls and managing water levels with overflow pipes will also be undertaken. Given the nature of the rehabilitation works, i.e. drain blocking and natural recolonisation, there is no potential for significant loss of any peatland habitat as a result of the works and/or machinery required onsite during the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans. There is potential for the Cutaway Bog Decommissioning and Rehabilitation Plans to have a positive effect on the habitats present at the Application Site. Natural vegetation succession within the existing
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	cutover habitats and areas of bare peat will result in an increase in habitat diversity within the Application Site. Whilst it is not anticipated that the majority of the Application Site has the potential to develop active raised bog analogous to the priority EU Habitats Directive Annex I habitat within the foreseeable future (c.50 years), rewetting will nonetheless result in an overall improvement in the condition of the peatland habitats within the Application Site.
Assessment of Significance prior to mitigation	It is anticipated that there will be long-term positive effects on habitats within the Application Site as a result of the Remedial Phase of the Project, significant at the local to county scale.
Mitigation	Whilst no loss or degradation of habitat is anticipated as a result of the works/machinery required on the Application Site to implement the Cutaway Bog Decommissioning and Rehabilitation Plans the following best practice measures will be implemented. ➤ Bog restoration/rehabilitation measures will be restricted to within the footprint of the proposed rehabilitation area as outlined in the Cutaway Bog Decommissioning and Rehabilitation Plans ➤ Measures will be carried out using a suitably sized machine and, in all circumstances, excavation depths and volumes will be minimised where possible.

6.4.2.3.2 Effects on Aquatic Habitats and Related Species

Table 6-30 describes the likely significant effects on Aquatic Habitats and Related Species during the Remedial Phase.

Table 6-30 Likely significant effects on Aquatic Habitats and Related Species

Description of Effect	The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans at the Application Site will stabilise the former peat extraction areas via targeted drain blocking. Natural colonisation and targeted re-wetting will encourage revegetation of the former bare peat areas which in turn will stabilise substrates reducing the potential for elevation concentrations of suspended solids in runoff from the Application Site. This will also have benefits for aquatic fauna in terms of improved water quality and therefore habitat quality. Silt ponds will continue to operate during the early stages of the rehabilitation process and will only be decommissioned when the Application Site is deemed to be on a trajectory of environmental stability and/or rehabilitation has been completed. The water quality improvements associated with rehabilitated peatlands are not limited to reduced suspended solid concentrations. International studies have shown a long-term reduction in pollutant concentrations, including nitrate and ammonia, following rewetting in comparison to drained peatlands (Pschenyckj, C. <i>et al.</i> 2021). While several studies have shown that the magnitude of these positive effects depends on site-specific factors such as the degree of degradation and local peat characteristics, all studies have shown an overall long-term decrease in pollutant concentrations (Negassa <i>et al.</i>, 2020). During the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans there will be some small-scale activity at the Application Site involving machinery and plant with which there is always a risk of accidental spillage of hydrocarbons. Similarly, the buildings remain occupied and discharges from wastewater systems (septic tanks) etc. have the potential to cause surface water and groundwater contamination. These risks are the same as those outlined in Table 6-24 above and of a much-reduced nature to those during the Peat Extraction Phase due to the lower
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	volumes of plant, machinery and workers operating at the Application Site during the Remedial Phase.
Assessment of Significance prior to mitigation	In the absence of mitigation there is potential for the operations at the Application Site during the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans to have a significant, negative, indirect, short-term, unlikely effect on water quality due to potential leakages and spillages. Following the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans the bogs will be wetter, they will retain more water, they will recolonise with vegetation slowly, and they will eventually become naturally functioning peatlands with much-reduced silt and nutrient output. The outcome of the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans has potential to have a positive, moderate, indirect, long-term, likely effect on downstream surface water quality/quantity. Overall, in the long term, the remedial phase is assessed as having a positive, indirect, long-term, likely effect following implementation.
Mitigation	As outlined in Chapter 8 Hydrology and Hydrogeology, the existing drainage systems and silt control measures will continue to operate during the early stages of the rehabilitation plans when there is the potential for the entrainment of suspended solids in surface waters during drain blocking. During this time no remedial works will be completed during periods of prolonged rainfall. Silt ponds will continue to be in use and will be regularly inspected and maintained as per IPC licence requirements. As outlined in Chapter 8, following implementation of the rehabilitation measures a programme of aftercare and maintenance, designed in accorded to meet the Conditions of the IPC Licence, will be completed at the Application Site. This will comprise of initial quarterly monitoring, with the number of site visits reducing after 2 years to bi-annually and then after 5 years to annual visits. A water quality monitoring program will be established to monitor the impact of rehabilitation on water quality discharge from the Application Site. The monitoring results will be reported on each year to the EPA with the parameters to be included as follows: monitoring for pH, Suspended Solids, Total Solids, Total Phosphorus, Total Ammonia, Colour, and COD and DOC. In addition: ➤ All machinery will be regularly checked and maintained prior to arrival at the Application Site; ➤ Fuelling and lubrication of equipment will only be completed in designated areas and away from surface water features; ➤ Vehicles will never be left unattended during refuelling; ➤ All refuelling will occur in mobile fuel bowzers; ➤ Only dedicated, trained and competent personnel will complete refuelling operations; ➤ Fuel bowzers will be banded to 100% capacity to prevent any spills; ➤ Storage tanks for bowzers and generators will be double-skinned; ➤ Waste oils and fluids will be collected in leak proof containers and removed from the Application Site for disposal; ➤ Spill kits will be kept on site; and, ➤ All activities will be completed in accordance with current 'best practice' procedures.

6.4.2.3.3 Effects on Fauna

Natural recolonisation of the bogs will form the basis for the Cutaway Bog Decommissioning and Rehabilitation Plans. The habitats which have developed on the cutaway bogs to date following cessation of peat extraction include *Calluna*-dominated communities, scrub and woodland habitats and it is likely these habitats will also establish with time on drier areas of the cutover bog where natural

vegetation colonisation is allowed to proceed. These habitats provide cover and nesting habitat for a range of bird species. They also provide areas of linear habitat with connectivity to the wider landscape and therefore provide suitable foraging and commuting habitat for bat species and other small mammals. Woodland and scrub also provide areas of potential badger habitat within the Application Site.

Potential for impacts in species identified as KERs in Table 6-22 above are discussed below.

Assessment of Potential Effects on Otter

Table 6-31 describes the potential significant effects on otter during the Remedial Phase.

Table 6-31 Assessment of potential significant effects on otter during the Remedial Phase

Description of Effect	Habitat Implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans at the Application Site will stabilise the former peat extraction areas. Natural colonisation and targeted re-wetting will encourage revegetation of the former bare peat areas which in turn will stabilise substrates reducing the potential for elevation concentrations of suspended solids in runoff from the Application Site. This will also have benefits for aquatic fauna, including otter, in terms of improved water quality and therefore habitat quality. This is fully assessed in Table 6-30 Water Quality above. The implementation of the rehabilitation plans will involve targeted drain blocking and rewetting in the Application Site. Although otter may utilise drains within the Application Site for foraging and commuting, these habitats provide sub-optimal habitat for this species, with the stream around the peripheries of the Application Site providing more suitable otter habitat than artificial drains. The blocking of drains within the Application Site is unlikely to have a significant impact on otter in terms of habitat loss.
	Disturbance Drain blocking and re-wetting, which will form an element of the Cutaway Bog Decommissioning and Rehabilitation Plans will involve the presence of machinery and personnel on site which creates potential for disturbance of otter utilising the Application Site. However, volumes of machinery on site will be much reduced compared to volumes that would have operated on site during the Peat Extraction Phase. While there will be some potential for disturbance of otter during the Remedial Phase, this will be of a much-reduced nature when compared to the Peat Extraction Phase.
Assessment of Significance prior to mitigation	Habitat The likely effects due to improvements in water quality are assessed in Table 6-30 above 'Likely significant effects on Aquatic Habitats and Related Species'
	Disturbance Otter are predominantly crepuscular in nature and most Remedial Phase activities would have been confined to daytime hours, thus minimizing potential disturbance related impacts to the species. Channin (2003) provides a literary review with regard to anthropogenic disturbance and refers to several reports which have found that disturbance is not detrimental to otters (Jefferies, 1987; Durbin, 1993; Green & Green, 1997). Irish Wildlife Manual No 76 (National Otter Survey of Ireland 2010/2012) notes that the occurrence of otter was unaffected by perceived levels of disturbance at the survey sites. It also notes that there is little published evidence demonstrating any

	consistent relationship between otter occurrence and human disturbance (Mason & Macdonald, 1986; Delibes <i>et al.</i> 1991; Bailey & Rochford, 2006). The requirement for machinery and personnel on site during rehabilitation activities will be short term and the volumes of machinery and personnel will be much reduced in comparison to the Peat Extraction Phase. There is potential for temporary impacts on otter due to disturbance during the Remedial Phase. However, it is unlikely that the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans will have any significant effect on otter. Although a small number of streams and rivers drain the Application Site, the majority of these are located towards the peripheries of the Application Site and the vast majority of watercourses within the Application Site are artificial drainage channels with low suitability for otter. No significant effects on otter are anticipated as a result of disturbance, during the Remedial Phase of the Project, at any geographic scale.
Mitigation	Habitat Loss/Degradation Mitigation to prevent indirect impacts on water quality is as per Table 6-30 above 'Potential for impact on Watercourses and Sensitive Aquatic Species'
	Disturbance ➤ The proposed rehabilitation works will have due regard to noise limits and hours of operation (BS 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Parts 1 and 2)) to minimise any potential disturbance on resident and local fauna that utilise the site and immediate environs; ➤ All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (SI 359/1996); and ➤ The proposed activities will be restricted to daylight hours and there will be no requirement for artificial lighting.

Assessment of Potential Effects on Birds

Table 6-32 describes the potential significant effects on Birds during the Remedial Phase.

Table 6-32 Assessment of potential significant effects on birds during the Remedial Phase

Description of Effect	Habitat Creation Natural recolonisation of the bogs will form the basis for the Cutaway Bog Decommissioning and Rehabilitation Plans. This is likely to create a diversity of habitats for bird species. The habitats which have developed on the Application Site during the Current Phase (and in some areas of the Application Site during the Peat Extraction Phase) following cessation of peat extraction and ancillary activities include <i>Calluna</i>-dominated communities, scrub and woodland habitats and it is likely these habitats will also establish with time on drier areas of the cutover bog where natural vegetation colonisation is allowed to proceed. These habitats provide cover and nesting habitat for a range of bird species including meadow pipit, snipe and skylark. Targeted rewetting of areas also has potential to create areas of wetland habitat within the Application Site which will enhance habitat diversity within the Application Site and benefit wintering waterbirds and waders such as golden plover.
	Disturbance

	Drain blocking and re-wetting, which will form an element of the Cutaway Bog Decommissioning and Rehabilitation Plans will involve the presence of small-scale machinery and personnel on site which creates potential for disturbance of bird species utilising the Application Site. However, volumes of machinery on site will be much reduced compared to volumes that would have operated on site during the Peat Extraction Phase. While there will be some potential for disturbance of bird species during the Remedial Phase, this will be of a much-reduced nature when compared to the Peat Extraction Phase.
Assessment of Significance prior to mitigation	Habitat The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans that is required to comply with Condition 10 of the IPC licence will result in a positive impact on the habitats that exist on the Application Site at present, following cessation of the peat extraction and ancillary activities at the Application Site. This has potential for positive impacts on bird species, significant at the local to county scale, through the creation of new habitat.
	Disturbance The requirement for machinery and personnel on the Application Site during rehabilitation activities will be short term and the volumes of machinery and personnel will be much reduced in comparison to the Peat Extraction Phase. Given the reduced scale and duration of these works, and the ability of the bird species recorded at the Application Site to utilise alternative parts of the Application Site and the surrounding landscape, any disturbance to bird species during the Remedial Phase is unlikely to result in any significant impacts. Implementation of the Remedial Phase is unlikely to have any significant effect on bird species within the Application Site as a result of disturbance, at any geographic scale.
Mitigation	➤ The proposed rehabilitation works will have due regard to noise limits and hours of operation (BS 5228:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites (Parts 1 and 2)) to minimise any potential disturbance on resident and local fauna that utilise the site and immediate environs; ➤ All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (SI 359/1996); and ➤ The proposed activities will be restricted to daylight hours and there will be no requirement for artificial lighting.

6.4.2.3.4 **Effects on Designated Sites**

There are several National and European Sites downstream of the Application Site, as per Section 6.4.2.1.4 above, and there would likely have been indirect effects on the aquatic receptors of these Sites as a result of deterioration of water quality in the watercourses within and downstream of the Application Site which ultimately discharge to the River Barrow.

The implementation of the rehabilitation plans for the Application Site aims to stabilise the former peat extraction areas. Natural colonisation and targeted re-wetting will encourage revegetation of the former bare peat areas which in turn will stabilise substrates reducing the potential for elevation concentrations of suspended solids in runoff from the Application Site.

Given the reduced and small-scale nature of the operations anticipated at the Application Site during the works required for the implementation of the rehabilitation plans no significant negative effects on water quality, and thus, downstream Designated Sites, are likely to occur in the absence of mitigation.

6.5 Residual Effects

6.5.1 Peat Extraction Phase: July 1988 – June 2020

6.5.1.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

Peat extraction and ancillary activities undertaken between July 1988 and June 2020 are considered to have resulted in a negative residual effect at the Application Site level on the majority of the bog habitats within the Application Site, which were already extensively modified from their original state, and although further degradation occurred during this period, no habitats of high ecological value were significantly affected. The residual effect on habitats is therefore considered to be negative, long-term, certain to have occurred and not significant at the any geographic scale.

The residual effects on uncut raised bog habitat at Clonroosk which was drained during the Peat Extraction Phase was a significant, direct, long-term effect. Rehabilitation works were undertaken at Clonroosk after drainage in 2013, with all drains blocked by 2014.

6.5.1.2 Aquatic Habitats and Related Species

All activities pre-dating 2000 were unlicensed and no records exist regarding the quality of discharges to nearby surface watercourses. However, by 1988 peat extraction and ancillary works were already well established at the Application Site and while EPA Q-values throughout this phase of the Project fluctuate, there is no clear negative trend in terms of surface water quality between 1988 and 2020. Some improved sediment control measures were installed at the Application Site in the late 1990s and early 2000s and water quality discharge licence limits have been in place since 2000 in accordance with IPC licensing. The available monitoring data indicate that improvements in downstream water quality have not been significant, and this is because there are other activities in the catchment that effect water quality and also that the baseline water quality has not changed significantly during the Peat Extraction Phase. Data from EPA stations located upstream of the Application Site indicate that water quality was more polluted upstream of the site, and improved in the vicinity of the site.

The residual effect is a moderate, long-term, negative and indirect likely effect on downstream surface water quality and a moderate, long-term, negative and indirect effect on downstream surface water quantity (i.e. river flows). The associated residual effects on aquatic habitats and species within the downstream catchment are considered to be moderate, long-term, negative and indirect likely effects.

From a review of the available AERs included as Appendix 4-3 of this rEiAR, no significant fuel spills or wastewater discharges have occurred since 2000. In addition, extensive control measures have been implemented since 2000 as part of the IPC licence which mitigates against the possibility of any surface or groundwater contamination. Prior to IPC regulation, there are no records, but there does not appear to be any record of significant issues with hydrocarbons or wastewater discharges to surface or groundwater resulting from peat extraction and ancillary activities.

The residual effects on water quality as a result of accidental leakages and spillages is considered to be long-term, negative, indirect, unlikely impact on local surface water quality and downstream aquatic ecosystems and is considered not significant at any geographic scale.

6.5.1.3 Fauna

Otter

Regarding habitat loss/degradation for otter, this is confined to indirect impact on supporting habitat as a result of the deterioration of water quality, which is assessed in Table 6-24. The residual effects on water quality as a result of the Peat Extraction Phase are provided in Section 6.5.1.2 above. The residual effects on aquatic habitats and species within the downstream catchment as a result of water quality are considered to be moderate, long-term, negative and indirect likely effects.

The residual effect on otter from disturbance during this phase is considered to be negative, short-term, and unlikely to have occurred, given the limited suitability of habitats and daytime nature of works, and not significant at any geographic scale.

Bird Species

The residual effect on bird species from habitat loss, degradation, or disturbance during this phase is considered to be negative, short-term (for disturbance) to long-term (for habitat loss and degradation), and unlikely, given the low suitability of affected habitats, their previously modified condition, and the limited geographic extent of works. As such, the effect is assessed as not significant at any geographic scale.

6.5.1.4 Designated Sites

The potential for the peat extraction and ancillary activities to impact the hydrology of the River Barrow and River Nore SAC has been reduced as the bog drainage regime was already in place at the time of the SAC designation. Proven and effective control measures have also been implemented to limit the runoff from the Application Site to original greenfield runoff rates. The Application Site has also been operating under IPC licence conditions since April 2000.

Given the control measures that were in place prior to the regulation of activities at the Application Site by the EPA which commenced in 2000, it was unlikely that significant effects on any of the above National or European Sites occurred, as a result of the Peat Extraction Phase of the Project. The rNIS concluded that, taking into account the control measures implemented prior to and after 2000, the Project has not resulted in adverse effects on the integrity of any European Sites.

The residual effect is considered to be a long-term, negative, indirect likely effect on the hydrology (flows and water quality) of the River Barrow and River Nore that is not significant at any geographic scale.

6.5.2 Current Phase: June 2020 to present day

6.5.2.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

There has been no additional loss, degradation or fragmentation of habitat as a result of the Current Phase of the Project and therefore, the residual effect on habitats is considered to be neutral, unlikely to have occurred or occur and not significant at any geographic scale.

6.5.2.2 Aquatic Habitats and Related Species

No significant effects on downstream surface water hydrology will have occurred from the cessation of BnM industrial peat extraction in June 2020 to the present day (refer to Chapter 8 Hydrology and Hydrogeology). There has been a slight decrease in Q-values in downstream surface watercourses in recent EPA monitoring rounds. This would likely be related to other pressures in the catchment as the cessation of peat extraction would not negatively affect water quality. However, a perceptible positive trend in Q-values, associated with the cessation of peat extraction, would not have been expected given the relatively short time period since peat extraction ceased (approximately 6 years). Therefore, the residual effect is a neutral, short-term, indirect, unlikely effect on downstream surface water hydrology and is considered to be not significant at any geographic scale.

6.5.2.3 Fauna – Otter and Bird Species

Effects on fauna as a result of the Current Phase would have been limited to the potential for degradation of supporting habitat for aquatic species including otter, salmonids, lamprey, eel etc. where they occur within and/or downstream of the Application Site, as well as disturbance of faunal species including otter and bird species due to the operation of plant and machinery. The residual effect is considered to be negative, short-term, and unlikely to occur. As such, residual effects on fauna are considered to be not significant at any geographic scale.

6.5.2.4 Designated Sites

Whilst there is some limited activity at the Application Site involving machinery and plant for decommissioning and the maintenance of the existing drainage network and environmental monitoring is still on going, these works are much reduced in comparison to the Peat Extraction Phase of the Project, and therefore, no significant residual effects are likely to have occurred during this period.

No significant change in the hydrology of the River Barrow and River Nore SAC will have occurred following the cessation of peat extraction. The residual effect is a neutral, short-term, indirect, unlikely effect on water quantity and water quality flowing from the Application Site towards the River Barrow and River Nore SAC and is considered not significant at any geographic scale.

6.5.3 Remedial Phase

6.5.3.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans will improve habitat quality and diversity, therefore the residual effect is considered to be positive, long-term, likely to occur and significant at the local to county scale.

6.5.3.2 Aquatic Habitats and Related Species

Following the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans the Application Site will be wetter, will retain more water, will recolonise with vegetation slowly, and will eventually become a naturally functioning wet land with much-reduced silt and nutrient output. As such, the residual effect of the Cutaway Bog Decommissioning and Rehabilitation Plans is considered to be a positive, indirect, long-term effect on downstream surface water hydrology and water quality, significant at the local scale.

The use and storage of hydrocarbons and small volumes of chemicals is a standard risk associated with storage of such material. Proven and effective measures to mitigate the risk of spills and leaks will be

implemented throughout the Remedial Phase of the Project. Therefore, the residual effect is negative, direct, short-term, unlikely effect on surface water quality that is considered not significant at any geographic scale.

6.5.3.3 Fauna

Otter

Effects on otter as a result of the Remedial Phase of the Project are limited to the potential for degradation of supporting habitat for aquatic species including otter, salmonids, lamprey, eel etc. where they occur within and/or downstream of the Application Site, which is assessed in Table 6-30 and Section 6.5.3.2. The residual effect due to degradation of water quality with mitigation measures in place is considered to be negative, short-term, unlikely to occur, and not significant at any geographic scale. A long-term, positive, indirect, likely effect following implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans is considered to be significant at the local to county scale.

Bird Species

The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans is expected to result in a positive effect on habitats for bird species due to the targeted rewetting and revegetation of the former peat production areas. Targeted rewetting of areas has potential to create areas of wetland habitat within the Application Site which will benefit wetland bird species and enhance habitat diversity within the Application Site. The residual effect is therefore considered to be positive, long-term, likely to occur, and significant at the local to county scale.

6.5.3.4 Designated Sites

With the implementation of the Remedial Phase of the Project, no significant residual effects are likely to occur.

6.6 Significance of Effects

6.6.1 Peat Extraction Phase: July 1988 – June 2020

6.6.1.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

Based on the assessment in Section 6.4 above there was no significant effect on the cutover bog habitats as a result of the Peat Extraction Phase of the Project.

The residual effects on uncut raised bog habitat at Clonroosk which was drained during the Peat Extraction Phase was a significant, direct, long-term effect. Restoration works to block the drains at Clonroosk were completed by 2014, and the condition of the habitat is expected to improve over time as a result of these works.

No significant effects on any other habitats are likely to have occurred.

6.6.1.2 Aquatic Habitats and Related Species

It is considered that the Peat Extraction Phase had a moderate effect on downstream surface water quality and the aquatic fauna they support at the local scale.

The effects on water quality as a result of accidental leakages and spillages is considered to be long-term, negative, indirect, unlikely impact on local surface water quality and downstream aquatic ecosystems, and is not considered to be significant at any geographic scale.

6.6.1.3 Fauna

Otter

Assessment of significant effects on otter as a result of habitat loss/degradation during the Peat Extraction Phase of the Project was limited to indirect effects on water quality. This is assessed in Table 6-24 above and it is considered that effects on otter due to degradation of water quality were not significant at any scale.

No significant effects on otter as a result of disturbance is likely to have occurred during the Peat Extraction Phase of the Project.

Bird Species

No significant effects on birds as a result of disturbance or habitat loss/degradation are likely to have occurred during the Peat Extraction Phase of the Project.

6.6.1.4 Designated Sites

Assessment of potential significant impacts on European Sites are presented in rNIS which accompanies this application for Substitute Consent. Based on the assessments above, no significant effects on National Sites are likely to have occurred during the Peat Extraction Phase of the Project.

6.6.2 Current Phase: June 2020 to present day

6.6.2.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

No significant effects on habitats are likely to have occurred as a result of the Current Phase of the Project.

6.6.2.2 Aquatic Habitats and Related Species

For the reasons outlined above and with the implementation of the IPC Licence conditions it is considered that no significant effects on downgradient surface waterbodies has occurred during the Current Phase of the Project.

6.6.2.3 Fauna – Otter and Bird Species

The likely significant effects on water quality and supporting habitat for aquatic species are as per Table 6-24 above. No significant effects on fauna are likely to have occurred as a result of the Current Phase of the Project.

6.6.2.4 Designated Sites

Assessment of potential significant impacts on European Sites are presented in rNIS which accompanies this application for Substitute Consent. Based on the assessments above, no significant effects on National Sites are likely to have occurred as a result of the Current Phase of the Project.

6.6.3 Remedial Phase

6.6.3.1 Uncut Raised Bog and Cutover Bog and Associated Secondary Habitats

There is potential for significant positive effects on the habitats within the Application Site during the Remedial Phase of the Project.

6.6.3.2 Aquatic Habitats and Related Species

There is no potential for significant negative effects on water quality at any geographic scale. There is potential for significant positive effects on water quality at a local scale within and downstream of the Application Site during the Remedial Phase of the Project.

6.6.3.3 Fauna

Otter

No significant effects on otter, or any other fauna, are anticipated as a result of disturbance, during the Remedial Phase of the Project. There is potential for significant positive effects on supporting aquatic habitats within and downstream of the Application Site as a result of the implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans.

Bird Species

There is potential for significant positive effects on bird species through the creation of new habitat, as a result of the Remedial Phase of the Project. No significant effects on birds as a result of disturbance is anticipated.

6.6.3.4 Designated Sites

Assessment of potential significant impacts on European Sites are presented in rNIS which accompanies this application for Substitute Consent. Based on the assessments above, no significant effects on National Sites are likely to occur as a result of the Remedial Phase of the Project.

6.7

Summary

Please see the below table for a summary of all identified impacts relating to biodiversity.

Table 6-33 Assessment Classification Summary

Topic	Pre-Mitigation Effect (EPA, 2022 Classification)	Mitigation Section Reference	Residual Effect (EPA, 2022 Classification)	EIA Significance Threshold
Peat Extraction Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, has not adversely affect the integrity of any European Site.			
Nationally Designated Sites	Negative, Long-Term, Not Significant	Section 6.4.2.1.4	No significant residual effect at any geographic scale	not significant
Aquatic Habitats and Related Species	Negative, Long-Term, Indirect, Significant	Section 6.4.2.1.2	No significant residual effect at any geographic scale	not significant
Raised Bog	Negative, Long-Term, Direct, Significant	None	Long term, negative, significant residual effect at the local geographic scale	significant effect in localised area – Clonroosk (Ballydermot South)
Cutover Bog Secondary Habitats	Negative, Long-Term, Indirect, Not Significant	None	No significant residual effect at any geographic scale	not significant
Otter	Negative, Short-Term, Unlikely, Not Significant	Section 6.4.2.1.3	No significant residual effect at any geographic scale	not significant
Bird Species	Negative, Long-Term, Unlikely, Not Significant (Habitat Loss) Negative, Short-Term, Unlikely, Not Significant (Disturbance) Negative, Permanent, Not Significant (Mortality)	None	No significant residual effect at any geographic scale	not significant
Current Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, has not and will not adversely affect the integrity of any European Site.			

Nationally Designated Sites	Negative, Short-Term, Indirect, Unlikely, Not Significant	Section 6.4.2.2.4	No significant residual effect at any geographic scale	not significant
Aquatic Habitats and Related Species	Negative, Short-Term, Indirect, Unlikely, Not Significant	Section 6.4.2.2.2	No significant residual effect at any geographic scale	not significant
Raised Bog	Neutral, Not Significant	None	No significant residual effect at any geographic scale	not significant
Cutover Bog Secondary Habitats	Neutral, Not Significant	None	No significant residual effect at any geographic scale	not significant
Otter	Negative, Short-Term, Unlikely	Section 6.4.2.2.3	No significant residual effect at any geographic scale	not significant
Bird Species	Negative, Short-Term, Unlikely	None	No significant residual effect at any geographic scale	not significant
Topic	Pre-Mitigation Effect	Mitigation Measures Section Reference	Residual Effect	Significance
Remedial Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.			
Nationally Designated Sites	Positive, Long-Term, Likely, Not Significant	Section 6.4.2.3.4	Positive, Long-Term, Likely	Not significant
Aquatic Habitats and Related Species	Negative, Indirect, Short-Term, Unlikely (Leakages and Spillages) Positive, Indirect, Long-Term, Likely, Moderate (Rehabilitation)	Section 6.4.2.3.2	Positive, Long-Term, Indirect, Likely, Moderate	Not significant
Raised Bog	Positive, Long-Term, Likely	Section 6.4.2.3.1	Positive, Long-Term, Likely, Significant	Significant positive effect (local to county scale)
Cutover Bog Secondary Habitats	Positive, Long-Term, Likely	Section 6.4.2.3.1	Positive, Long-Term, Likely, Significant	Not significant
Otter	Negative, Short-Term, Unlikely (Disturbance)	Section 6.4.2.3.3	Positive, Long-Term, Likely, Significant	Not significant

	Positive, Indirect, Long-Term, Likely, Not Significant (Water Quality)		(habitat); Negative, Short-Term, Unlikely (disturbance)	
Bird Species	Negative, Short-Term, Unlikely (Disturbance) Positive, Indirect, Long-Term, Likely, Significant (Habitat)	Section 6.4.2.3.3	Negative, Short-Term, Unlikely (Disturbance) Positive, Long-Term, Likely, Significant (Habitat);	Significant positive effect (local to county scale)

6.8 Cumulative and In Combination Effects

The peat extraction and ancillary activities at the Application Site were considered in combination with other plans and projects in the area that could result in cumulative impacts on the Key Ecological Receptors (KERs) identified in Section 6.3.3 of this report, including European Sites and Nationally designated sites. This included a review of online Planning Registers and served to identify past, present and future plans and projects, their activities and their predicted environmental effects. The projects considered are detailed in Section 2.4 in Chapter 2 and listed in Appendix 2-2 of the rEiAR.

6.8.1 Assessment of Plans

Available County Development Plans were reviewed, including partial versions of earlier plans where full documents were not accessible. The following plans have been taken into consideration as part of this assessment:

- Offaly County Development Plan 2021 – 2027
- Offaly County Development Plan 2014 – 2020
- Offaly County Development Plan 2009 – 2015
- Offaly County Development Plan 2003 – 2009
- Offaly County Development Plan 1995
- Offaly County Development Plan 1987
- Offaly County Development Plan 1967
- Kildare County Development Plan 2017-2023
- Kildare County Development Plan 2011-2023
- Kildare County Development Plan 2005-2011
- Kildare County Development Plan 1999-2005
- Kildare County Development Plan 1985-1991
- Kildare County Development Plan 1984 Draft
- Kildare County Development Plan 1977-1984
- Kildare County Development Plan 1972-1977
- Kildare County Development Plan 1967-1972
- National Biodiversity Action Plan 2007-2013
- National Biodiversity Action Plan 2023-2030
- Offaly County Council Biodiversity Action Plan 2025-2030
- Kildare County Council Draft Biodiversity Action Plan 2026-2031

The review focused on policies and objectives that relate to designated sites for nature conservation, biodiversity and protected species. Policies and objectives relating to the conservation of peatlands and sustainable land use were also reviewed, particularly where the policies relate to the preservation of surface water quality. An overview of the search results with regard to plans is provided in Table 6-33.

Table 6-34 Assessment of Plans

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
Offaly County Development Plan 2021 - 2027	The Strategic Vision of the Development Plan has been identified: <i>“To create a sustainable and competitive county that supports the health and wellbeing of our people and places, from urban to rural, with access to employment opportunities supported by high quality housing and physical, social and community infrastructure for all, in a climate resilient manner and with respect for our biodiversity.”</i> The policies concerning peatlands in the Offaly County Development Plan 2021-2027 are as follows: ➤ CAEP-16 It is Council policy to support the preparation of a comprehensive after use framework plan for the industrial peatlands and associated workshops, office buildings and industrial sites in the midlands and adjacent parts of the north west and southern regions, which meets the environmental, economic and social needs of communities in these areas, and also demonstrating leadership in climate change mitigation and land stewardship. The Council recognises that the industrial peatlands in the midlands are a significant resource will transition to after uses ranging from amenity, tourism, biodiversity services, ‘wild areas’, flood management, climate mitigation, energy development, industry, education, conservation and many more. ➤ CAEP-17 It is Council policy to investigate the potential for a Green Energy Hub on peatlands in the county and facilitate it if possible. ➤ CAEP-18 It is Council policy to investigate the feasibility of an energy park with educational and amenity facilities relating to any future development of renewable energy projects of significant scale that comes forward over the lifetime of this Plan. Any development of renewable energy on cutaway bog will be required to provide increased opportunities for amenity access and educational facilities. ➤ CAEP-19 It is Council policy that planning applications for development on or immediately adjacent to peatlands shall be accompanied by assessments considering the following issues where relevant; peatland stability, hydrology, carbon emissions balance and ecological impact assessment. ➤ CAEP-20 It is Council policy to support the implementation of any relevant recommendations contained in the National Peatlands Strategy 2015 and any subsequent revisions.	The Development Plans were comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	➤ CAEO-06 It is an objective of the Council to source E.U. and national funding to support projects which assist the transition of the industrial peatlands to sustainable after uses. ➤ CAEO-07 It is an objective of the Council to ensure that renewable energy projects located on peatlands or in close proximity to peatlands do not negatively impact on any rehabilitation measures including enhanced rehabilitation measures (i.e. drain blocking and rewetting). The policies concerning biodiversity and designated sites in the Offaly County Development Plan 2021-2027 are as follows: ➤ BLP-01 It is Council policy to protect, conserve, and seek to enhance the county's biodiversity and ecological connectivity. ➤ BLP-02 It is Council policy to conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), the Wildlife Acts 1976 (as amended) and the Flora Protection Orders. ➤ BLP-03 It is Council policy to support and co-operate with statutory authorities and others in support of measures taken to manage proposed or designated sites in order to achieve their conservation objectives. ➤ BLP-04 It is Council policy to protect and maintain the conservation value of all existing and future Natural Heritage Areas, proposed Natural Heritage Areas, Nature Reserves, Ramsar Sites, Wildfowl Sanctuaries and Biogenetic Reserves in the county. ➤ BLP-05 It is Council policy to ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law. ➤ BLP-06 It is Council policy to consult with the National Parks and Wildlife Service, and take account of any licensing requirements, when undertaking, approving or authorising development which is likely to affect plant, animal or bird species protected by law. ➤ BLP-07 It is Council policy to support the implementation of the National Biodiversity Action Plan 2017- 2021 and the Offaly Heritage Plan Key Actions 2017-2021 and future editions in partnership with relevant stakeholders subject to available resources. ➤ BLP-08 It is Council policy to work with all state agencies to promote the development of all aspects of park management in the Slieve Bloom Mountains.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
Offaly County Development Plan 2014-2020	A number of policies and objectives relative to the historical use of peatlands are outlined below. ➤ Chapter 2: Economic and Enterprise Strategy ‘It is Council policy to actively encourage the redevelopment of brownfield sites for enterprise and employment creation throughout the county, in particular, sites with antecedent uses or disused sites which were formerly ESB plants and Bord na Móna work’ (Entp-07). It is Council Policy to encourage expansion and employment in industries such as agriculture, horticulture, peatlands, food, craft, tourism and energy’ (RDP-11). The County Development Plan also recognises the potential of cutaway bog sites for wind energy development. ➤ Chapter 3: Energy Strategy ‘The characteristics of cutaway bog appear to be particularly suitable for wind development. The individual sites on cutaway bogs are large and generally uninterrupted by hedgerows, streams, or other natural features. Many are already connected to each other via corridors i.e. bog railway routes, which will allow for transmission infrastructure and roadways to be built between sites, avoiding impacts on the public road in terms of traffic or visual impact. The areas where peatlands occur have a low density road network and are traditionally sparsely populated, and while they have not completely avoided sporadic urban generated one-off housing, they are the least densely populated areas of the county’	
Offaly County Development Plan 2009-2015	The Offaly County Development Plan 2008-2015 was adopted on January 19th 2009, replacing the Offaly County Development Plan 2003-2009. Policies related to the historical activities at Ballydermot are noted below. At the time of the writing of the 2009-2025 CDP, ‘after use’ of cut away bogs and alternative development of cutaway bogs are being considered in the future planning and sustainable development of the county. ➤ Chapter 3: Overall Strategy	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	<i>'The Council intends to facilitate proposals for employment generation and services improvement in this part of the county. One important action in this regard is to work closely with Bord na Móna to investigate and facilitate (were appropriate on planning grounds) the re-use and alternative development of cutaway bogs within its ownership for development which will give an employment and economic boost to the county.'</i> ➤ Chapter 6: Employment, Economy & Enterprise The 32,400 ha of peatlands within the ownership of Bord na Móna are highlighted and identified as potential sites for industrial/business type generation, in particular wind/biomass energy generation. Section 6.4 acknowledges and is in favour of re-development of disused sites such as former ESB power stations and Bord na Móna works. P06-11 states: <i>It is Council policy to actively encourage the redevelopment of brownfield sites for enterprise and employment creation throughout the county, in particular, disused sites which were formerly ESB plants and Bord na Móna works.</i> ➤ Chapter 10 Rural Development <i>P10-15: It is Council policy to support the development of the peatlands within the county for appropriate alternative uses, subject to environmental considerations and nature designations.</i> ➤ Chapter 12: Environment The CDP recognises the commitment to the National Climate Change Strategy and seeks to facilitate measures which reduce emissions of greenhouse gases in accordance with the Kyoto Agreement. The CDP also commits to implementing <i>'relevant EU and Irish Legislation pertaining to the environment'</i> (P12-08). <i>The CDP also commits to co-operating with the EPA in regard to any licencing arrangements for scheduled industries in County Offaly in accordance with the provisions of the Environmental Protection Agency Act 1992 (P12-09).</i> ➤ Chapter 15: Natural Heritage The CDP notes that peatlands comprise the main topographical feature of the landscape in Offaly and the heritage value associated with them. As such the CDP commits to protecting areas of bogland in line with existing designations. As such the CDP sets an objective to prepare a biodiversity management strategy for Offaly's peatlands in co-operation with Bord na Móna and other relevant authorities.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	➤ Chapter 16 Landscape and Amenities The preservation of landscape, views and amenities as well as places of natural beauty within the county is set out as a role of the Local Authority. To that effect the Local Authority will ensure that development respects and enhances the appearance and character of existing local landscape. The Landscape Character assessment identifies cut away bog as a moderately sensitive landscape. Lough Boora has been developed as a ‘prototype’ parkland area and the CDP reiterates the need to plan for the future use of large areas of cut-away bog within County Offaly. Table 16.4 states that some cut away bog landscapes may be appropriate for sensitively designed and located development including renewable energy and/or industrial use.	
Offaly County Development Plan 2003-2009	<i>The CDP recognises boglands as a major natural and archaeological resource. The development of this resource and its critical role in employment is also noted. The Council aimed to continue to promote and facilitate the conservation of a representative sample of peatlands and looked to co-operate with Dúchas and the Irish Peatland Conservation Council to have a Bog Conservation Study undertaken the remaining peat resources of County Offaly.</i> Plan for After-use of Industrial Peatlands (Cutaway Bogs) <i>‘The Council will seek the formulation of a comprehensive integrated landuse plan for the future development and utilisation of the large areas of cutaway bog, which now exists in the county. In addition, the plan should cater for development of further areas of cutaway bog, which will arise over the next thirty years as turf/peat production comes to an end of the county’s industrial boglands. There are 32,000 hectares (80,000) of peatland in Bord na Móna ownership in County Offaly. Because of the significant area of land involved, it is important to avoid piecemeal or unco-ordinated use/ development of this major resource.’</i> a)	
Offaly County Development Plan 1995	The Offaly County Development Plan of 1995 recognised the importance of the raised boglands as a major natural resource within the county. The importance of peatlands for employment is clear. The CDP notes a major change in employment over the previous 10 years, owing to job losses at Bord na	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	Móna. The Council state that it is an aim of the CDP to continue to support the development of peatlands for peat production. <i>‘The development of the County’s peat resources will be promoted and facilitated.’</i> However, the CDP also recognises the importance of the conservation and preservation of peatland habitats along with the potential for other peatland uses, such as tourism, amenity, educational and research purposes. The Council set a goal to secure at least 4% of the county’s original peatland area for conservation. While the continued industrialisation of peatland was supported, the Council acknowledged the need to develop a plan for the county’s peatland when turf/ peat production comes to an end. The 1995 CDP states: <i>‘The council will seek the formulation of a comprehensive integrated land use plan for the future development and utilization of the large areas of cutaway bog which now exist in the county. In addition, the plan should cater for development of the further areas of cutaway bog which will arise over the next 30 years as turf/peat production comes to an end on the County’s industrial boglands. There are 32,400 hectares (80,000 acres) of peatland in Bord na Móna ownership in County Offaly. Because of the significant area of land involved; it is important to avoid piecemeal or uncoordinated use/ development of this major resource.’</i>	
Offaly County Development Plan 1987	The Offaly County Development Plan of 1987 recognized the significance of peatlands and peat production as an employment opportunity County Offaly. At the time of publication, over 50% of the industrial jobs in the county were provided by the joint activities of Bord na Mona and the ESB as follows: <i>“ Over half the industrial jobs in County Offaly are provided by the joint activities of Bord na Mona and the E.S.B. total 2,800 jobs provided by the two, 2,200 are provided in the seven Bord na Mona works and 600 in the three E.S.B Stations. This does not include Bord na Mona seasonal work which amounts Many of the rural Of the to approximately 800 jobs every year, communities in the County are heavily dependent on peat-based employment. On a county-wide basis it is estimated that approximately 12,000, or one-fifth of the total population are directly dependent on this type of employment.”</i>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	The CDP 1987 also recognized the heavy dependence on the peat industry and that “peat resources are running out will be major causes for concern in the coming years”. With this in mind, it was anticipated that the Council would need to cooperate with other agencies to identify new initiatives and an overall employment strategy for the County. Objectives relevant to biodiversity are outlined below 11.5 Areas of Scientific Interest in County Offaly: Offaly County Council recognises the importance of sites of scientific interest in The County. These sites have been identified and classified by An Foras Forbartha and the Department of Fisheries and Forestry. Some of these items are considered to be of international importance. It shall be an objective of the Council to use its powers to ensure the protection and conservation of those areas. The Wildlife Act of 1976 makes provision for the protection of certain plant species and their habitats. County Offaly contains 4 such sites (S.I. no. 338 of 1980). It is an offence to disturb those plants or the habitats in which they grow. The following are the sites concerned: (a) Grand Canal at Tullamore (N340 250). (b) Grand Canal at Kilbeggan (N35 35). (c) Shannonharbour near Bullock Island (N020 178). (d) Camus Callows, Clonmacnoise (N02 31). The Minister for Fisheries and Forestry intends to confirm an Order under the Wildlife Act for Lough Roe (Clara Bog). 11.6 Trees and Woodlands: Offaly County Council intends to uphold the amenity, educational and scientific value of trees and woodlands. To this end a number of woods have been listed in “Areas of Scientific Interest in County Offaly”. In addition, the Council has made a number of specific Tree Preservation Orders under the Local Government (Planning and Development) Acts, 1963 to 1983 and details of these are contained in Table 33 (Appendix A). In particular, the following groups of trees are considered to make important contributions to amenity: - Trees West of Tullamore centring on Charleville Castle and the Gold Links. - Trees along the Ballinagar to Ballina Cross Roads.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	Trees at Durrow Demesne. Trees at Rahan College. It is the intention of the Council to preserve important groups of trees at these and other locations.	
Offaly County Development Plan 1967	The Offaly County Development Plan of 1967 details the significance of peatlands and peat production to the County Offaly. At the time of publication, 60% of the total production of BnM was attributable to peat extraction on peatlands located in County Offaly. The importance of the industrial employment associated with BnM and peat production is highlighted. The 1967 CDP states: <i>‘Turf production, since the event of the Turf Development Board Ltd. in 1934 and its successor, BnM, in 1946, has become of vital importance. In fact, it can be regarded as second only to agriculture in the county’s employment structure.’</i> Records within the CDP show that, at the time, there was a total of 1,791 people working in the turf production industry, which represented 9.1% of total employment in the county. While there is a clear optimism for the continued expansion of peat production operations and employment growth in the county, the CDP sounds a note of caution. The 1967 CDP estimated that the bogs of Offaly would be nearing the end of their commercial peat production lives by the turn of the century. The CDP expresses the need to expand research into the potential future uses of peatlands, in particular, future uses which would provide alternative employment opportunities, especially to the towns of Ferbane, Kilcormac, Rhode, and Shannonbridge.	
Kildare County Development Plan 2023-2029	It is a policy of the Council to: BI P2 Seek to contribute to maintaining or restoring the conservation status of all sites designated for nature conservation or proposed for designation in accordance with European and national legislation and agreements. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs), Ramsar Sites and Statutory Nature Reserves.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	BI P4 Ensure that any new development proposal does not have a significant adverse impact, incapable of satisfactory mitigation on plant, animal or bird species which are protected by law. It is an objective of the Council to: BI O6 Apply the precautionary principle in relation to proposed developments in environmentally sensitive areas to ensure that all potential adverse impacts on a designated NHA or Natura 2000 Site arising from any proposed development or land use activity are avoided, remedied, or mitigated. BI O8 Support the implementation of the National Raised Bog Special Areas of Conservation Management Plan 2017-2022. BI O9 Avoid development that would adversely affect the integrity of any Natura 2000 site and promote favourable conservation status of habitats and protected species including those listed under the Birds Directive, the Wildlife Acts and the Habitats Directive, to support the conservation and enhancement of Natura 2000 Sites including any additional sites that may be proposed for designation during the period of this Plan and protect the Natura 2000 network from any plans and projects that are likely to have a significant effect on the coherence or integrity of a Natura 2000 Site. BI O10 Ensure an Appropriate Assessment Screening, in accordance with Article 6(3) and Article 6(4) of the Habitats Directive, Section 177A of the Planning and Development Act (2001-2022) or any superseding legislation and with DEHLG guidance (2009), is carried out in respect of any plan or project not directly connected with or necessary to the management of a Natura 2000 site to determine the likelihood of the plan or project having a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects and to ensure that projects which may give rise to significant cumulative, direct, indirect or secondary impacts on Natura 2000 sites will not be permitted (either individually or in combination with other plans or projects) unless for reasons of overriding public interest. BI O11 Support the establishment of conservation measures and the preparation and implementation of management plans for the conservation of Natura 2000 sites by NPWS, as required by Article 6(1) of the Habitats Directive.	

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	BI O15 Ensure that any new development proposal does not have a significant adverse impact on rare and threatened species, including those protected under the Wildlife Acts 1976 and 2012, the Birds Directive 1979 the Habitats Directive 1992 and the Flora Protection Order species and any species listed under the national red lists or that could be listed on a national red list. BI O16 Ensure appropriate species and habitat avoidance and mitigation measures are incorporated into all new development proposals. BI O17 Require a derogation licence, where necessary, issued by the DHLGH, in the event of a proposed development impacting on a site known to be a breeding or resting site of species listed in the Habitats Directive (Annex IV species). BI O20 Conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92143/EEC) (as amended), the Birds Directive (20091147/EC), Directive Annex 2, the Wildlife Acts 1976 to 2000, The Wildlife Acts 1976 (as amended) and the Flora Protection Order No 94 of 1999. BI O21 Work with bodies such as the NPWS and National Biodiversity Data Centre to ensure that species for which Kildare is a national stronghold such as Green-Flowered Helleborine Orchid, Yellowhammer and Linnet, which are nationally rare or declining, are supported to flourish and seek to ensure the habitat conditions favourable to such species are retained in the county. BI O22 Identify and protect areas of high nature conservation value (including but not limited to SAC/SPA/pNHA) and support the landscape features which act as ecological corridors/networks and stepping-stones, such as river corridors, hedgerows, and road verges so as to minimise the loss of habitats and features of the wider countryside which are of major importance for wild fauna and flora in accordance with Article 10 of the Habitats Directive. LR O22 Co-operate with the relevant government departments and other statutory bodies in the protection and conservation of the Fen, a designated Special Area of Conservation (SAC) LR O54 Ensure any proposed walking or cycling route does not significantly impact the following: - Special Areas of Conservation (SACs)	

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	- Special Protection Areas (SPAs) - Natural Heritage Areas (NHAs) - Other areas of importance for the conservation of flora and fauna. - Known sites of Flora Protection Order species - Zones of Archaeological Potential. - The vicinity of a recorded monument. - Sensitive landscape areas as identified in Chapter 13 of this Plan. - Scenic views and prospects. - Protected Structures. - Established rights of way and walking routes.	
Kildare County Development Plan 2017-2023	The Kildare County Development Plan 2017-2023 (KCDP 2017-2023) came into effect 1st March 2017, replacing the Kildare County Development Plan 2011-2017. Policies related to the historical activities at the Application Site are noted below. Chapter 7: Infrastructure <i>“SW 16 Recognise the important role of bogland and other wetland areas in flooding patterns. Development in these areas shall therefore be subject to a Flood Risk Assessment in accordance with the relevant guidance.”</i> Chapter 10: Rural Development <i>“Bórd na Móna has produced a 15-year strategy, Sustainability 2030, which outlines the company’s plan to complete the transition from energy peat production into new sustainable business. The strategy recognises the role and responsibility of Bord na Móna in the rehabilitation of its peatlands to an environmentally sustainable condition with a higher biodiversity value.</i> The relevant policies in the KCDP 2017-2023 are as follows: ➤ BL 1 Ensure that a balanced approach is taken to the development of the county’s peat resources and the restoration of cutaway bogs, in order to	The Development Plans were comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	minimise the negative impact on biodiversity and the archaeological and cultural heritage of the county. ➤ BL 2 Seek a balance between the peat extraction potential of the county, whilst ensuring the protection and conservation of bogland habitats. Limiting extraction to those bogland areas currently under development will help to minimise impacts by localising effects and thus protect the bog landscape character areas within the county. ➤ BL 3 Take a balanced approach to the redevelopment of cutaway bogs recognising their significant landscape, environmental and heritage value. Future development should seek to conserve cutaway bogs and maximise their potential for wildlife, biodiversity, conservation and amenity in the first instance, whilst the potential for economic uses such as grassland, forestry and renewable energy in some circumstances is acknowledged, subject to the protection of the environment and landscape character. ➤ BL 4 Liaise with Bord na Móna, the Irish Peatland Conservation Council, Coillte and the National Parks and Wildlife Service of the Department of Housing, Planning, Community and Local Government to ensure the sustainable use of cutaway bogland, with due consideration given to their ecological and amenity value. ➤ BL 5 Seek a Hydrological Report which will also incorporate Flood Risk Assessment in accordance with the Planning Guidelines “The Planning System and Flood Risk Management (2009)” for significant developments within boglands, so as to ensure that the quality of ground or surface water is assessed and mitigation measures identified. This assessment should address the issue of ground and slope stability. ➤ BL 6 Support the development of the peatlands within the county for appropriate alternative uses, subject to environmental considerations and nature designations.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	➤ BL 7 Recognise the potential and support the appropriate development of eco-tourism developments based on the unique characteristics and biodiversity of bogland in Kildare. ➤ REO 4 Ensure that all new developments and practices do not undermine rural ecosystems, landscapes and conservation areas and are conducted in a manner consistent with the protection of the local environment and in line with national legislation and relevant guidelines.” The KCDP 2017–2023 adopts a balanced policy framework regarding boglands and former peat extraction sites. It recognises the environmental sensitivity of peatlands in relation to flood risk, biodiversity, hydrology, and landscape character while also supporting their transition toward sustainable alternative uses. The KCDP prioritises environmental protection and ecological restoration as the primary objective for cutaway bogs. However, it simultaneously supports renewable energy and other appropriate economic uses, provided these are environmentally sustainable and supported by robust assessments.	
Kildare County Development Plan 2011-2023	The Kildare County Development Plan 2011-2017 (KCDP 2011-2017) came into effect 2nd May 2011, replacing the Kildare County Development Plan 2005-2011. Policies related to the historical activities at the Application Site are noted below. The KCDP 2011-2017 promotes a balanced approach to the after-use of cutaway bogs, recognising the transition toward rehabilitation, biodiversity enhancement, and potential eco-tourism. It prioritises conservation of intact boglands and supports appropriate alternative uses for cutaway bogs (such as forestry or wind energy), subject to robust assessments. Chapter 10 – Rural Development <i>“Bórd na Móna owns c. 8,500ha of peatlands in the county, representing c.10% of its national landholding.</i> <i>Bórd na Móna is reviewing its peatlands with a view to developing a comprehensive plan for their future use after the peat production phase. Bord na Móna’s Sustainability Report 2008/2009 states that it recognises its role and responsibility in the transition of the peatlands within its guardianship and to the rehabilitation and after care of such lands to an environmentally sustainable condition with a higher</i>	

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	<i>biodiversity value. The potential for eco-tourism based on the unique characteristics of the peatlands and the biodiversity habitats they provide is also being investigated.</i> The relevant policies in the KCDP 2011-2017 are as follows: ➤ BL 1 To ensure that a balanced approach is taken to the development of the county's peat resources and the restoration of cutaway bogs, in order to minimise the negative impact on biodiversity and the archaeological and cultural heritage of the county. ➤ BL 2 To seek a balance between maximising the peat extraction potential of the county, whilst ensuring protection and conservation of bogland habitats. Limiting extraction to those bogland areas currently under development will help to minimise impacts by localising effects and thus protect the bog landscape character areas within the county. ➤ BL 3 To take a balanced approach to the redevelopment of cutaway bogs. Large portions of cutaway bog should be developed as areas for wildlife, biodiversity, conservation and their amenity value, whilst other portions can be utilised for economic uses such as grassland, forestry and wind energy, subject to all planning and environmental considerations being met. ➤ BL 4 To liaise with Bord na Mona, the Irish Peatland Conservation Council, Coillte, National Parks and Wildlife Service of the Department of the Environment, Heritage and Local Government, to ensure the sustainable use of cutaway bogland, with due consideration given to their ecological and amenity value. ➤ BL 5 To seek a Hydrological Report which will also incorporate Flood Risk Assessment in accordance with the Planning Guidelines The Planning System and Flood Risk Management (2009) for significant developments within boglands so as to ensure that the quality of ground or surface water is assessed and mitigation measures identified. This assessment should address the issue of ground and slope stability.	

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	➤ BL 6 To support the development of the peatlands within the county for appropriate alternative uses, subject to environmental considerations and nature designations. Chapter 14 – Landscape, Recreation and Amenities <i>“It is the policy of the Council:</i> LL 4: <i>To recognise that intact boglands are critical natural resources for ecological and environmental reasons.</i> LL 5: <i>To recognise that cutaway and cut-over boglands represent degraded landscapes and/ or brownfield sites and thus are potentially robust to absorb a variety of appropriate developments.”</i> The KCDP 2011-2017 reflects a shift from peat extraction toward sustainable redevelopment, biodiversity protection, environmental safeguards, and long-term ecological restoration of peatlands.	
Kildare County Development Plan 2005-2011	The Kildare County Development Plan 2005-2011 (KCDP 2005-2011) was adopted by members of the Council on the 18th May 2005 and legally came into effect on the 15th June 2005. The importance of the development of peatlands is clear. The Council state that it is an aim of the KCDP 2005-2011 to continue to support the development of peatlands for peat production: <i>“BL 1 That in assessing bogland coverage and peat extraction activities within County Kildare, the Council shall seek to identify bogland areas currently under extraction and remnant bogland areas, so as to maximise the peat extraction potential of the county whilst ensuring protection and conservation of bogland habitats. Limiting extraction to those areas currently under development will help to minimise impacts by localising effects and thus protect the bog landscape character areas within the County.”</i> However, the KCDP 2005-2011 also recognises the importance of the conservation and preservation of peatland habitats along with the potential for other peatland uses, such as amenity, educational and research purposes. The Council set a goal to secure at least 4% of the county’s original peatland area for conservation.	

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	Chapter 11 Forestry and Boglands states that <i>“There are approximately 24,300 hectares (60,045 acres) of land in Kildare covered by bogs, which represents 14% of the total land coverage of the county. 38% of this bogland is in industrial production with the majority (8,277 hectares) being operated by Bord na Móna. A number of bogs in the county are designated SACs, SPAs and proposed NHAs”.</i> A key objective of the KCDP 2005–2011 is to <i>“ensure that a balanced approach is taken to the development of the county’s peat resources and the restoration of cutaway bogs, in order to minimise the negative impact on biodiversity and the archaeological and cultural heritage of the county”.</i> In support of this goal, the KCDP outlines several specific measures: <i>“(1) To promote and facilitate the development of the county’s peat resources in a sustainable manner.</i> <i>(2) To seek the conservation of designated bogs and to protect the bogland landscape character areas within the county.</i> <i>(3) To encourage a balanced approach to the re-development of cutaway bogs.”</i> Policies related to the historical activities at the Application Site are noted below. ➤ BL 2 To take a balanced approach to the re-development of cutaway bogs. Large portions of cutaway bog should be developed as areas for wildlife, biodiversity conservation and their amenity value, whilst other portions can be utilised for economic uses such as grassland, forestry and wind energy. ➤ BL 3 To liaise with Bord na Móna, the Irish Peatland Conservation Council, Coillte, National Parks and Wildlife Service of the Department of the Environment, Heritage and Local Government, to ensure the sustainable use of cut away bogland, with due consideration given to their ecological and amenity value. ➤ BL 4 To recognise that cutaway boglands represent degraded landscapes and/or brownfield sites and thus are potentially robust to absorb a wide variety of sympathetic developments. It should be noted that they have potential for grass and forestry, however difficulties can arise with crop production.	

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	➤ Section 18.7.3 of Chapter 18 Landscape Character Areas of the KCDP 2005-2011 deals specifically with the Allen Remnant Bogs. Policies related to the historical activities at the Application Site are noted below. ➤ AR 1 To co-operate with the DOEHLG in the protection and conservation of the Allen Remnant Bog (Mouds Bog) a designated SAC. ➤ AR 2 To promote, in conjunction with Bord na Móna and the IPCC, the amenity, ecological and educational value of Allen Remnant Bog (Mouds Bog) while at the same time ensuring the conservation of its fauna and flora. While the continued industrialisation of peatland was supported, the Council acknowledged the need to develop a plan for the county's peatland when turf/ peat production comes to an end.	
Kildare County Development Plan 1999-2005	The Kildare County Development Plan 1999-2005 (KCDP 1999-2005) was adopted in May 1999 and was subsequently amended by several variations, including 1, 2, 3, 4, 6, and 8. The KCDP 1999-2005 adopts a supportive position toward peat extraction, emphasising its role in sustaining employment and facilitating peat-based energy development, subject to environmental designations. It is stated that, <i>“Employment in agriculture, forestry and turf production, as well as mining and quarrying has fallen to the point where it now accounts for only 14% of total employment. The North-West has seen a marked decline in the peat-based economy in recent years, as a result of rationalisation, chiefly by Bord na Mona and the ESB. Employment in the services sector is now dominant accounting for 54% of total employment in the county”</i> The importance of the development of peatlands for employment is clear. <i>“The development of a peat-fired Generating Station adjoining the county (“Europeat 1”) will be of significance to Kildare, not only in terms of employment opportunities for residents of the county but also as most of its raw material will come from the boglands resource of the county. It is important that the Council should facilitate this development, through encouragement of the peat extraction, other than in Natural Heritage Areas and Areas of High Amenity, and in processing the necessary electricity supply distribution network arising from it.”</i>	

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	While the continued industrialisation of peatland was supported, the Council acknowledged the need to develop a plan for the county's peatland when turf/ peat production comes to an end. Policies within the KCDP 1999-2005 in relation to the historical activities at the Application Site are noted below. • Part 1 Introduction and Review ○ 1.23.8 Robertstown Countryside The KCDP 1999-2005 recognizes The Robertstown Countryside area as an important recreational and tourism resource, featuring extensive boglands developed by Bord na Móna, canal villages such as Robertstown and Rathangan, natural amenities including Donadea Forest Park, Ballinafagh Lake, the Hill of Allen, and waterways linked to Pollardstown Fen. ○ 1.24 Boglands <i>“At present there is a total of 9,000 hectares (20,000 acres) of bogland in the county. Most of this is being or has been worked, by Bord na Mona, although in recent years there has been a small increase in private working of the bogs.</i> <i>Practically all of the raised bogland in the county has been cut away or is being developed. It is considered important for educational and heritage reasons that at least one intact raised bog area should be preserved in County Kildare because of its location in the east of the county. It is considered that Carbury Bog, because of its international importance as an area of scientific interest and its status as being the most intact of the raised bogs in the East Midlands, should be considered for this preservation.</i> <i>The after-use of cut away bogs in the Robertstown Countryside area is set out in the preceding section of this Plan. The policy in respect of Boglands generally is set out in paragraph 2.23 of this Plan.”</i> ○ 1.27 Areas of Scientific Interest	

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	<i>“The county contains many areas of scientific interest, including Pollardstown Fen which is of international importance. Areas of National importance include Carbury Bog, which is of ecological interest, the Chair of Kildare/Grange Hill which is of geological interest, the Curragh, which is of both geological and ecological interest, and the Liffey Valley, which is of geomorphological and ecological interest.</i> <i>Some of the areas, which were listed in the last Plan, have been designated by the Office of Public Works as Natural Heritage Areas and Special Areas of Conservation. While this will confer additional protection under national legislation, it is considered that their inclusion in the Development Plan remains warranted on planning grounds.”</i> • Part 2 Policy ○ 2.25 Boglands <i>“In the case of cut-away bogland, where the peat resource has been depleted, it will be Council policy to encourage the use of these areas for amenity forestry, using a growth of mixed native deciduous woodlands where possible, in line with the policies for the Robertstown Countryside, and in other areas for forestry and agriculture. In cases in which planning permission is required, it will be the policy of the Council to ensure that the creation of tourist and amenity resources will be facilitated and that the quality of ground and surface water will not be impaired.”</i>	
Kildare County Development Plan 1985-1991	The Third Revision of the Kildare County Development Plan 1985-1991 (KCDP 1985-1991) was adopted by the Council in 1985. In relation to employment generated by the peat extraction industry in the county, the KCDP 1985-1991 states, <i>“The products are sod peat, briquettes and moss peat. Including office staff, there are approximately 1,000 people employed by Bord na Mona in the county.”</i>	

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	Policies within the KCDP 1985-1991 in relation to the historical activities at the Application Site are noted below. Part 1 – Section 1 Introduction <i>“Practically all of the raised bogland in County Kildare has been cut away or is being developed. It is considered important for educational and heritage reasons that at least one intact raised bog area should be preserved in County Kildare because of its location in the east of the country. A report to the European Parliament urged the total protection of Carbury Bog in County Kildare because of its National importance as an area of scientific interest and its status as being the most intact of the raised bogs in the East Midlands.</i> <i>The preservation of the bog is also one of the aims of the Peatland Development Committee founded in 1979 with representatives from A.C.O.T., An Foras Taluntais, I.F.A, National Land League, Macra na Feirme, Forest & Wildlife Service, An Foras Forbartha and the Farm Development Service.”</i> Section 2 Policy <i>“The council recognises the vast amenity and productive potential of the bog areas of the county. The Council will consult with bord na Móna, An Foras Taluntais and other appropriate bodies to ensure that the productive development of the bogland is carried out in such a way as not to prejudice the amenity potential. (Specific anti-amenity activities such as unauthorised dumping will be investigated and eliminated in accordance with extended powers available under the Litter Act, 1982). It is also Council policy to co-operate with the Peatland Development Committee and other interested bodies in furthering the preservation of Carbury Bog which is described in detail in S.1.26.</i> <i>Carbury Bog is listed in Section 4 of Part 1 of the Plan as an area of scientific interest, with a rating of national importance together with other bog areas of regional and local interest.”</i> The KCDP 1985–1991 adopted a policy position that supported the productive utilisation of peatlands across the county, subject to safeguards for amenity value and designated sites of scientific importance.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
Kildare County Development Plan 1984 (Draft)	Policies within the Draft Kildare County Development Plan 1984 in relation to the historical activities at the Application Site are noted below. • Part 1 – Section 1 Introduction ○ 1.26 Boglands <i>“Practically all of the raised bogland in County Kildare has been cut away or is being developed. It is considered important for educational and heritage reasons that at least one intact raised bog area should be preserved in County Kildare because of its location in the east of the country. A report to the European Parliament urged the total protection of Carbury Bog in County Kildare because of its National importance as an area of scientific interest and its status as being the most intact of the raised bogs in the East Midlands.</i> <i>The preservation of the bog is also one of the aims of the Peatland Development Committee founded in 1979 with representatives from A.C.O.T., An Foras Taluntais, I.F.A., National Land League, Macra na Feirme, Forest & Wildlife Service, An Foras Forbartha and the Farm Development Service.”</i> • Section 2 - Development Policy ○ 2.24 Bog Lands <i>“The Council recognises the vast amenity and productive potential of the bog areas of the county. The Council will consult with Bord na Mona, An Foras Taluntais and other appropriate bodies to ensure that the productive development of the bogland is carried out in such a way as not to prejudice the amenity potential. (Specific anti-amenity activities such as unauthorised dumping will be investigated and eliminated in accordance with extended powers available under the Litter Act, 1982). It is also Council policy to co-operate with the Peatland Development Committee and other interested bodies in furthering the preservation of Carbury Bog which is described in detail in S.1.26.</i> <i>Carbury Bog is listed in Section 4 of Part 1 of the Plan as an area of scientific interest, with a rating of national importance together with other bog areas of regional and local interest.”</i>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	As with the KCDP 1985–1991, the draft KCDP 1984 adopted a policy position that supported the productive utilisation of peatlands across the county, subject to safeguards for amenity value and designated sites of scientific importance.	
Kildare County Development Plan 1977-1984	The Kildare County Development Plan 1977–1984 (KCDP 1977-1984) acknowledges the historical significance of peatlands within the county, both as a resource for peat production and for their wider land-use potential. The KCDP 1977-1984 sets out the characteristics of different bog types and recognises opportunities for productive use. Policies within the Kildare County Development Plan 1977-1984 in relation to the historical activities at the Application Site are noted below. 3. Peats: <i>“Fifteen percent of the total area of the County consists of various peat formations ranging from true fen peat to deep Sphagnum bog. Bogs have a very limited use range, rough grazing and meadows are common but a large amount of the more uneven areas is devoted to forestry.</i> <i>There appears to be few problems in producing a wide range of crops on cutover bogs where there is a sufficient peat depth left after cutting, while grassland and forestry are potentially good on the shallow cutover areas.</i> <i>A small area (440 acres) of typical swampy fen peat which occurs at Pollardstown near Newbridge has an extremely limited use - range.”</i> 22. Boglands	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	<i>“The Council recognises the importance of the boglands as a major natural resource being raw material for power generation and peat production, and also being a major amenity area. At present, extensive research into the use of bog-lands for a variety of purposes, is being carried out.”</i>	
Kildare County Development Plan 1972-1977	Policies within the Kildare County Development Plan 1972-1977 (KCDP 1972-1977) in relation to the historical activities at the Application Site are noted below. Part One – (3) Areas of High Amenity <i>“The following are the major areas of high amenity:</i> <i>The Curragh and its environs.</i> <i>The Valley of the River Liffey.</i> <i>The Valley of the River Barrow.</i> <i>Castletown-Donaghumper area.</i> <i>East Kildare Uplands. (f) Carton Estate Area.</i> <i>Pollardstown Fen area.</i> <i>The Robertstown Area and Ballinafagh Lake.</i> <i>It is intended to exclude from these areas, any development which would be prejudicial to their natural beauty and it is proposed to have a selection of these areas specially surveyed with a view to considering in each case whether a special amenity area order should be made and the precise area to be covered by any such order.”</i> (4) Boglands <i>“At present research is being undertaken to ascertain the potential use of the boglands. The Council recognises the importance of these areas as a major natural resource and any development that might hinder their future use in the light of present knowledge will be restricted. Anti-amenity activities such as unauthorised dumping will be investigated and eliminated.”</i>	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
	The approach to peatlands in the KCDP 1972-1977 indicates an early balance between resource use and environmental protection.	
Kildare County Development Plan 1967-1972	The Kildare County Development Plan 1967-1972 (KCDP 1967-1972) states the following in relation to employment in the County. • Part One - Development Policy ○ 1.2 Population and Employment <i>“Irish Ropes Limited is by far the largest employer in the town; other major employers are, Newbridge Cutlery, Sanderson's, Bord na Mona, Cullen's and Doyle's.”</i> • Appendix B - Survey Data ○ 3. Employment – (c) Bord na Mona <i>“The Experimental Station and Central Stores employ about 90 people. The future of this employment will be dependent upon the future of the bogs. It is not expected that there will be any decrease during the period of the plan.”</i> The KCDP 1967-1972 indicates the significance of Bord na Móna and other key employers to local employment at the time, with peat-related activities recognised as providing a stable source of jobs dependent on the continued use of the county's boglands.	

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
Kildare County Council Draft Biodiversity Action Plan 2026-2031	<u>Landscapes for Nature</u> 1.5 Support the development of Management Plans for Locally Important Biodiversity Sites, as appropriate 1.6 Prepare a Green and Blue Infrastructure Masterplan (including green, blue and brown infrastructure) that can inform the delineation of core areas, stepping stones, and corridors, that would identify ecologically sensitive areas to be excluded from any potential amenity/ tourism plans and that may inform the designation of an interconnected Nature Reserve, Regional Park, a potential National Peatlands Park, inter alia. 1.10 Actively support the implementation of national biodiversity initiatives, including the All-Ireland Pollinator Plan. <u>Recording, Monitoring & Data Management</u> 3.2 Update Kildare County Council's Pollinator Plan, and as part of that process design-in ways to assess changes in sample local pollinator populations, resulting from the implementation of the All-Ireland Pollinator Plan actions at site level. <u>General Policy</u> 4.6 Advance a policy of 'biodiversity net gain' (BNG), wherever possible, through strategies, plans, developments, mitigation measures, appropriate off-setting and/or investment in Green and Blue Infrastructure with specific evidence-based and locally relevant biodiversity and environmental measures, through the review of the next County Development Plan	The Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
Offaly Biodiversity Action Plan 2025-2030	The Plan has been developed to closely align with the objectives and actions of the 4th National Biodiversity Action Plan 2023 – 2030 which ensures the work will benefit habitats and species both locally and nationally. <u>Actions for biodiversity</u> 21 Implement actions of the All-Ireland Pollinator Plan for Councils 22 Support initiatives under the Water Framework Directive that contribute to the restoration of ecology in water bodies, and the Blue Dot Catchments Programme. 23 Protect existing and maximise nesting opportunities arising from new developments for Swift, House Sparrow, House Martin, Swallows and bats. <u>Invasive Alien Species</u> 25 Prioritise the assessment and management of new IAS discoveries in the county in collaboration with other counties + agencies <u>Building Resilience</u> 28 Work with the relevant authorities to support the preparation of, and implement, Ireland's Nature Restoration Plan, when adopted, and where relevant for Offaly County Council, to help achieve national restoration targets. 30 Work with relevant agencies annually to continue to assess wildfire risk to bogs and upland habitats and management of same.	The Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
4th National Biodiversity Action Plan 2023-2030	The purpose of the 4th National Biodiversity Action Plan is to set out the approach to governance and conservation of biodiversity through a series of targeted actions within the Plan. This is underpinned by five strategic objectives aimed at ensuring that Irelands' biodiversity and ecosystems are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally. The strategic objectives are: ➤ Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity ➤ Objective 2: Meet Urgent Conservation and Restoration Needs ➤ Objective 3: Secure Nature's Contribution to People ➤ Objective 4: Enhance the Evidence Base for Action on Biodiversity ➤ Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives	The Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans.
National Biodiversity Action Plan 2017-2021	Target 6.2 - Sufficiency, coherence, connectivity and resilience of the protected areas network substantially enhanced by 2020.	The Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity and Designated Sites. Peat extraction and ancillary activities during the Peat Extraction Phase and Current Phase are unlikely to have resulted in a significant effect on biodiversity (with the exception of Clonroosk) and designated sites and are therefore not considered to be in contravention of the policies and objectives within the Development Plans.

Plans	Key Policies and Objectives directly related to European Sites and Biodiversity in the Zone of Influence	Assessment of Potential Impact on European Sites and Biodiversity
		The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the Application Site will have a significant positive effect on biodiversity, including uncut but drained peatland habitat, which is in compliance with the policies and objectives outlined within the plans..

6.8.2 Projects

A search was conducted using data from Offaly and Kildare Councils and An Coimisiún Pleanála's planning portals to search for all planned and/or permitted planning applications within 5km of the Application Site boundary. Applications considered within this boundary include all extant permissions between July 1988 to September 2025 available on the various online portals mentioned above. Land uses within the wider catchment which have the potential to result in cumulative impacts with the Project are considered in Section 6.7.4.

The majority of planning applications granted permission by the relevant planning authorities during the Peat Extraction Phase mainly relate to one-off rural dwelling houses, residential development (i.e. modification and/or re-development of existing dwellings) and agricultural development, including new entrances, sheds and ancillary plant and infrastructure. It should be noted that the commencement of peat extraction and ancillary activities within the Application Site pre-dates all decided planning applications included in the cumulative assessment. Consequently, potential impacts (e.g. traffic movements) arising from the activities associated with the Peat Extraction Phase would have been considered by the planning authorities in their assessment of planning applications within the cumulative list. A list of all planning applications considered across all cumulative impact assessments is included in Appendix 2-2

With regard to planning applications lodged during the Current Phase (June 2020 to present day) (Appendix 2-2), peat extraction within the Application Site was already permanently ceased and removal of peat stockpiles and licence compliance activities were ongoing without any discernible negative effects on the environment.

In line with BnM's vision to assist in achieving a climate neutral Ireland by 2050, it is intended to utilise the Application Site for both peatland rehabilitation and wind energy infrastructure. BnM Powergen Ltd, a subsidiary of BNM is progressing a wind energy development consisting of 47 no. turbines through the pre-planning phase of development. It is intended that a direct application will be made to An Coimisiún Pleanála as 'Strategic Infrastructure Development' (SID) under the provisions of Section 37E of the Planning and Development Act 2000, as amended. Following pre-application consultations with An Coimisiún Pleanála under 37B Act, An Coimisiún Pleanála determined that the proposed Ballydermot Wind Farm would be strategic infrastructure within the meaning of section 37A of the Act (ACP Ref: 310143). At the time of writing, the planning application for this development has not yet been submitted to An Coimisiún Pleanála.

Planning permission for the Water Supply Project Eastern and Midlands Region has been submitted to An Coimisiún Pleanála (ACP Ref: 323980). The project includes a proposed pipeline route passing through Codd 2, Glashabaun North, Glashabaun South and Derrybrennan bogs within the Application Site, and a proposed abstraction from the Figile River during the testing and commissioning phase.

6.8.3 Assessment of Cumulative Effects

6.8.3.1 Peat Extraction Phase (1988-2020)

With regards to historical cumulative impacts, the original drainage and cutting of the acrotelm at the Application Site from 1935 to July 1988 is likely to have resulted in a profound negative effect on the raised bog habitat (and associated marginal habitats such as fen and bog woodland) that was present, particularly in the earlier years when the majority of the drainage of the Application Site was undertaken.

The impact assessment provided in Section 6.4 above in relation to raised bog habitat (and associated habitats and fauna) and potential impacts thereon due to peat extraction and ancillary activities within

the Application Site from July 1988 to June 2020 (the Peat Extraction Phase) concluded that ongoing operations during this time period are unlikely to have had a significant residual effect on the vast majority of the remaining uncut raised bog habitats at the Application Site, with the exception of Clonroosk, where drainage associated with peat extraction activities resulted in impacts on remnant raised bog habitat. Rehabilitation works to block the drains at Clonroosk were completed in 2014, and the condition of the habitat improved during this phase as a result of these works. The effect of drainage at Clonroosk occurred within a single, localised area of the Application Site. Any potential for this effect to have combined with drainage or loss of remnant raised bog habitat elsewhere in the wider area during the Peat Extraction Phase is therefore considered unlikely to have been significant beyond the local scale.

Considering the profound loss of raised bog prior to July 1988, continued activity between July 1988 and June 2020 is likely to have had a slight negative effect on biodiversity, when compared to impacts prior to July 1988 (i.e. prior to the Project). With the exception of the significant, direct, long-term effect at Clonroosk, it is considered that there was no potential for peat extraction and ancillary activities during the Peat Extraction Phase of the Project to have contributed to any likely significant negative cumulative effects on biodiversity.

6.8.3.2 Current Phase (2020-Present)

With regard to projects during the Current Phase, peat extraction within the Application Site had ceased permanently, and activities on site were limited to peat stockpile removal, licence compliance measures and PCAS rehabilitation in Lodge Bog. These activities were ongoing without any discernible negative effects on the environment.

The Peatland Climate Action Scheme (PCAS) is a programme of enhanced peatland rehabilitation measures, applied in addition to the IPC licence decommissioning and rehabilitation requirement. PCAS is being implemented at specific locations across the BnM landbank identified as suitable for the prescribed enhancement measures.

PCAS works were carried out within sections of Lodge Bog within the Application Site (commencing in 2022). These sections have been subject to enhanced rehabilitation, including targeted rewetting measures. The implementation of PCAS measures at these sites will provide greater surface water attenuation and water quality benefits both in and downstream of the restoration areas. These PCAS measures, in combination with the standard remedial measures being implemented across the Application Site, will have a positive cumulative effect on biodiversity.

In the review of the projects that was undertaken, no connection that could potentially result in additional or negative cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Project.

6.8.3.3 Remedial Phase

A planning application for the proposed Ballydermot Wind Farm has not been submitted to An Coimisiún Pleanála at the time of writing. It is proposed that it will consist of 47no. turbines within the Application Site. The remainder of the Application Site would continue to support peatland rehabilitation. Potential cumulative impacts on biodiversity are considered minimal due to the limited development footprint within the overall site, extensive mitigation measures, and integration with rehabilitation activities.

The proposed Ballydermot Wind Farm EIAR and NIS will include a suite of best-practice mitigation measures to ensure protection of water quality and biodiversity during construction, operation, and decommissioning. As such, when considered in combination with rehabilitation activities, the proposed Ballydermot Wind Farm development is not expected to result in significant cumulative effects on biodiversity.

The proposed Water Supply Project Eastern and Midlands Region includes a pipeline route passing through Codd 2, Glashabaun North, Glashabaun South and Derrybrennan bogs within the Application Site, and a proposed abstraction from the Figile River during the testing and commissioning phase. An overlap of the construction periods associated with the Water Supply Project and the Remedial Phase could result in cumulative pressures on the local water environment. However, based on the estimated construction timeline for the Water Supply Project, the short-term rehabilitation actions at the Application Site are expected to be completed prior to any overlap, and the remaining long-term rehabilitation works (monitoring, aftercare and maintenance) are not expected to result in significant cumulative effects in combination with the Water Supply Project. The Biodiversity chapter of the EIAR prepared for the Water Supply Project identifies significant residual construction-phase effects associated with permanent habitat loss, and loss of bat roosts and badger setts, along the pipeline infrastructure corridor, with no likely significant residual effects identified for the operational phase. The Remedial Phase of the Project is assessed as having a positive effect on habitats and biodiversity within the Application Site. As the Remedial Phase does not give rise to a negative effect on biodiversity, no potential for cumulative negative effects arising in combination with the residual construction-phase effects of the Water Supply Project has been identified. The implementation of the Cutaway Bog Decommissioning and Rehabilitation Plans for the bogs within the Application Site will have a long-term, significant positive effect on the raised bog habitats within the Application Site as well as on downstream water quality, and therefore will not contribute to any negative effects on biodiversity when considered cumulatively with other projects and plans.

6.8.4 Other Land Uses

6.8.4.1 Agriculture

Agriculture is the dominant land use within the lands surrounding the Application Site and the wider catchment, and has been identified as a significant pressure on water quality in a number of surface water bodies within the Figile, Slate and Boyne sub-catchments (Chapter 8, Hydrology and Hydrogeology). The potential for the Project to combine with agricultural activities to result in cumulative effects on downstream water quality and associated aquatic habitats and species was greatest during the Peat Extraction Phase, given the higher intensity of works undertaken at the Application Site at that time. EPA Q-value monitoring data indicate no clear negative trend in downstream surface water quality over this period, and upstream monitoring stations, unaffected by the Project, show similar fluctuations, indicating that agriculture has a greater influence on surface water quality within the wider catchment than the Project. The potential for cumulative effects with agriculture is further reduced during the Current Phase, given the much-reduced scale of activity at the Application Site, and is expected to be further reduced during the Remedial Phase, as the implementation of the Rehabilitation Plans will result in improvements in surface water attenuation and quality. On this basis, no potential for the Project, in combination with agriculture, to result in significant cumulative effects on biodiversity via deterioration of water quality has been identified.

Several bird species recorded at the Application Site, including lapwing, curlew and golden plover, are known to utilise agricultural land in addition to cutover bog and remnant raised bog habitats. Agricultural management activities in the surrounding lands, have the potential to affect the availability of this supporting habitat in combination with the Project. However, given the highly mobile nature of these species and their demonstrated use of multiple habitat types across the wider landscape, and given that the Remedial Phase is assessed as having a positive effect on habitats and biodiversity within the Application Site, no potential for the Project, in combination with agriculture, to result in significant cumulative effects on these species has been identified.

6.8.4.2 Forestry

Small areas of coniferous forestry are present within the lands surrounding the Application Site and drain to the same watercourses as the Application Site. Forestry can give rise to water quality effects

through the release of sediment and nutrients, and to modified flow regimes through associated land drainage. As with agriculture, the potential for cumulative effects with forestry on downstream water quality and associated aquatic habitats and species was greatest during the Peat Extraction Phase, given the higher intensity of works undertaken at the Application Site at that time. EPA Q-value monitoring data indicate no clear negative trend in downstream surface water quality over this period. The potential for cumulative effects with forestry is further reduced during the Current Phase, given the much-reduced scale of activity at the Application Site, and is expected to be further reduced during the Remedial Phase, as the implementation of the Rehabilitation Plans will result in improvements in surface water attenuation and quality. On this basis, no potential for the Project, in combination with forestry, to result in significant cumulative effects on biodiversity via deterioration of water quality has been identified.

Several bird species recorded at the Application Site, including buzzard, sparrowhawk and long-eared owl, are known to utilise woodland and coniferous forestry edge habitat. Forestry management activities, such as felling may result in disturbance to bird species utilising the Application Site and adjacent areas. The potential for this to combine with disturbance associated with the Project was greatest during the Peat Extraction Phase, given the higher intensity of works and machinery activity undertaken at that time, and has been much reduced during the Current Phase and is expected to remain so during the Remedial Phase, given the small-scale nature of rehabilitation works. Given the mobility of bird species recorded at the Application Site and their ability to use alternative areas during any disturbance, no potential for the Project, in combination with forestry management, to result in significant cumulative effects on bird species has been identified during any phase.

6.8.4.3 **Turbary**

Third-party peat cutting (turbary) has historically occurred at the margins of several bogs within the Application Site, primarily during the Peat Extraction Phase, and predominantly within degraded, peripheral areas of remnant raised bog. The scale of turbary was small relative to the peat extraction and ancillary activities undertaken by BnM across the Application Site during this period. These areas were already highly modified from their natural state and generally of lower biodiversity value than intact raised bog. Any cumulative effect of turbary in combination with the Project's effects on raised bog habitat is not considered to be significant beyond the local scale.

Turbary may also have resulted in cumulative effects on downstream water quality and associated aquatic habitats and species, via release of suspended solids and nutrients into the same drainage network and receiving watercourses already assessed for BnM's own operations. The scale of this activity was small relative to the peat extraction and ancillary activities undertaken by BnM across the Application Site. EPA Q-value monitoring data indicate no clear negative trend in downstream surface water quality over this period, consistent with the conclusion that any contribution from third-party turbary would not be distinguishable from, or additional in a significant way to, the water quality effects already assessed for the Project. On this basis, no potential for the Project, in combination with third-party turbary, to result in significant cumulative effects on biodiversity has been identified.

6.8.5 **Cumulative Assessment Conclusion**

Following the assessment provided in the preceding sections, it is concluded that other than for impacts on remnant raised bog at Clonroosk during the Peat Extraction Phase, the Project has not resulted in any likely significant negative effects on biodiversity. The cumulative effect of the Project's impacts at Clonroosk during the Peat Extraction Phase in combination with other projects or turbary is considered to have been significant at a local scale.

Having considered other plans, projects as listed in Appendix 2-2 of the rEIAR, and other land uses in the area, no potential for the Project to contribute to any other likely significant negative cumulative effects on biodiversity was identified when considered in-combination with other plans and projects.

6.8.6

Summary

Please see the below table for a summary of all identified cumulative impacts relating to biodiversity.

Table 6- 35 Assessment of Plans

Topic	Effects in the Absence of Control Measures	Control Measures Section Reference	Residual Effect	Significance
Peat Extraction Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, has not adversely affect the integrity of any European Site.			
Nationally Designated Sites	Negative, Long-Term, Not Significant	Section 6.4.2.1.4	No significant residual effect at any geographic scale	not significant
Aquatic Habitats and Related Species	Negative, Long-Term, Indirect, Significant	Section 6.4.2.1.2	No significant residual effect at any geographic scale	not significant
Raised Bog	Negative, Long-Term, Direct, Significant	None	Long term, negative, significant residual effect at the local geographic scale	Significant effect in localised area – Clonroosk (Ballydermot South)
Cutover Bog Secondary Habitats	Negative, Long-Term, Indirect, Not Significant	None	No significant residual effect at any geographic scale	not significant
Otter	Negative, Short-Term, Unlikely, Not Significant	Section 6.4.2.1.3	No significant residual effect at any geographic scale	not significant
Bird Species	Negative, Long-Term, Unlikely, Not Significant (Habitat Loss) Negative, Short-Term, Unlikely, Not Significant (Disturbance) Negative, Permanent, Not Significant (Mortality)	None	No significant residual effect at any geographic scale	not significant
Current Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, has not and will not adversely affect the integrity of any European Site.			

Nationally Designated Sites	Negative, Short-Term, Indirect, Unlikely, Not Significant	Section 6.4.2.2.4	No significant residual effect at any geographic scale	not significant
Aquatic Habitats and Related Species	Negative, Short-Term, Indirect, Unlikely, Not Significant	Section 6.4.2.2.2	No significant residual effect at any geographic scale	not significant
Raised Bog	Neutral, Not Significant	None	No significant residual effect at any geographic scale	not significant
Cutover Bog Secondary Habitats	Neutral, Not Significant	None	No significant residual effect at any geographic scale	not significant
Otter	Negative, Short-Term, Unlikely	Section 6.4.2.2.3	No significant residual effect at any geographic scale	not significant
Bird Species	Negative, Short-Term, Unlikely	None	No significant residual effect at any geographic scale	not significant
Topic	Pre-Mitigation Effect	Mitigation Measures Section Reference	Residual Effect	Significance
Remedial Phase				
European Sites	Effects on European Sites are addressed in the rNIS. The rNIS finds that it can be objectively concluded that the Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.			
Nationally Designated Sites	Positive, Long-Term, Likely, Not Significant	Section 6.4.2.3.4	Positive, Long-Term, Likely	not significant
Aquatic Habitats and Related Species	Negative, Indirect, Short-Term, Unlikely (Leakages and Spillages) Positive, Indirect, Long-Term, Likely, Moderate (Rehabilitation)	Section 6.4.2.3.2	Positive, Long-Term, Indirect, Likely, Moderate	not significant
Raised Bog	Positive, Long-Term, Likely	Section 6.4.2.3.1	Positive, Long-Term, Likely, Significant	Significant positive effect (local to county scale)
Cutover Bog Secondary Habitats	Positive, Long-Term, Likely	Section 6.4.2.3.1	Positive, Long-Term, Likely, Significant	not significant
Otter	Negative, Short-Term, Unlikely (Disturbance)	Section 6.4.2.3.3	Positive, Long-Term, Likely, Significant	not significant

	Positive, Indirect, Long-Term, Likely, Not Significant (Water Quality)		(habitat); Negative, Short-Term, Unlikely (disturbance)	
Bird Species	Negative, Short-Term, Unlikely (Disturbance) Positive, Indirect, Long-Term, Likely, Significant (Habitat)	Section 6.4.2.3.3	Negative, Short-Term, Unlikely (Disturbance) Positive, Long-Term, Likely, Significant (Habitat);	Significant positive effect (local to county scale)

6.9

Conclusion

By 1988, peat extraction and ancillary activities at the Application Site were well established and the Application Site consisted predominantly of a large area of cutover bog, comprising bare peat and smaller areas of revegetating scrub, woodland and pioneer habitats of open cutaway bog.

The Peat Extraction Phase between 1988 and June 2020 was unlikely to have had a significant negative effect on the habitats, flora and fauna that occurred at the site as these were by 1988 highly modified from their original state, due to either drainage, fragmentation, removal of the acrotelm or peat extraction and in the case of bird species due to loss of habitat. The exception to this is uncut raised bog habitat at Clonroosk, which was drained during the Peat Extraction Phase and subject to a significant, direct, long-term effect. Rehabilitation works to block the drains at Clonroosk were completed in 2014 and the condition of the habitat is expected to continue to improve as a result of these works.

The Current Phase of the Project encompasses the period of time between the cessation of peat extraction at the Application Site in June 2020 to the present day. The activities during the Current Phase have not given rise to additional loss, degradation or fragmentation of habitats, or flora and fauna. The Application Site has been licenced under IPC Licence (No. P0503-01) and has been subject to the conditions of that Licence. The Licence conditions, relating to operation and monitoring, emissions to water and air, water protection, waste management and bog rehabilitation, are intended for the protection, and where possible, the improvement of the environment. With the implementation of the conditions of the IPC Licence, and the much-reduced activity within the Application Site during this time, no significant negative effects on biodiversity are expected to have occurred during the Current Phase of the Project.

The Remedial Phase of the Project, which includes proposed rehabilitation plans for the Application Site which have also been assessed in this chapter, will generally involve the rewetting and revegetation of the bogs through natural succession. These plans will have a significant positive effect on the habitats and biodiversity within the Application Site.