

6. BIODIVERSITY

6.1 Introduction

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the Proposed Development may have on Biodiversity. Mitigation by design was applied to the finalised Proposed Development layout wherever possible to avoid impacts on Biodiversity. This chapter sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified. The residual impacts on biodiversity are then assessed. 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/or EU Habitats Directive 92/43/EEC. Impacts on avian receptors are considered in Chapter 7 (Birds) of this EIAR.

As detailed in Section 1.1.1 in Chapter 1 (Introduction), for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Development', 'proposed turbines', the 'Site', the '2020 Application' and the 'Kealkill Wind Farm'. Please see Section 1.1.1 of this EIAR for further details. A detailed description of the Proposed Development is provided in Chapter 4 (Description of the Proposed Development) of this EIAR.

This 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 and Receptor Valuation is then provided.
- This is followed by an Assessment of Effects which are described with regard to each phase of the Proposed Development: construction phase, operational phase and decommissioning phase. Potential Cumulative effects in combination with other projects are fully assessed.
- Proposed mitigation and best practice measures to avoid, reduce or offset the identified effects are described and discussed. This is followed by an assessment of residual effects taking into consideration the effect of the proposed mitigation and best practice measures.
- The conclusion provides a summary statement on the overall significance of predicted effects on Biodiversity.

In addition:

- 'Key Ecological Receptor' (KER) is defined as a species or habitat occurring within the zone of influence of the Proposed Development, upon which likely significant effects are anticipated.
- "Zones of Influence" (ZoI) for individual ecological receptors refers to the zone within which potential effects 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 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 designation¹. 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") 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.

¹ <https://www.npws.ie/protected-sites/nha> (accessed April 2025).

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 sites²) 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 (SACs). 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 SACs. 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 Proposed Development having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs³, 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).

² The term Natura 2000 network was replaced by 'European site' under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

³ Candidate SAC (cSAC) are afforded the same protection as SACs. The process of making cSAC into SACs by means of Statutory instrument has begun and while the process is ongoing the term SAC will be used to conform with nomenclature used in the National Parks and Wildlife Services (NPWS) database. The name cSPA applies to candidate SPAs.

- 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).

6.1.2 Review of Relevant Guidance and Sources of Consultation

The assessment methodology is based primarily upon the National Road Authority (NRA) 's *Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2* (NRA, 2009a) and the survey methodology is based on the NRA *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes* (NRA, 2009b). 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, 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, Coastal and Marine* (CIEEM, 2018).
- *EPA Guidelines on information to be included in Environmental Impact Assessment Reports* (EPA, 2022)

This assessment has been carried out in accordance with the Environmental Impact Assessment guidance as outlined in Chapter 1 (Introduction) of the EIAR.

This assessment has been prepared with respect to the various planning policies and strategy guidance documents listed below:

- Cork County Development Plan 2022-2028
- Ireland's 4th National Biodiversity Action Plan (2023-2030)
- Regional Spatial and Economic Strategy for the Southern Region

6.1.3 Statement of Authority

This Biodiversity Chapter was prepared by Pádraig Desmond (BSc.) and Stephanie Corkery (BSc., MSc.) and reviewed by Caroline Kelly (BSc., MSc., MCIEEM) and Corey Cannon (BSc., MSc., Cocol, MCIEEM).

Multidisciplinary ecological walkover surveys of the Site were carried out on various dates for a previous wind farm application at the Site, referred to here as the '2020 Application'. Details of the 2020 Application are provided in Section 1.1.1 of this EIAR.

Further multidisciplinary walkover surveys, including aquatic surveys, were carried out in 2024 and 2025 by MKO Ecologists Pádraig Desmond, Stephanie Corkery, Sara Fissolo (BSc.), and Molly O' Hare (BSc., MSc.) to ground-truth the ecological surveys previously undertaken and record any changes which may have occurred in the interim. This is to ensure that the impact assessment presented in this Chapter, and the baseline information upon which it depends, is as up to date as possible, robust and accurate. All surveyors have relevant academic qualifications and are competent in undertaking habitat and ecological assessments.

Ecological surveys were undertaken in line with NRA (2009b) guidelines (*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*). Bat surveys were conducted by MKO ecologists between May and September 2023, which are fully detailed in Section 3.3 of the Bat Report in Appendix 6-1.

Corey Cannon

Corey is Project Director (Ecology) with MKO. She is a Chartered Ecologist (CEcol) and full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) with over 12 years' professional experience. Corey holds a BSc in Zoology from Queen Mary University of London and an MSc in Biodiversity

Survey from the University of Sussex. Prior to taking up her position with MKO in October 2023, Corey worked as a Principal Ecologist with Jacobs (Dublin office) for over 8 years and held previous posts with LUC and The Ecology Consultancy in London. Corey has strong generalist ecology field skills in terrestrial and riparian environments (with a particular interest in botany and bat ecology) and through her experience can demonstrate undertaking a range of ecological surveys including habitat, invasive and protected species survey, delivering initial site appraisals and identification of ecological constraints. Key areas of expertise include Ecological Impact Assessments (EcIA), Preliminary Ecological Appraisals (PEAs) and Appropriate Assessment (AA). She has undertaken ecological assessments and surveys on a variety of project types (e.g. road and rail schemes, waste, water and housing) involving survey, mitigation and enhancement. Within MKO Corey is responsible for overall management of the general ecology team alongside Sarah Mullen, providing technical input on all ecological aspects of our projects from inception through to planning. Outside of her professional role Corey is involved with voluntary initiatives. She helped reform the Dublin Bat Group in 2018. She is also a committee member to CIEEM's Ireland Members Network.

Caroline Kelly

Caroline is a Senior Ecologist with MKO with over nine years' experience in ecological consultancy and is a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Caroline holds a BSc in Environmental Biology from University College Dublin (UCD) and an MSc in Applied Ecological Assessment from University College Cork (UCC). In addition, Caroline has completed an Advanced Diploma in Planning and Environmental Law from Kings Inns Dublin. Prior to taking up her position with MKO in June 2025, Caroline worked as a Principal Ecologist with Scott Cawley Ltd. Caroline has strong generalist field ecology skills and has undertaken a range of ecological surveys including habitat, bird (both breeding and wintering), invasive species and protected fauna surveys. She has strong technical reporting skills and has extensive experience in a range of ecological assessments including Appropriate Assessment and Ecological Impact Assessment. She has undertaken ecological assessments and surveys on a variety of project types (e.g. linear infrastructure projects, industrial, commercial, residential recreational, tourism and renewable energy developments).

Pádraig Desmond

Pádraig is a Project Ecologist with MKO with five years post graduate ecological experience, four years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as a Junior Ecologist with Envirico. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set. Pádraig's key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

Stephanie Corkery

Stephanie is an Ecologist with MKO with three years of experience in professional ecological consultancy. Stephanie holds a BSc. in Ecology and Environmental Biology, an MSc. in Marine Biology, and a HDip in Sustainability in Enterprise, all from University College Cork. Since joining MKO as a graduate in March 2022, Stephanie has worked on a wide variety of projects including wind farms, large scale residential developments, and County Council projects. Stephanie's key strengths include organising and carrying out both terrestrial and marine mammal surveys, as well as general ecological walkover surveys and bat surveys. She is also experienced in GIS, acoustic data analysis for bat species, and in preparing Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Biodiversity Chapters, and Bat Reports. Stephanie is also a JNCC Certified Marine Mammal Observer and has completed the ACCOBAMS Course for Highly Qualified Marine Mammal Observers (MMO) and Passive Acoustic Monitoring operators (PAM).

6.2 Methodology

The following sections describe the methodologies followed to establish the baseline ecological condition of the Site and surrounding area. Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to, and at the time of, the project proceeding. Ecological baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018).

6.2.1 Desk Study

The desk study undertaken for this assessment included a thorough review of available ecological data including the following:

- Review of NPWS Article 17 maps 2019, 2013 and 2007⁴.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS)⁵, EPA maps⁶, Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI)⁷.
- Inland Fisheries Ireland (IFI) Reports⁸.
- Data on potential occurrence of rare plant and bryophytes – as per NPWS online map viewers; Flora Protection Order 2022 Map Viewer⁹.
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.
- Review of specially requested records from the NPWS Rare and Protected Species Database for the hectads in which the Proposed Development is located.
- Potential for cumulative effects have been considered in Chapter 2 (Background to the Proposed Development) of this EIAR and Section 6.7 of this Chapter. This was informed by a review of the EIARs/NISs prepared for other plans and projects occurring in the wider area.
- Review of previous planning applications within the Site, as listed in Section 2.7.1 of Chapter 2 (Background to the Proposed Development) of this EIAR.

6.2.1.1 Designated Sites

6.2.1.1.1 Identification of the Designated Sites within the Likely Zone of Influence (ZOI) of the Proposed Development

The potential for the Proposed Development to impact on sites that are designated for nature conservation was considered in this Biodiversity Chapter.

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 potential for significant effects and/or adverse impacts on the integrity of European Sites is fully assessed in the AA Screening Report and Natura Impact Statement that accompanies this application. 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 6.6.2 of this EIAR provides a summary of the key assessment findings with regard to European Designated Sites.

Natural Heritage Areas (NHAs) are designated under Section 18 the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. The potential for effects on these designated sites is fully considered in this Biodiversity Chapter.

⁴ <https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=1> Accessed: 24/07/2025

⁵ <https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba> Accessed: 24/07/2025

⁶ <https://gis.epa.ie/EPAMaps/> Accessed: 24/07/2025

⁷ <https://ifigis.maps.arcgis.com/apps/webappviewer/index.html?id=9a31fedb077c4fb2991184842b7ef025> Accessed: 14/04/2025

⁸ <https://wfdfish.ie/index.php/wfd-map-viewer/> Accessed: 14/04/2025

⁹ <https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=a41ef4e10227499d8de17a8abe42bd1e> Accessed: 24/07/2025

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

The following methodology was used to establish which sites, that are designated for nature conservation, have the potential to be impacted by the Proposed Development:

- All designated sites within the vicinity of the Site were identified. In addition, the potential for connectivity with European or Nationally designated sites at greater distances from the Proposed Development was also considered in this initial assessment.
- 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.
- Where potential pathways for Significant Effect are identified, the Site is included within the Likely Zone of Influence (ZoI) and further assessment is required.

6.2.1.2 NPWS Article 17 Reporting

A review of the Irish Reports for Article 17 of the Habitats Directive (92/42/EEC)¹⁰, including the Heath, Bogs and Mires, Irish Semi-Natural Grassland Survey datasets, National Survey of Native Woodlands and Ancient and Long-Established Woodland datasets¹¹, was carried out as part of this assessment.

6.2.2 Scoping and Consultation

MKO undertook a scoping exercise in February 2025 during preparation of this EIAR, as described in Chapter 2 (Background to the Proposed Development), Section 2.8 of this EIAR.

Copies of all scoping responses are included in Appendix 2-2 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-6 in Chapter 2 (Background to the Proposed Development) of this EIAR describes where the comments raised in the scoping responses received have been addressed in this assessment. Table 6-1 provides a list of the organisations consulted that raised points relating to biodiversity during the scoping process, and notes where scoping responses were received.

Table 6-1 Organisations consulted regarding biodiversity.

Consultee	Response date	Response	Addressed in
Department of Agriculture, Food and the Marine (DAFM)	2025.03.12	<ul style="list-style-type: none"> ➤ The developer must obtain a Felling License from The Department for Agriculture, Food, and the Marine before trees are felled or removed. ➤ The developer should take note of the contents of Felling and Reforestation Policy document which provide a consolidated source of information on the legal and regulatory framework relating to tree felling. 	Section 4.4.3.1.2 of Chapter 4 (Description of the Proposed Development)
An Taisce	No Response	N/A	N/A
Bat Conservation Ireland	No Response	N/A	N/A

¹⁰ <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17> [accessed 23/06/2025]

¹¹ <https://www.npws.ie/maps-and-data/habitat-and-species-data> [accessed 23/06/2025]

Birdwatch Ireland	No Response	N/A	N/A
Cork County Council (Environment Department)	No Response	N/A	N/A
Cork County Council – Heritage and Conservation Department	No Response	N/A	N/A
Department of Housing, Local Government and Heritage	No Response	N/A	N/A
Inland Fisheries Ireland	2025.02.14	<p>States that the Site of the proposed development appears to encompass the upper Owenbeg, Owvane and Lee Rivers and their tributaries, significant salmonid fisheries.</p> <p>Requests that the following requirements are taken into consideration:</p> <ul style="list-style-type: none"> ➤ There should be no drainage or other physical interference with the bed or bank of any watercourse without prior consultation with IFI. ➤ Suspended solids and or hydrocarbon contaminated site run-off waters must be controlled adequately so that no pollution of surface waters can occur. ➤ Scoping study should include an electrofishing survey of a watercourse on which it is proposed to construct a crossing. ➤ In the event of any watercourse crossings being bridged or culverted the following general criteria should apply; the free passage of fish must not be obstructed, the original slope of the river bed should be maintained with no sudden drops on the downstream side. Design details on any proposed crossing should be incorporated at planning stage, bridges are preferable to culverts, all instream works should be carried out only in the July-September period. 	Addressed in the design of the Proposed Development, as detailed in Chapter 4 (Description of the Proposed Development). As for electrofishing watercourses for new water crossings, no additional watercourse crossings are proposed.
Irish Peatland Conservation Council	2024.04.02	Highlights the importance of peatland in Ireland, regards protected habitat, species, but also its role in sequestering carbon dioxide. It supports renewable energy developments but states that not at the expense of peatland habitats.	The Proposed Development, as described in Chapter 4 (Description of the Proposed Development), has been designed to minimise any loss of peatland habitat
Irish Raptor Study Group	No Response	N/A	N/A

Irish Red Grouse Association	No Response	N/A	N/A
Irish Wildlife Trust	2025.04.01	Email response stating insufficient capacity to respond	N/A
Waterways Ireland	2025.02.21	States project not within the zone of influence of their waterways and did not comment	N/A

In addition to the scoping exercise, made to the Department of Housing, Local Government & Heritage in February 2025, a request was made on the 24th of July 2025 for a pre-planning meeting with the NPWS to discuss the proposed Biodiversity Management and Enhancement Plan, which is included as part of this application. A follow up request was made on the 30th of July 2025. However, no correspondence was received and no meeting was arranged by the time of lodgement of this application.

6.2.3 Field Surveys

A comprehensive survey of the biodiversity within the Site was undertaken to inform this Biodiversity Chapter of the EIAR. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies and guidance followed. Surveys were carried out on various dates in 2019 and 2020 to support the 2020 Application. Additional ground truthing surveys undertaken in 2023, 2024 and 2025 are summarised in Table 6-2 below.

Table 6-2 Surveys carried out in 2023, 2024 and 2025.

Date	Survey	Surveyors
Various dates between April and September 2023	Manual Bat Transect Survey	Laura McEntegart, Ryan Connors, Nora Szjarto, Tom Peters *Surveys detailed in Bat Report provided in Appendix 6-1
	Ground-level Static Bat Surveys	
6 th of September 2024	Multidisciplinary Walkover and detailed botanical surveys – Irish Vegetation Classification (IVC)	Pádraig Desmond and Stephanie Corkery
6 th of March 2025	Multidisciplinary Walkover and Aquatic Survey	Pádraig Desmond and Sara Fissolo
26 th of March 2025	Multidisciplinary Walkover and Aquatic Survey	Pádraig Desmond and Stephanie Corkery
9 th of May 2025	Multidisciplinary Walkover	Pádraig Desmond
18 th of June 2025	Turbine Delivery Route (TDR) surveys	Stephanie Corkery
10 th of July 2025	Multidisciplinary Walkover	Molly O’ Hare

6.2.3.1 Multi-disciplinary Walkover Surveys (as per NRA Guidelines, 2009)

Multidisciplinary walkover surveys were undertaken within the Site. Surveys were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). A comprehensive walkover of the entire Site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys. During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) was conducted.

The walkover surveys were also 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. Other 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 Proposed Development (e.g. otter etc.), were also recorded. Bird species observed during the multi-disciplinary surveys were also recorded.

The multi-disciplinary walkover surveys comprehensively covered the entire Site, including the proposed Turbine Delivery Route (TDR) and based on the survey findings, further detailed targeted surveys were carried out for features and locations of ecological significance. Other targeted surveys undertaken within the Site are described in the following subsections.

6.2.3.2 Dedicated Habitat and Vegetation Composition Surveys

All habitats recorded on site and described in this Biodiversity Chapter have been classified in accordance with Fossitt (2000). Full details of all the botanical surveys and results are provided in **Appendix 6-2**.

Detailed botanical surveys/relevé assessments of the Site were also undertaken throughout multidisciplinary walkover surveys carried out in 2024. These surveys provided an understanding of the baseline and informed further survey work following finalisation of the Proposed Development layout.

Detailed habitat classification and assessment was undertaken by MKO at targeted locations within the Site, with relevés undertaken within representative habitats at each turbine base and associated Proposed Development infrastructure, see **Appendix 6-2** for all relevé data. The extent of each habitat on site was mapped using the ArcGIS Field Maps app. A representative photograph was also taken for each of the habitats recorded on the Site, and all relevés.

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 (2019). *The Status of EU Protected Habitats and Species in Ireland*. Volume 2: *Habitat Assessments*. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill
- 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.

Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2019).

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.

6.2.3.1 Terrestrial Fauna Surveys

The results of the desk study, scoping replies, incidental records of protected species during ecological survey work and multidisciplinary walkover surveys were used to inform the scope of targeted ecological surveys required. Dedicated surveys for bats were undertaken across the Site and are detailed in the Bat Report in **Appendix 6-1**. Otter and badger surveys within the Site were carried out by MKO as part of the multidisciplinary walkover surveys and aquatic surveys. Kerry Slug surveys were carried out at the Site in 2020. During the multidisciplinary walkover surveys, where observed, incidental records of birds and invertebrates including butterflies, dragonflies, etc. were recorded.

6.2.3.1.1 **Badger Survey**

As part of the multidisciplinary surveys, searches for indications of badger were carried out. The badger surveys were conducted in order to determine the presence or absence of badger signs within and outside (areas of identified suitable habitat) the Proposed Development footprint and the Site.

This involved a search for all potential badger signs as per NRA (2009b) (latrines, badger paths and setts). If encountered, setts would be classified as per the convention set out in NRA (2009b) (i.e. main, annexe, subsidiary, outlier). The badger surveys covered the entire Proposed Development footprint and surrounding suitable habitats within the Site. The badger surveys were not constrained by vegetation given the nature of the habitats within the Site and the timing of the surveys (NRA, 2006).

The badger survey was conducted adhering to best practice guidance (NRA, 2009b) and followed the 'Guidelines for the Treatment of Badger Prior to the Construction of National Roads Schemes' (NRA, 2006) and CIEEM best practice competencies for species surveys (CIEEM, 2013).

6.2.3.1.2 **Otter Survey**

As part of the multidisciplinary walkover survey and the target aquatic surveys, a search for indications of otter was carried out. This search was conducted in order to determine the presence or absence of otter within the Site. This involved a search for all potential indications of otter, as per NRA (2008) (spraint, tracks, couches, holts). The otter survey was conducted as per NRA (2009b) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). Following the results of the multidisciplinary surveys, no requirement for further, more detailed surveys for otter was identified.

6.2.3.1.3 **Kerry Slug Survey**

Following the desk study, and as per the National Biodiversity Data Centre (NBDC) map viewer, the Site was confirmed to lie within the known range of Kerry Slug (*Geomalacus maculosus*).

A general survey for Kerry Slug was carried out within areas of suitable supporting habitat within the Site on the 25th of March 2020. In addition, a designated survey was carried out within the Site by means of trapping. A licence was obtained from NPWS (Licence No.: C71/2020) and metric traps were placed in areas of suitable habitats within the Site. This licence return report is provided in **Appendix 6-4** which provides further detail on survey methodology.

Multidisciplinary surveys of the Site were undertaken in 2024 and 2025 to identify any significant changes in the ecological baseline since the previous surveys in 2020. There appears to be no active forestry operations in place at the Site, which remains dominated by conifer plantation and recently felled woodland with self-establishing Sitka spruce and other conifer species. As such, the extent of supporting habitat for Kerry Slug remains the same as identified in 2020, with no significant changes to the habitats within the Site. It is therefore assumed that Kerry Slug remain present within the Site.

6.2.3.1.4 **Marsh Fritillary Surveys**

As part of the multidisciplinary surveys, a search for potential suitable habitat for marsh fritillary butterfly was carried out as per NRA (2009b). This included a search for devil's-bit scabious (*Succisa pratensis*) which is the food plant for the larval stage of this species.

6.2.3.1.5 Bat Surveys

Detailed description of the survey methodologies undertaken in relation to bats is provided in the Bat Report included in **Appendix 6-1** of this EIAR, together with full details of the survey times and the surveyors who carried out the bat survey and assessment work.

Survey design and effort in 2023 was created in accordance with the best practice guidelines available, ‘*Bat Surveys: Good Practice Guidelines*’ prepared by the Bat Conservation Trust (Collins 2023). Surveys undertaken were carried out in strict accordance with those prescribed in NatureScot (2021) ‘*Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*’. This is in line with standard best practice industry guidelines.

6.2.3.2 Aquatic Surveys

Habitat suitability for protected aquatic species of conservation interest which are known or suspected to occur within the Site (e.g. fish species, otter etc.) were conducted. Aquatic habitats and species were assessed during the multi-disciplinary walkover surveys. In addition, designated kick sampling was carried out in watercourses both within and downstream of the Site. Kick sampling was undertaken on the 22nd and 23rd of January 2020 for the 2020 Application. Further kick sampling was undertaken on the 5th of March 2025 and 26th of March 2025.

The Biotic Index of Water Quality (BIWQ) was developed in Ireland by the Environmental Protection Agency (EPA). Q-values are assigned using a combination of habitat characteristics and structure of the macro-invertebrate community within the waterbody. Individual macro-invertebrate families are classified according to their sensitivity to organic pollution and the Q-value is assessed based primarily on their relative abundance within a sample. Methodology used for macroinvertebrate sampling was in line with the standard of the Environmental Protection Agency (EPA) national water sampling regime (Toner *et al.*, 2005), which is currently used as part of the Water Framework Directive (WFD) River Monitoring Programme.

Aquatic plant species protected under Flora (Protection) Order, 2022 (S.I. No. 356 of 2015) were searched for during all aquatic surveys.

6.2.3.3 Invasive species survey

During the multidisciplinary walkover surveys, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024). Where recorded, the extent and location of infestations was recorded along with photographs.

6.2.4 Methodology for Assessment of Impacts and Effects

6.2.4.1 Identification of Target Receptors and Key Ecological Receptors

The criteria used to assess the ecological value and significance of the Site for habitats and species present follows *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009a) and *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).

6.2.4.2 Valuing Ecological Receptors

The importance of the ecological features identified within the Site was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the NRA guidelines. 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
- > National
- > County
- > Local Importance (Higher Value)
- > Local Importance (Lower Value)

The guidelines clearly set out the criteria by which each geographic level of importance can be assigned. 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 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.

In accordance with these guidelines impact assessment is only undertaken of KERs. KERs are within the ZoI of the Proposed Development and are 'both of sufficient value to be material in decision making and likely to be affected significantly'. To qualify as KERs, features must be of Local Ecological Importance (Higher Value) or higher. Features valued at Local Ecological Importance (Lower Value) are not considered to be KERs and therefore not subject to impact assessment. This is not to say that they are of no biodiversity value, but that impacts on these habitat types in their local context are not likely to result in a significant effect on biodiversity. It should be noted that this relates to the impact on the habitat itself as distinct from considering the role these habitat types play in supporting KER fauna species.

6.2.4.3 Characterisation of Impacts and Effects

The Proposed Development will 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). The headings under which the impacts are characterised follow those listed in the 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 the Proposed Development 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 Proposed Development 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.

6.2.4.5 Incorporation of Mitigation

Constraint studies, as described in Section 3.2.6 and 3.2.7 of Chapter 3 (Site Selection and Reasonable Alternatives) of this EIAR, have been carried out to ensure that turbines and all ancillary infrastructure are located in the most appropriate areas of the Site. Section 6.6 of this Biodiversity chapter assesses the potential effects of the Proposed Development to ensure that all effects on sensitive ecological receptors are adequately addressed. Where significant effects on sensitive ecological receptors are predicted, mitigation is incorporated into the project design or layout to address such effects. The implemented mitigation measures avoid or reduce potential significant residual effects, post mitigation.

6.3 Limitations

The information provided in this document accurately and comprehensively describes the baseline ecological environment; provides an accurate prediction of the likely ecological effects of the Proposed Development; prescribes mitigation as necessary; and describes the residual ecological impacts. The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. No significant limitations in the scope, scale or context of the assessment have been identified.

6.4 Establishing the Ecological Baseline

6.4.1 Desk Study

The following sections describe the findings of the desk study. It provides a baseline of the ecology known to occur in the existing environment based on data sources reviewed to inform the ecological impact assessment as outlined in Section 6.2.1.

6.4.1.1 Designated Sites

A map of all Nationally Designated Sites within the vicinity of the Proposed Development is provided in Figure 6-1 with all the European Sites shown in Figure 6-2.

Table 6-3 provides details of all relevant Nationally designated sites initially considered to potentially be within the Zone of Influence (ZoI) of the Proposed Development. All European Designated Sites are fully described and assessed in the Natura Impact Statement submitted with the EIAR. In summary, two European sites were identified to be within the ZoI of the Proposed Development, namely:

- The Gearagh SAC [000108]
- The Gearagh SPA [004109]

The Gearagh SAC and the Gearagh SPA are located approximately 20km downstream of the Proposed Development via watercourses which drain the Site in the northeast, a pathway detailed in Table 9-12 of Chapter 9 (Hydrology and Hydrogeology). Potential for likely significant effects was identified in relation to

deterioration on water quality (and associated indirect effects on QI species) during construction, in the absence of mitigation.

The following pNHAs were identified as being within the likely ZoI of the Proposed Development, as assessed in Table 6-3:

- > Lough Allua pNHA [001065]
- > The Gearagh pNHA [000108]



Map Legend

- EIAR Site Boundary
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- WFD Watercourses
- WFD Catchments



Microsoft product screen shots reprinted with permission from Microsoft Corporation
 Ordnance Survey Ireland Licence No. CYAL50267517 © Ordnance Survey Ireland/Government of Ireland

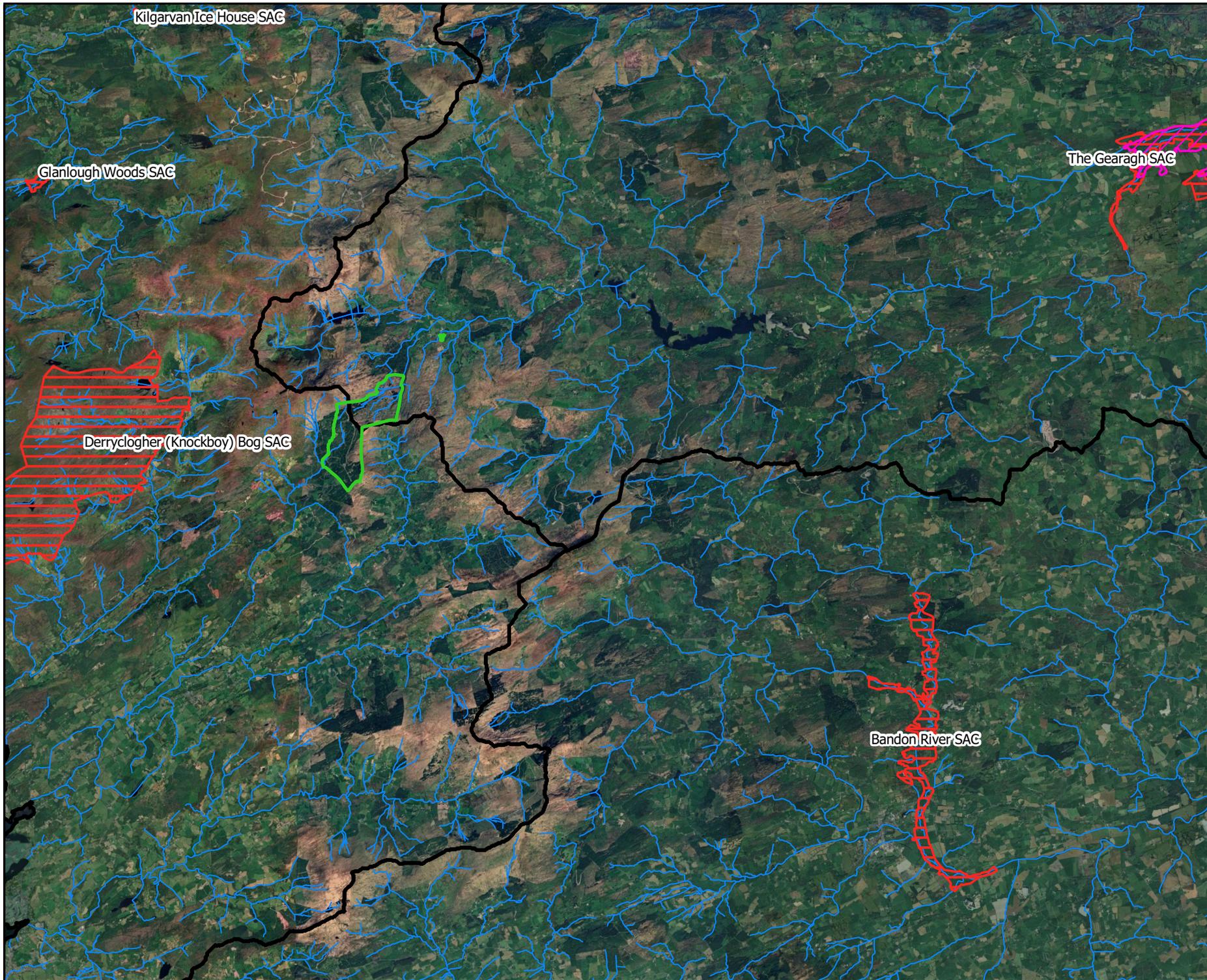
Drawing Title
National Sites surrounding the Proposed Wind Farm

Project Title
Curraglass Wind Farm

Drawn By PD	Checked By CC
Project No. 240614	Drawing No. Figure 6-1
Scale 1:90,000	Date 2025-09-04



MKO
 Planning and Environmental Consultants
 Tuam Road, Galway
 Ireland, H91 VW84
 +353 (0) 91 735611
 email: info@mkoireland.ie
 Website: ww.mkoireland.ie



Map Legend

- ▬ EIAR Site Boundary
- Special Area of Conservation (SAC)
- Special Protected Area (SPA)
- ▬ WFD Watercourses
- WFD Catchments

Microsoft product screen shots reprinted with permission from Microsoft Corporation
 Ordnance Survey Ireland Licence No. CYAL50267517 © Ordnance Survey Ireland/Government of Ireland



Drawing Title
 European Sites surrounding the Proposed Wind Farm

Project Title
 Curraglass Wind Farm

Drawn By PD	Checked By CC
Project No. 240614	Drawing No. Figure 6-2
Scale 1:130,000	Date 2025-09-04

MKO
 Planning and Environmental Consultants
 Tuam Road, Galway
 Ireland, H91 VW84
 +353 (0) 91 735611
 email: info@mkofireland.ie
 Website: ww.mkofireland.ie

Table 6-3 Identification of Nationally designated sites within the Likely Zone of Influence

Designated Site	Features of Interest	Likely Zone of Influence Determination
Natural Heritage Areas		
Conigar Bog NHA [002386] Approx. Distance: 817 m Hydrological Distance: No connectivity	> Peatlands	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of these NHAs.</p> <p>The potential for indirect effects was also considered. Due to the associated intervening distance between these NHAs and the Site, in addition to their terrestrial nature, no pathway for significant indirect effect was identified.</p> <p>These NHAs are considered to be outside the ZoI for the Proposed Development and no further assessment is required.</p>
Silahertane Bog NHA (001882) Approx. Distance: 5.9 km Hydrological Distance: No connectivity	> Peatlands	
Slaheny River Bog NHA [000383] Approx. Distance: 6.8 km Hydrological Distance: No connectivity	> Peatlands	
Doughill Bog NHA (001948) Approx. Distance: 11.6 km	> Peatlands	

<p>Hydrological Distance: No connectivity</p>		
<p>Proposed Natural Heritage Area (pNHA)</p>		
<p>Gouganebarra Lake pNHA [001057]</p> <p>Approx. Distance: 1.7 km</p> <p>Hydrological Distance: No connectivity</p>	<ul style="list-style-type: none"> > Glacial lake habitat > Conifer plantations > Grasslands > Grey wagtail > Common sandpiper > Snipe 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of these pNHAs.</p> <p>The potential for indirect effects was also considered. Whilst the Site is located within the same hydrological sub-catchment as these pNHAs, it is located in a separate hydrological subbasin with no direct connectivity to these sites.</p> <p>Given that there is no identifiable surface water connection between the Proposed Development and these pNHAs and considering the intervening distance between the Site and these pNHAs, no pathway for significant indirect effect was identified.</p>
<p>Ballagh Bog pNHA [001886]</p> <p>Approx. Distance: 3 km</p> <p>Hydrological Distance: No connectivity</p>	<ul style="list-style-type: none"> > Purple-Moor Grass (<i>Molinia caerulea</i>) > Peatlands > Moss and sedge species. 	<p>These pNHAs are considered to be outside the ZoI for the Proposed Development and no further assessment is required.</p>
<p>Derryclogher (Knockboy) Bog [001873] pNHA</p> <p>Approx. Distance: 3.8 km</p> <p>Hydrological Distance: No connectivity</p>	<ul style="list-style-type: none"> > No NPWS site synopsis available. Overlaps with Derryclogher (Knockboy) Bog SAC which is designated for Blanket bogs 	
<p>Carriganass Castle, Near Kealkill pNHA [002099]</p> <p>Approx. Distance: 6.4 km</p>	<ul style="list-style-type: none"> > Nursery roost of Daubenton's bat (<i>Myotis daubentonii</i>) 	

<p>Hydrological Distance: No connectivity</p>		
<p>Lough Allua pNHA (001065)</p> <p>Approx. Distance: 5.5 km</p> <p>Hydrological Distance: 6.6 km</p>	<ul style="list-style-type: none"> ➤ Lake habitat ➤ Glacial debris ➤ Sandstone ➤ Blanket bog 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of this pNHA.</p> <p>The potential for indirect effects was also considered. There is hydrological connectivity between the Site and this pNHA via several Order 1 and Order 2 streams in the north-eastern portion of the Site. These flow into the River Lee [EPA Code: 19L03] which subsequently has downstream connectivity to this pNHA.</p> <p>A pathway for effect on this pNHA was identified. The Site is considered to be within the ZoI of the Proposed Development and is therefore considered further in this assessment.</p>
<p>Currakeal pNHA [001826]</p> <p>Approx. Distance: 14.1 km</p> <p>Hydrological Distance: No connectivity</p>	<ul style="list-style-type: none"> ➤ Grasslands ➤ Bog Pimperel (<i>Anagallis tenella</i>) ➤ Marsh St. John's-wort (<i>Hypericum elodes</i>) ➤ Purple-Moor Grass (<i>Molinia caerulea</i>) ➤ Large-flowered Butterwort (<i>Pinguicula grandiflora</i>) ➤ Sedges (<i>Carex echinata</i>, <i>C. demissa</i>, <i>C. panacea</i>) ➤ Sharp-flowered Rush (<i>Juncus acutiflorus</i>) ➤ Many-stalked Spike-Rush (<i>Eleocharis multicaulis</i>) ➤ Bog mosses (<i>Sphagnum</i> spp.) 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of this pNHA.</p> <p>The potential for indirect effects was also considered. The SiteSite has no direct hydrological connectivity to this pNHA, in addition to the Sites being located in separate WFD Sub-Catchments.</p> <p>Due to the intervening distance between this pNHA and the Site, in addition to the lack of hydrological connectivity, no pathway for significant effect was identified.</p> <p>This pNHA is considered to be outside the ZoI for the Proposed Development and no further assessment is required.</p>
<p>Glengarriff Harbour And Woodland pNHA [000090]</p> <p>Approx. Distance: 15.1 km</p> <p>Hydrological Distance: No connectivity</p>	<p>No NPWS site synopsis available. Overlaps with Glengarriff Harbour And Woodland SAC which is designated for:</p> <ul style="list-style-type: none"> ➤ Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] ➤ Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of this pNHA. The potential for indirect effects was also considered. No direct hydrological connectivity exists between the SiteSite and this pNHA.</p> <p>Due to the intervening distance between this pNHA and the Site, in addition to the lack of hydrological connectivity, no pathway for significant effect was identified.</p> <p>This pNHA is considered to be outside the ZoI for the Proposed Development and no further assessment is required.</p>

	<p>(<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p> <ul style="list-style-type: none"> > <i>Geomalacus maculosus</i> (Kerry Slug) [1024] > <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303] > <i>Lutra lutra</i> (Otter) [1355] > <i>Phoca vitulina</i> (Harbour Seal) [1365] 	
<p>The Gearagh pNHA (000108)</p> <p>Approx. Distance: 19.1 km</p> <p>Hydrological Distance: 27.3 km</p>	<p>No NPWS site synopsis available. Overlaps with The Gearagh SAC which is designated for:</p> <ul style="list-style-type: none"> > Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] > Rivers with muddy banks with <i>Chenopodion rubri</i> p.p. and <i>Bidention</i> p.p. vegetation [3270] > Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] > Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] > <i>Lutra lutra</i> (Otter) [1355] 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of this pNHA.</p> <p>The potential for indirect effects was also considered. There is hydrological connectivity between the Site and this pNHA via several Order 1 and Order 2 streams within the northeastern section of the Site. These flow into the River Lee [EPA Code: 19L03] which subsequently connects to this pNHA approximately 19.8km downstream.</p> <p>A pathway for effect on this pNHA was identified. The Site is considered to be within the ZoI of the Proposed Development and is therefore considered further in this assessment.</p>

<p>Lee Valley pNHA (000094)</p> <p>Approx. Distance: 45 km</p> <p>Hydrological Distance: 63 km</p>	<ul style="list-style-type: none"> > Wet broad-leaved woodland > Ground flora > Wet grassland communities. > Dry broad-leaved woodland > Unimproved dry grassland > Freshwater marsh > Wetland bird species 	<p>There is no potential for direct effects as the Proposed Development is located entirely outside of these pNHA.</p> <p>There is hydrological connectivity between the Site and these pNHAs via several Order 1 and Order 2 streams within the north-eastern portion of the Site. These flow into the River Lee [EPA Code: 19L03] which subsequently has downstream connectivity to each of these pNHAs.</p> <p>However, given the associated distance and intervening waterbodies between the Site and these pNHAs, no potential for indirect effects was identified.</p> <p>These pNHAs are considered to be outside the ZoI for the Proposed Development and no further assessment is required.</p>
<p>Douglas River Estuary pNHA (001046)</p> <p>Approx. Distance: 59.7 km</p> <p>Hydrological Distance: 70.5 km</p>	<p>No NPWS site synopsis available. Overlaps with Cork Harbour SPA which is designated for:</p> <ul style="list-style-type: none"> > Wetland and Waterbirds [A999] 	
<p>Dunkettle Shore pNHA (001082)</p> <p>Approx. Distance: 62.7 km</p> <p>Hydrological Distance: 80 km</p>	<p>No NPWS site synopsis available. Overlaps with Cork Harbour SPA which is designated for:</p> <ul style="list-style-type: none"> > Wetland and Waterbirds [A999] 	
<p>Great Island Channel pNHA (001058)</p> <p>Approx. Distance: 65.9 km</p> <p>Hydrological Distance: 85 km</p>	<p>No NPWS site synopsis available. Overlaps with Cork Harbour SPA and Great Island Channel SAC which are designated for:</p> <ul style="list-style-type: none"> > Wetland and Waterbirds [A999] > Mudflats and sandflats not covered by seawater at low tide [1140] > Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] 	

6.4.1.2 NPWS Article 17 Reporting

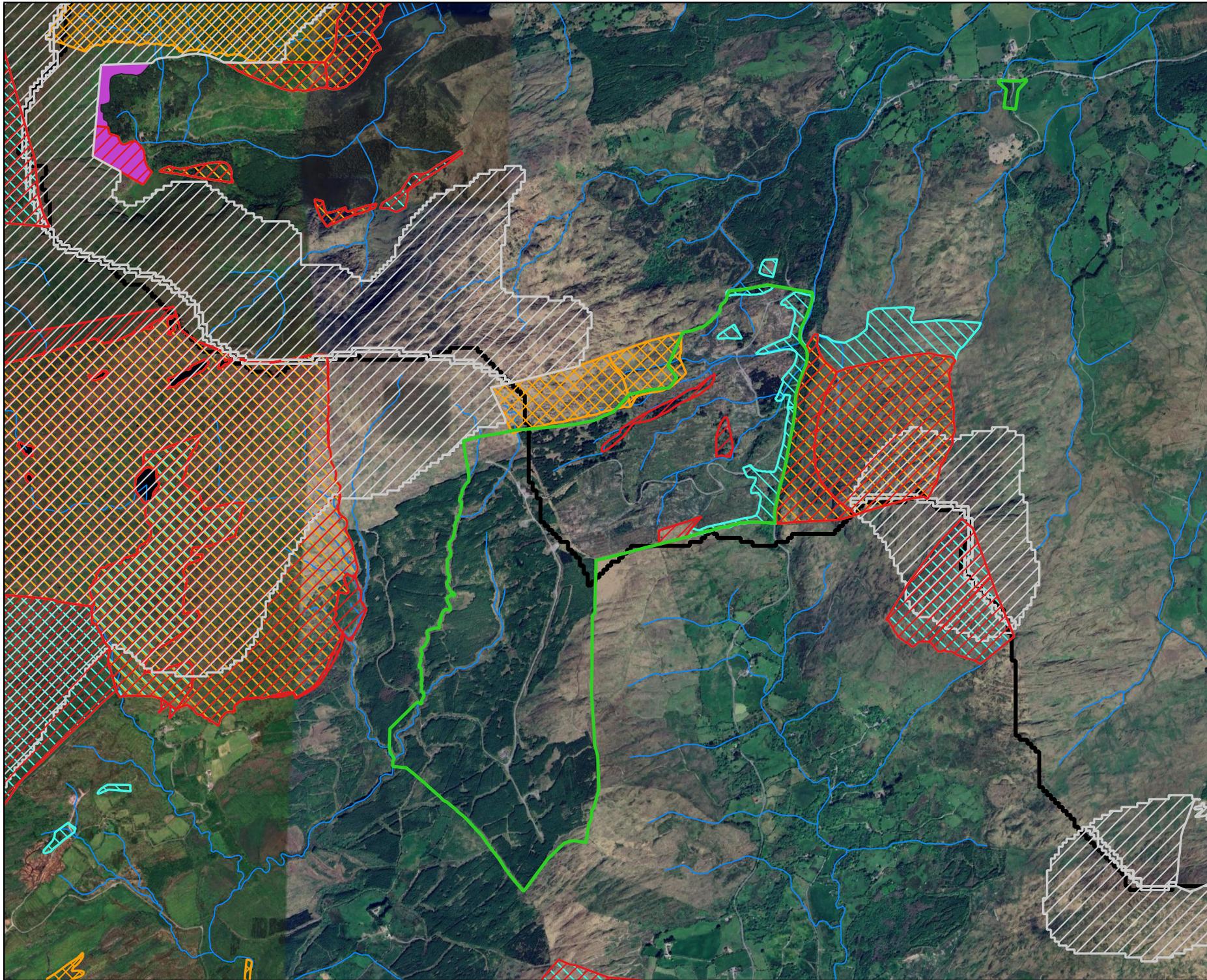
Available NPWS datasets were downloaded and overlain on the Proposed Development. Several Article 17 Annex I habitats have been recorded within the Site and in the surrounding landscape. These include the following:

- Active blanket bogs [7130],
- Dry heath [4030],
- Wet heath [4010],
- Alpine and sub-alpine heath [4060].

Of the above habitats, both Wet heath and Dry heath are mapped within the northern boundary of the Site, with Active blanket bog and Alpine and subalpine heath mapped directly adjacent to the northern boundary.

Figure 6-3 indicates all Article 17 Annex I mapped habitats within and adjacent to the Site.

Following a review of the Irish Semi-natural Grasslands Survey (ISGS), Native Woodland Survey, and Ancient Long-established Woodland, no areas of the lands within the Site were found to contain these mapped habitats.



Map Legend

- EIAR Site Boundary
- Active Blanket Bog Poly
- Alpine and Subalpine Heath
- Wet Heath Poly
- Dry Heath Poly



Microsoft product screen shots reprinted with permission from Microsoft Corporation
Ordnance Survey Ireland Licence No. AR 0021821 © Ordnance Survey Ireland/Government of Ireland

Drawing Title	
Artcile 17 Mapping	
Project Title	
Curraglass Wind Farm	
Drawn By	Checked By
PD	CC
Project No.	Drawing No.
240614	Figure 6-3
Scale	Date
1:25,000	2025-09-10

MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkoreland.ie
Website: ww.mkoreland.ie

6.4.1.3 Vascular plants

A search was made in the *New Atlas of the British & Irish Flora* (Preston et al., 2002) to investigate whether any rare or unusual plant species listed as Annex II of the Habitats Directive, *Ireland Red List No. 10 Vascular Plants* (Wyse Jackson et al., 2016) or protected under the Flora (Protection) Order, 2022 had been recorded in the relevant 10km squares in which the study site is situated (W06 and W16) during the 1987-1999 atlas survey. Each hectad contains 100 whole one-kilometre squares containing terrestrial habitats. Species of conservation concern are given in Table 6-4. No species listed in Annex II of the Habitats Directive are shown in the atlas for squares W06 and W16.

Table 6-4 Species listed in Preston et al. (2002) and designated under the Flora Protection Order or the Irish Red Data Book within Hectad W06.

Common Name	Scientific Name	Status	Hectad
Heath Cudweed	<i>Gnaphalium sylvaticum</i>	FPO; EN	W06
Irish Lady's-tresses	<i>Spiranthes romanzoffiana</i>	FPO; NT	W06
Killarney Fern	<i>Trichomanes speciosum</i> (sporophyte)	Annex II	W06; W16
Awlwort	<i>Subularia aquatica</i>	VU	W06
Marsh Mallow	<i>Althaea officinalis</i>	NT	W06
Roman chamomile	<i>Chamaemelum nobile</i>	NT	W06; W16
Wildflower centaury	<i>Centaurium pulchellum</i>	FPO; NT	W16
Six-stamened Waterwort	<i>Elatine hexandra</i>	NT	W06
Ivy-leaved bellflower	<i>Wahlenbergia hederacea</i>	NT	W06
Lanceolate spleenwort	<i>Asplenium obovatum</i>	FPO; VU	W16
Corn marigold	<i>Chrysanthemum segetum</i>	NT	W16
Beech fern	<i>Phegopteris connectilis</i>	NT	W16
Brown-beak sedge	<i>Rhynchospora fusca</i>	NT	W16

Near Threatened (NT), Vulnerable (VU), Critically Endangered (CR), Regionally Extinct (RE), Flora Protection Order (FPO)

6.4.1.4 Bryophytes

The desktop search (NPWS bryophyte mapper) indicated that a total of three protected bryophytes have been recorded within the northeastern portion of the Site. These species include:

- Hooked Plait-moss (*Hypnum uncinatum*)
- Western Featherwort (*Plagiochila heterophylla*)
- Holt's Scalewort (*Radula holtii*)

6.4.1.5 National Biodiversity Data Centre (NBDC) Records

6.4.1.5.1 Fauna

A search of the NBDC website was conducted on the 18th of March 2025 to inform survey effort and provide a baseline of likely species composition in the area. Records of protected fauna recorded from hectads W06 and W16 are provided in in Table 6-5.

Table 6-5 NBDC records for species of conservation interest in hectads W06 and W16.

Common name	Scientific name	Designation	Hectad
Common Frog	<i>Rana temporaria</i>	HD Annex V, WA	W06; W16
Smooth Newt	<i>Lissotriton vulgaris</i>	WA	W06; W16
Freshwater Pearl Mussell	<i>Margaritifera margaritifera</i>	HD Annex II, WA	W06; W16
Kerry Slug	<i>Geomalacus maculosus</i>	HD Annex II, WA	W06; W16
European Otter	<i>Lutra lutra</i>	HD Annex II, IV, WA	W06; W16
Eurasian Badger	<i>Meles meles</i>	WA	W06; W16
Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	WA	W06; W16
West European Hedgehog	<i>Erinaceus europaeus</i>	WA	W06; W16
Brown Long-eared Bat	<i>Plecotus auritus</i>	HD Annex IV, WA	W06
Daubenton's Bat	<i>Myotis daubentonii</i>	HD Annex IV, WA	W06; W16
Lesser Horseshoe Bat	<i>Rhinolophus hipposideros</i>	HD Annex II, IV, WA	W06; W16
Eurasian Pygmy Shrew	<i>Sorex minutus</i>	WA	W06; W16
Pipistrelle	<i>Pipistrellus pipistrellus sensu lato</i>	HD Annex IV, WA	W16
Lesser Noctule	<i>Nyctalus leisleri</i>	HD Annex IV, WA	W06; W16
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	HD Annex IV, WA	W06; W16

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

6.4.1.5.2 Invasive Species

The NBDC database also contains records of invasive species identified within the relevant hectads. A number of species subject to restrictions under Regulations 49 and 50, and included in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, were found to be present in hectads W06 and W16 as shown in Table 6-6 below.

Table 6-6 NBDC records for invasive species (hectad W06 and W16)

Common Name	Scientific Name	Hectad
Giant Rhubarb	<i>Gunnera tinctoria</i>	W06
Japanese Knotweed	<i>Reynoutria japonica</i>	W06; W16
American Mink	<i>Mustela vison</i>	W06
Sika Deer	<i>Cervus nippon</i>	W06; W16
Roach	<i>Rutilus rutilus</i>	W16
Canadian Waterweed	<i>Elodea canadensis</i>	W16
Himalayan Knotweed	<i>Persicaria wallichii</i>	W16
Indian Balsam	<i>Impatiens glandulifera</i>	W16
New Zealand Pigmyweed	<i>Crassula helmsii</i>	W16
Rhododendron ponticum	<i>Rhododendron ponticum</i>	W16

6.4.1.1 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 W06 and W16. An information request was sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database on the 5th of November 2024. A follow-up request was sent on the 28th of March 2025; however, no response has been received to date.

6.4.1.2 Inland Fisheries Ireland Data

The Water Framework Directive (WFD) was implemented by the EU and applies to rivers, lakes, groundwater, estuaries and coastal bodies. The aim of the directive is for all member states to achieve good water status in all water bodies by 2015. Member states must also ensure that status does not deteriorate in any waters. As part of the WFD, Inland Fisheries Ireland (IFI) have been assigned the responsibility of monitoring fish in 300 sites

encompassing lakes, rivers and transitional waters (estuaries) throughout the country on a three-year rolling programme. Reports are provided on these surveys and have been reviewed as part of this assessment to inform the ecological baseline with regard to aquatic species with potential to be impacted by the proposed works. The IFI online database was assessed for records of fish species of conservation concern for the Owvane and Lee rivers located downstream of the Proposed Development. Five species were recorded in the River Lee at Inchincossig Bridge approximately 6km downstream of the Site during surveys carried out in 2013, namely Brown Trout, Minnow, Lamprey sp., Roach, and Three-spined Stickleback. Five species were recorded in the River Owvane at Piersons Bridge approximately 9.7km downstream of the Site during surveys carried out in 2010, namely Brown Trout, Minnow, Sea Trout, Salmon and Eel.

Inland Fisheries Ireland are responsible for carrying out monitoring of protected Red List fish species as part of Irish legislation implemented under the Habitats Directive. A survey was carried out in 2011 in the Lee catchment within which the Proposed Development is located. The River Lee and some of its minor tributaries were sampled at 15 sites along the entire length between the source Gouganebarra Lake, and the tidal limits in Cork city. Juvenile Lamprey were absent at seven locations. Four of these sites, all in upland areas, were lacking suitable ammocete nursery habitat. The remaining three sites, all upstream of Inchigeelagh, had suitable habitat. Densities were found at eight sites, with densities ranging from 1 to 9.7 individuals per m².

6.4.1.3 Freshwater Pearl Mussel (*Margaritifera margaritifera*)

The NPWS *Margaritifera* Sensitive Area map (Version 8, 2017) was consulted during the desk study. The watercourses surveyed within and adjacent to the Site were assessed for their suitability to support Freshwater Pearl Mussel.

The Site lies within Freshwater Pearl Mussel (*Margaritifera margaritifera*) sensitivity areas; Lee Upper and Owvane. Both catchments are designated as ‘*Catchments of other extant populations*’ of pearl mussel.

There are a number of streams and rivers within and in close proximity to the Site. Those in the northern section of the Site drain into the Lee Upper FWPM catchment while those in the southern section drain into the Owvane. Based on point data received from NPWS, the nearest Freshwater Pearl Mussels recorded downstream of the Site are in the River Lee, approximately 6.5 km (hydrological distance) from the Site boundary. Other records in the wider area have no hydrological connectivity to the Site.

6.4.1.4 Kerry Slug (*Geomalacus maculosus*)

Kerry Slug is known to occur within hectad W06 and W16 pertaining to the Site as shown in the National Biodiversity Data Centre database records provided in Table 6-5. Targeted Kerry slug surveys were undertaken for this protected species (under NPWS Licence No.: C71/2020) and confirmed its presence within the Site.

6.4.1.5 Bats

Full details of the desktop studies in relation to bats are detailed in the Bat Report, **Appendix 6-1**. As per Article 17 reporting, the Site is located within the current known range for lesser horseshoe bat (*Rhinolophus hipposideros*), common pipistrelle (*Pipistrellus pygmaeus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Daubenton’s bat (*Myotis daubentonii*), brown long-eared bat (*Plecotus auritus*) and Leisler’s bat (*Nyctalus leisleri*). The Site is outside the known range for Natterer’s bat, Nathusius’ pipistrelle and whiskered bat.

6.4.1.6 Hydrology

6.4.1.6.1 Regional and Local Hydrology and Hydrogeology

Full details on the hydrology and hydrogeology of the Site is included in 9.3 of Chapter 9 (Hydrology and Hydrogeology).

Regionally the southern section of the Site (including all proposed infrastructure apart from the site entrance road and proposed turbine component turning area) is located in the Owvane River surface water catchment within the Coomhola_SC_010 sub-catchment.

The northern section of the Site (limited to the site entrance road and proposed turbine component turning area) is located in the River Lee surface water catchment (Lee(Cork)_SC_010). All sub-catchments are located within Hydrometric Area 21 of the South Western River Basin District.

The Owvane River flows to the southeast of the Site and discharges into Bantry Bay approximately 11km to the southwest. The River Lee flows south-easterly towards Lough Allua approximately 0.4km to the north of the Site and then on towards Cork Harbour.

A regional hydrology map is shown as Figure 9-1 of Chapter 9 (Hydrology and Hydrogeology).

On a more local scale, the eastern extent of the Site within the Owvane River surface water catchment drains directly into the Owvane River itself (Owvane(Cork)_010 sub-basin) which flows in a southerly direction immediately to the southeast of the Site (there is no Proposed Development infrastructure in the south-eastern section of the Site).

The majority of the Site within the Owvane River surface water catchment drains towards the Owenbeg River (Owvane_010) via several headwater streams that emerge within the Site itself. The Owenbeg (Owvane_010) is also known as the Lackavane River on Discovery Series OSI mapping.

The northern section of the Site (which is located in the River Lee surface water catchment) drains directly via a localised stream network into the River Lee upstream of Lough Allua (Lee(Cork_)010 sub-basin).

A local hydrology map is shown as Figure 9-2 of Chapter 9 (Hydrology and Hydrogeology).

6.4.1.6.2 Surface water quality

Biological Q-rating data for EPA monitoring points on the Lackavane River, Owvane River and River Lee are shown in Table 6-7 below. Most recent data available (2004 to present) show that the Q-rating for local watercourses is ‘Good’ to ‘High’ downstream of the Proposed Development.

Table 6-7: EPA Water Quality Monitoring Q-Rating Values

Waterbody	Station ID	Year surveyed	Easting	Northing	EPA Q-Rating Status
Lackavane	Br East of Maugha	2020	107120	60140	High
Lackavane	Br u/s of Owvane confluence	2003	104410	56750	High
Owvane	Br NE of Kealkill	2006	104840	56580	Good
Owvane	Br SW of Cappaboy	2020	108840	59050	Good
Owvane	Piersons Bridge	2024	102390	54480	High
Lee	Just u/s Gouganebarra Lake	2023	109390	66450	High
Lee	Ford (Br) S of Gortalludig	2023	111590	65880	High

6.4.1.6.3 Groundwater Vulnerability

The vulnerability of the aquifer underlying the Site is classified as predominately “Extreme” by the GSI (www.gsi.ie). This is consistent with site observations and the site investigation data (the higher the vulnerability rating is a reflection of how close bedrock is to the ground surface).

All proposed infrastructure appears to be located in areas of “Extreme” vulnerability (i.e. <3m peat and subsoil combined) (GSI, 1999). However, due to the low permeability nature of the bedrock aquifer underlying the Site, groundwater flow paths are likely to be short, with recharge emerging close by at seeps and surface streams. This means there is a low potential for groundwater dispersion and movement within the aquifer, therefore making surface water bodies more vulnerable than groundwater at this Site.

6.4.1.6.4 Water Framework Directive Water Body 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 of 2003).

Further information on the objectives of the WFD are provided in Section 9.3.11 of Chapter 9 (Hydrology and Hydrogeology).

Groundwater Body Status

Local Groundwater Body (GWB) and Surface water Body (SWB) status reports are available for review from (www.catchments.ie)

The Beara Sneem GWB (IE_SW_G_019) underlies most of the Site. This GWB is assigned ‘Good Status’, which is defined based on the quantitative status and chemical status of the GWB.

The Ballinhassig _2 GWB (IE_SW_G_005) underlies the far west of the Site and is also assigned ‘Good Status’.

Surface Water Body Status

A summary of the EPA/WFD status and risk result of Surface Water Bodies (SWBs) in which development is proposed (or immediately upstream of) is shown below.

The southwestern section of the Site (majority of the Proposed Development) drains to the Owenbeg (Owvane)_010 surface water body which achieved ‘High’ status under the WFD 2016-2021.

The upper reaches of the Owvane River (Owvane(Cork)_010) in the area of the Site also achieved ‘High’ status.

However, further downstream the status of the Owvane River (Owvane (Cork)_020/_030) reduces to ‘Good’. The Lee (Cork)_010 surface water body to which the northern section of the Site drains achieved ‘Good’ status under the WFD 2016-2021.

6.4.1.1 Conclusions of the Desktop Study

The desktop study has provided information about the existing environment in hectads W06 and W16, within which the Proposed Development is located. The Proposed Development is located in the Lee, Cork Harbour and Youghal Bay and Dunmanus-Bantry-Kenmare surface water catchments within the South Western River Basin District. On a more local scale, the Site is located in both the Lee and Coomhala sub-catchments.

Several Order 1 and Order 2 streams lie within the Site. These have downstream hydrological connectivity to Lough Allua pNHA and The Gearagh SPA, The Gearagh SAC and The Gearagh pNHA via the River Lee

(Cork). Taking a precautionary approach, two European Sites and two National Sites have been identified to be within the Likely Zone of Influence:

- > The Gearagh SAC [000108]
- > The Gearagh SPA [004109]
- > The Gearagh pNHA [000108]
- > Lough Allua pNHA [001065]

The desk study identified that a variety of protected faunal species are known to occur within the wider Site, including Kerry Slug, freshwater pearl mussel, bats, otter, and badger. The species recorded 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, 2009).

The desk study revealed that there are known mapped Annex I Article 17 habitats present within the Site. That said, none of these habitats lie within the development footprint.

The desk study provided useful information to inform the ecological surveys undertaken on site as well as the identification of pathways for potential impacts on sensitive ecological receptors.

6.5 Baseline Ecological Survey Results

6.5.1 Description of Habitats and Flora

Detailed botanical data from relevés recorded at the Site are provided in **Appendix 6-2** of this EIAR. A habitat map of the Site is provided in Figure 6-4. A map showing the development footprint overlaying the Habitat Map is shown in Figure 6-5.

A total of eleven habitats were recorded within the Site, which are listed in Table 6-8 below.

Table 6-8 Habitats recorded within the Site

Habitat Name	Fossitt Code
Conifer Plantation & Recently Felled Woodland	WD4/WS5
Spoil and Bare Ground	ED2
Recolonising Bare Ground	ED3
Buildings and Artificial Surfaces	BL3
Wet Heath/Upland Blanket Bog/ Montane Heath/ Exposed Siliceous Rocks	HH3/ PB2/HH4/ER1
Wet Grassland	GS4
Scrub	WS1
Dense Bracken	HD1
Oak-birch-holly Woodland	WN1
Mixed Broadleaved Woodland	WD1
Eroding/Upland Rivers	FW1
Drainage Ditches	FW4

Conifer Plantation (WD4) & Recently felled woodland (WS5)

This category is used for areas that support dense stands of planted conifers where the broadleaved component is less than 25% and the overriding interest is commercial timber production. Conifer plantations are characterised by even-aged stands of trees that are usually planted in regular rows, frequently within angular blocks.

The Site largely comprises forestry that is being actively used for commercial purposes, presenting a mosaic of standing, recently felled, and recolonising forestry areas. Existing and recently felled plantation were classified as **Conifer Plantation (WD4)**. The dominant commercial species planted was Sitka Spruce (*Picea sitchensis*). The ground layer of this habitat was typically species poor and dominated by bryophytes and bare dry peat. In areas of **Recently Felled Woodland (WS5)**, there was greater diversity, with scrub and wet grassland species such as gorse (*Ulex europaeus*), bramble (*Rubus fruticosus* agg.), soft rush (*Juncus effusus*), foxglove (*Digitalis purpurea*), tormentil (*Potentilla erecta*) and rosebay willowherb (*Chamaenerion angustifolium*) recorded. Rare recordings of *Rhododendron ponticum* were also identified in this habitat, which is further addressed in Section 6.5.1.3.

Some areas of conifer plantation were fringed with narrow planted bands of alder (*Alnus* sp). Given that these areas did not constitute more than 25% of the overall conifer plantation area they have been mapped under the WD4 classification, as per Fossitts (2009) classifications.

An example of maturing conifer plantation within the Site is shown in Plate 6-1. Plate 6-2 shows an example of self-reestablishing conifer plantation, and Plate 6-3 presents an area of Recently Felled Woodland (WS5) with emerging wet grassland vegetation.

Of the Proposed Development footprint, small sections of Turbine 1, 2 and 3 hardstands, sections of new access road, upgrades to existing road, small sections of the temporary construction compound and the borrow pit will be located within this habitat type, as well as the proposed biodiversity enhancement areas.



Plate 6-1 Conifer Plantation (WD4) to the centre of the Site.



Plate 6-2 Example of self-re-establishing conifer plantation within the Site.



Plate 6-3 Example of Recently Felled Woodland (WS5) within the Site.

Spoil and Bare Ground (ED2)

The unsealed network of existing forestry and original wind farm tracks have been classified as ***Spoil and Bare Ground (ED2)***. Most of these have been maintained and regularly resurfaced. Also included are some small hardstand areas (i.e. surrounding the existing onsite 38kV substation and former turbine locations). This habitat comprised unconsolidated gravels with various degrees of revegetation. Those areas where revegetation surpassed 50% were classified as Recolonising Bare Ground habitat (ED3), as detailed below. The Proposed Development maximises the use of the existing infrastructure.

An example of Spoil and Bare Ground (ED2) habitat at a previous turbine hard stand is shown in Plate 6-4 with the existing access road presented in Plate 6-5.

The Proposed Development has been designed to utilise this habitat where possible, to reduce loss of higher value habitats within the Site. Components of the Proposed Development which are located within this habitat type include the existing roads for upgrade, temporary construction compound, sections of Turbine 1, 2 and 3 hardstands, and proposed spoil and management areas.

Given the low biodiversity value of this habitat, it has been assigned Local Importance (lower value) only. The Proposed Development has been designed to utilise this habitat where possible, to reduce loss of higher value habitats within the Site.



Plate 6-4 Existing hardstand categorised as Spoil and Bare Ground (ED2).



Plate 6-5 Example of the existing access road within the Site, presenting Spoil and Bare Ground (ED2).

Recolonising Bare Ground (ED3)

Several existing hardstanding areas at the Site have started to be recolonised by species such as Mat-grass (*Nardus stricta*), creeping bent-grass (*Agrostis stolonifera*), foxglove (*Digitalis purpurea*), fescue (*Festuca spp.*), Yorkshire fog (*Holcus lanatus*), ling heather (*Calluna vulgaris*), mouse-eared chickweed (*Cerastium fontanum*) and soft rush (*Juncus effusus*).

An example of Recolonising Bare Ground habitat (ED3) is shown in Plate 6-6.

Given the low biodiversity value of this habitat, it has been assigned Local Importance (lower value) only. The Proposed Development has been designed to utilise this habitat where possible, to reduce loss of higher value habitats within the Site.



Plate 6-6 Existing hardstand area where vegetation is reestablishing and categorised as Recolonising Bare Ground (ED3).

Buildings and Artificial Surfaces (BL3)

There are a number of areas of existing infrastructure within the Site including previous turbine locations and the existing onsite 38kV substation. These areas of built infrastructure were categorised as ***Buildings and Artificial Surfaces (BL3)***. Given the low biodiversity value of this habitat, it has been assigned Local Importance (lower value) only.

An example of this habitat is shown in Plate 6-7.



Plate 6-7 Existing onsite 38kV substation categorised as Buildings and Artificial Surfaces (BL3)

Wet Heath (HH3)/Upland Blanket Bog (PB2)/ Montane Heath (HH4)/ Exposed Siliceous Rocks (ER1)

Peatland is the dominant habitat type in the wider study area. This peatland habitat comprises a mosaic of **Wet Heath (HH3)**, **Upland Blanket Bog (PB2)**, and **Montane Heath (HH4)**. Intermittent patches of **Exposed Siliceous Rock (ER1)** were also recorded in association with this mosaic. Due to the numerous locations of exposed siliceous rock recorded it has not been mapped as an individual habitat but rather is accepted as occurring in association with the peatland habitat throughout the Site. Species within this habitat mosaic included purple moor-grass (*Molinia caerulea*), western gorse (*Ulex galii*), ling heather, (*Calluna vulgaris*), bell heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), tormentil (*Potentilla erecta*), deergrass (*Tricophrum germanicum*), heath milkwort (*Polygala serpyllifolia*), marsh violet (*Viola palustris*), bog asphodel (*Narthecium ossifragum*), heath rush (*Juncus squarrosus*), heath bedstraw (*Galium saxatile*), common cottongrass (*Eriophorum angustifolium*), black bog-rush (*Schoenus nigricans*) and *Cladonia spp.* lichen. The bryophyte layer included such species as *Sphagnum spp.*, *Polytrichum commune* and *Rhytidiadelphus loreus*.

Given the high biodiversity value of these mosaic habitats, and the absence of significant pressures such as forestry and drainage, they are likely to conform to the following Annex I habitats of the EU Habitats Directive:

- Alpine and Boreal heaths [4060]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- European dry heaths [4030]
- Blanket bogs [7130]

Fragmented areas of wet heath and blanket bog were recorded within the Site along the existing road infrastructure and are mapped separately to the above mosaic. The degraded fragments occurred adjacent to the existing infrastructure and along forestry edges. The fragmented habitat areas were modified and subject to

drainage. Vegetation was typical of wet heath on thin soils, the major indicator species being ling heather (*Calluna vulgaris*), purple moor grass (*Molinia caerulea*), deergrass (*Trichophorum germanicum*), bell heather (*Erica cinerea*) and cross-leaved heath (*Erica tetralix*). In areas of Blanket bog, common cottongrass, bog asphodel ling heather, deergrass, heath milkwort, black bog-rush and *Sphagnum* dominated.

An example of upland bog/ wet heath habitat and fragmented wet heath habitat along the access road are shown in Plate 6-8 and Plate 6-9. Plate 6-10 shows an example of degraded wet heath within the footprint of the proposed borrow pit.

The Proposed Development has been designed to minimise the loss of heath habitats as much as possible. However, there will be some losses of degraded wet heath which is adjacent to existing road infrastructure to accommodate the hard standing areas for Turbines 1 and 2, upgraded road infrastructure, the met mast the borrow pit, and construction compound.



Plate 6-8 Wet Heath (HH3)/Upland Blanket Bog (PB2) located in the centre of the Site.



Plate 6-9 Fragmented and drained Wet Heath (HH3) along the existing access road



Plate 6-10 Degraded wet heath within the footprint of the proposed borrow pit.

Wet Grassland (GS4)

Wet Grassland (GS4) occurs throughout the Site, bordering forestry and peatland edges. Wet grassland was dominated by species including soft rush (*Juncus effusus*), and creeping bent-grass (*Agrostis stolonifera*) as shown in Plate 6-11. Other species recorded included occasional heath species such as ling heather, tormentil, bramble, and gorse. Given to low diversity recorded within this habitat type, this habitat was not identified as ecologically significant and was assessed as Local Importance (lower value) only.

This habitat type was also recorded throughout areas of recently felled woodland, forming a mosaic with highly degraded heath habitats and gorse scrub, as shown in Plate 6-12.



Plate 6-11 Wet Grassland (GS4) recorded along conifer plantation and the existing access road.



Plate 6-12 Mosaic of wet grassland, degraded heath, and scrub recorded in areas of recently felled woodland.

Scrub (WS1)

Scrub (WS1) occurred throughout the Site, particularly adjacent to existing road infrastructure and as a mosaic with recently felled woodland and was largely dominated by species such as willow (*Salix spp.*), gorse (*Ulex europaeus*), and bramble (*Rubus fruticosus agg.*). An example of Scrub (WS1) habitat is shown in Plate 6-13. As this habitat presented as very small sections adjacent to existing roads and forming a minor element of a mosaic with recently felled woodland, it was not viable to present it as a standalone habitat in Figure 6-4.



Plate 6-13 Example of Scrub (WS1) habitat within the Site.

Dense Bracken (HD1)

Occasional areas dominated by bracken *Pteridium aquilinum* were recorded within the Site and were categorised as **Dense Bracken (HD1)**. They typically occurred along existing road infrastructure, bordering conifer plantation as shown in Plate 6-14. As this habitat presented as very small sections adjacent to existing roads and forming a minor element of a mosaic with recently felled woodland, it was not viable to present it as a standalone habitat in Figure 6-4.



Plate 6-14 Dense Bracken (HD1) growing along the banks of a tributary to the Lackavane River towards the west of the Site

Oak-birch-holly woodland (WN1)

A linear band of **Oak-Birch-Holly Woodland (WN1)** is located along the northeastern boundary of the Site between the existing local road and conifer plantation. The canopy was comprised of frequent to occasional ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), downy birch (*Betula pubescens*), and alder (*Alnus glutinosa*). The understory comprised species such as holly (*Ilex aquifolium*) and willow (*Salix spp.*). Ground flora species included foxglove (*Digitalis purpurea*), bilberry (*Vaccinium myrtillus*), hard fern (*Blechnum spicant*), wood sorrel (*Oxalis acetosella*) and yellow pimpernel (*Lysimachia nemorosa*), with moss species including *Thuidium tamariscinum*, *Rhytidiadelphus loreus*, *Polytrichum commune*, *Isoetes macrospora* and *Polytrichum formosum*. Sessile oak (*Quercus petraea*) was recorded in this habitat only occasionally within the Site.

While the above species list includes multiple indicator species of the Annex I habitat: 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, the occurrence of oak is infrequent in both the canopy and understory. Therefore, whilst this habitat conforms to this protected woodland habitat, it is degraded given the infrequent presence of oak, particularly adjacent to existing access roads.

As part of the road widening proposed at the existing entrance to the Site, there is requirement for encroachment into this woodland type. This encroachment will be within woodland which presents degraded examples of this habitat, with high beech and willow occurrences. An example of this woodland habitat is presented in Plate 6-15.



Plate 6-15 Example of Oak-birch-holly woodland (WN1) habitat proximal to the entrance to the Site.

Mixed broadleaved woodland (WD1)

Mixed broadleaved woodland (WD1), dominated by beech (*Fagus sylvatica*), was also present within the northeastern portion of the Site, adjacent to the access road and site entrance. Ground flora recorded included lesser celandine (*Ficaria verna*), primrose (*Primula vulgaris*), wood sorrel, bluebell (*Hyacinthoides non-scripta*), opposite leaved golden saxifrage (*Chrysosplenium oppositifolium*), yellow pimpernel (*Lysimachia nemorum*), hard fern (*Blechnum spicant*), and honeysuckle (*Lonicera periclymenum*). Whilst occasional hazel, holly, and birch were recorded within this modified woodland type, given the dominance of beech, this habitat is best classified as Mixed broadleaved woodland (WD1).

Given the high biodiversity of this woodland and its proximity to the above discussed oak-birch-holly woodland, this woodland is likely to have once conformed to the Annex I habitat: 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles but has been planted with beech. Furthermore, the reduced field layer is likely a result of the beech leaf litter layer.

As part of the road widening proposed at the existing entrance to the Site, there is requirement for encroachment into this woodland type. This encroachment will be within woodland edge and verges, which presented with high abundance of scrub species such as bramble and gorse. An example of this woodland type is shown in Plate 6-16.



Plate 6-16 Example of mixed broadleaved woodland habitat at the entrance to the Site.

Eroding/Upland Rivers (FW1)

A number of small streams occur within the Site and were categorised as ***Eroding/Upland Rivers (FW1)***. These were dominated by bedrock, boulders, cobble, sand and gravel. The streams to the west are located in the Dunmanus-Bantry-Kenmare catchment while the streams to the east drain to the Lee-Cork Harbour-Youghal Bay catchment.

Typical species within the watercourses included broad-leaved pondweed (*Potamogeton natans*), common water-starwort (*Callitriche stagnalis*) lesser spearwort (*Ranunculus flammula*) and aquatic moss, *Fontinalis antipyretica*. An example of one such watercourse is shown in Plate 6-17.

Further details on the watercourses within the Site is provided in Section 6.5.2.6.



Plate 6-17 Example of Eroding/Upland River (FW1) within the Site.

Drainage Ditches (FW4)

A number of **Drainage Ditches (FW4)** are located within the Site. These were predominantly located within conifer plantation and occasionally along roadsides. An example of a typical drainage ditch within the Site is shown in Plate 6-18. All drainage within the Site is presented in Figure 9-3 of Chapter 9 (Hydrology and Hydrogeology).



Plate 6-18 Typical example of a Drainage Ditch (FW4) recorded in association with conifer plantation.

6.5.1.1 Turbine Component Turning Area

A dedicated turbine component turning area is proposed to the northeast of the Site, approximately 2.2km from the Site entrance and along the R584, to allow turbine delivery vehicles to access the Site. This area is indicated in Figure 1-1 and Figure 6-4.

The proposed turbine component turning area will require removal of fencing and vegetation and the temporary placement of hardcore, so the area can be used during the delivery of large turbine components. Once the turbines have been delivered, the roadside boundary removed for the accommodation works will be reinstated, and the upgraded private access track will remain in place.

The proposed turbine component turning area is comprised of an existing track of **Spoil and bare ground (ED2)**, with narrow verges of **Dry Meadows and grassy verges (GS2)** (Plate 6-19). This track is delineated by a gorse (*Ulex europaeus*), willow (*Salix* sp.), and hawthorn (*Crataegus monogyna*) hedgerows and scrub. Beyond the boundary of the track, an agricultural field of **Improved agricultural grassland (GA1)** was recorded to the east (Plate 6-20), with a soft rush (*Juncus effusus*) dominated Wet grassland (GS4) to the west (Plate 6-21). The northern section of the turbine component turning area, which comprises the existing R584, comprised **Buildings and artificial surfaces (BL3)**, as shown in Plate 6-22).



Plate 6-19 Track of Spoil and bare ground at turbine component turning area



Plate 6-20 Improved agricultural grassland to the east of turbine component turning area



Plate 6-21 Wet grassland to the west of turbine component turning area



Plate 6-22 Buildings and artificial surfaces on the R548 within the turbine component turning area

6.5.1.2 Turbine Delivery Route (TDR)

Works such as road widening are sometimes required along proposed turbine transport routes to accommodate the large turbine components and associated vehicles seeking to access wind farm sites. The proposed turbine delivery route for the Proposed Development has been the subject of a route assessment to determine if any works are required along its length. Details of the assessment are summarised below.

There are sections on the TDR where potential pinch points may require specialist transport vehicles, and there is a commitment to use such vehicles to minimise the requirement for accommodation works. These sections have been considered as part of this EIAR and will be considered as part of the turbine procurement process. Accommodation works will be required at various locations on the national and regional road network between the port of arrival in Cork and the Site. These are detailed below..

It has been identified that accommodation works will require the temporary loss of vegetation due to the proposed blade transition.

The majority of pinch points identified along the TDR are comprised of existing regional road (R584 and R585), classified as **Buildings and artificial surfaces (BL3)**, which are bordered by a combination of both **Hedgerows (WL1)** and **Treelines (WL2)** (Plate 6-23 and Plate 6-24), **Scattered trees and parkland (WD5)** and **Amenity grassland (GA2)**, in addition to agricultural grasslands of **Improved agricultural grassland (GA1)** and **Wet grassland (GS4)**. Typical roadside hedgerow species throughout the TDR included Bramble (*Rubus fruticosus* agg.), gorse (*Ulex europeaus*), ivy (*Hedera hibernica*), hawthorn (*Crataegus monogyna*), and Willow (*Salix* spp.). Treelines typically consisted of Ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), and sycamore (*Acer pseudoplatanus*). Areas of Dense bracken (HD1) and **Dry meadows and grassy verges (GS2)** were also recorded roadside throughout the TDR.

Mapped watercourses classified as **Eroding/upland rivers (FW1)** and **Depositing/lowland rivers (FW2)** traversed the pinch points on nine occasions (Plate 6-25), and five contained bridge crossings classified as **Stone walls and other stonework (BL1)** (Plate 6-26). These areas were surrounded by a combination of **Riparian woodland (WN5)** and **Mixed broadleaved woodland (WD1)**. Frequently recorded tree species in these habitats included willow (*Salix* spp.), alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*), horse chestnut (*Aesculus hippocastanum*), sycamore (*Acer pseudoplatanus*), beech (*Fagus sylvatica*), and cypress (*Cupressus* sp.).

It has been identified that accommodation works will require the temporary loss of habitat due to the proposed blade transport. Those habitats are listed in Table 6-9 below.

Table 6-9 Habitat to be temporarily lost to facilitate TDR.

Habitat Name	Fossitt Code
Hedgerows	WL1/ WS1
Treelines	WL2
Mixed broadleaved woodland	WD1
Scrub	WS1
Dry meadows and grassy verges	GS2

Regards losses to hedgerows, treelines and mixed broad leaved woodland, this will only be cutting back of vegetation to accommodate the wheel arches of the trucks and oversail of the turbine blades. Vegetation will not be felled/removed in these habitats.



Plate 6-23 Example of treeline (WL2) habitat throughout the TDR.



Plate 6-24 Example of hedgerow (WL1) habitat throughout the TDR.



Plate 6-25 Example of Depositing/lowland rivers (FW2) along the TDR.



Plate 6-26 Example of bridge structure along the TDR classified as Stone walls and other stonework (BL1).

6.5.1.3 Invasive Species

During field surveys, a search for Invasive Alien Species (IAS) listed under the ‘Third Schedule’ of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the ‘First Schedule’ of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. One species - Rhododendron (*Rhododendron ponticum*) - was recorded at two close locations in the northern section of the Site and another minor infestation as the Site entrance. The infestation has overlap with the design of the project. Additionally, several stands of Japanese knotweed were recorded along the proposed turbine delivery route.

Full details of all scheduled invasive species recorded during the surveys, with locations, are provided in the Invasive Species Management Plan (ISMP) in **Appendix 6-3**.

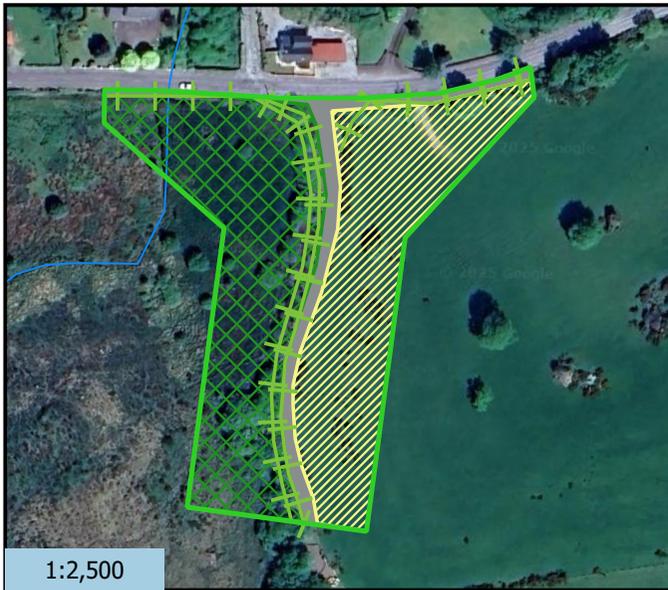
6.5.1.4 Protected Habitats/Flora

In summary, as described in the preceding sections, no Annex I habitats were recorded within or in close proximity to the footprint of the Proposed Development. However, within the Site, particularly in the northern section, a mosaic of Montane Heath (HH4), Wet heath (HH3), Dry siliceous heath (HH1), and Upland Blanket bog (PB2) was recorded which presented intact pockets of the following Annex I habitats:

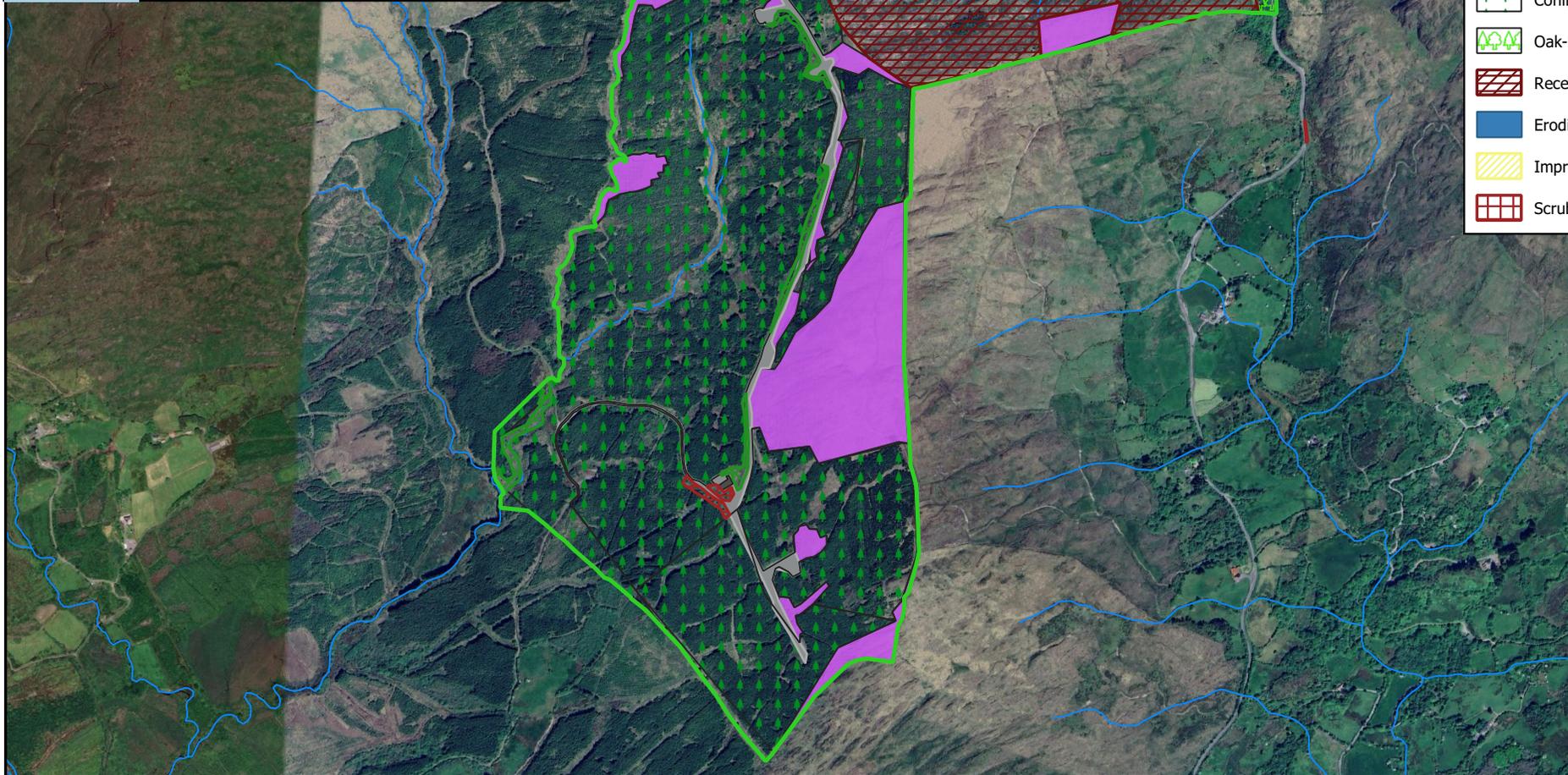
- > Alpine and Boreal heaths [4060]
- > Northern Atlantic wet heaths with *Erica tetralix* [4010]
- > European dry heaths [4030]
- > Blanket bogs [7130]

These habitats have been completely avoided in the design of the Proposed Development.

No botanical species listed under the Flora (protection) Order, 2022, or listed in the Irish Red Data Books were recorded on the Site. All species recorded are common in the wider Irish landscape. No rare and/or protected plant species recorded in the desk study were recorded within the Site.



1:2,500



Map Legend

-  EIAR Site Boundary
-  Hedgerows (WL1)
-  Buildings and artificial surfaces (BL3)
-  Spoil and bare ground (ED2)
-  Recolonising bare ground (ED3)
-  Wet grassland (GS4)
-  Wet heath (HH3)
-  Montane heath (HH4)
-  Upland blanket bog (PB2)
-  (Mixed) broadleaved woodland (WD1)
-  Conifer plantation (WD4)
-  Oak-birch-holly woodland (WN1)
-  Recently-felled woodland (WS5)
-  Eroding/upland rivers (FW1)
-  Improved agricultural grassland (GA1)
-  Scrub (WS1)



Microsoft product screen shots
reprinted with permission from
Microsoft Corporation
Ordnance Survey, Ireland Licence
No. CYAL50267517 © Ordnance
Survey, Ireland/Government of
Ireland

Drawing Title

Habitat Map

Project Title

Curraglass Wind Farm

Drawn By

PD

Checked By

CC

Project No.

240614

Drawing No.

Figure 6-4

Scale

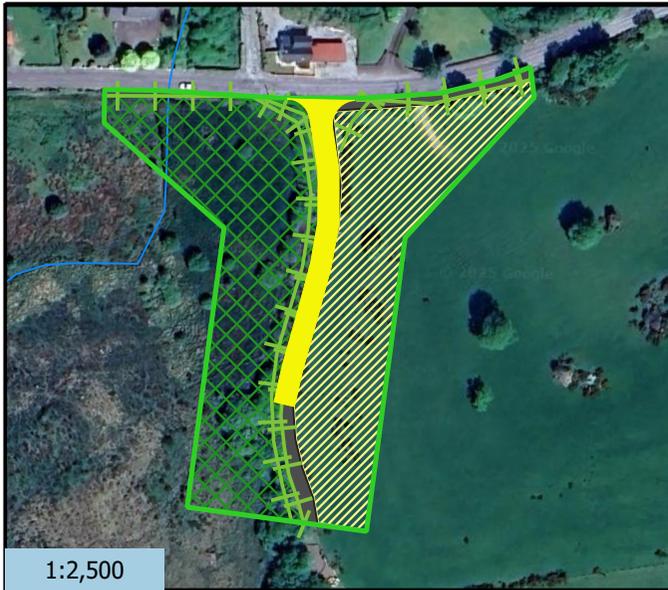
1:16,000

Date

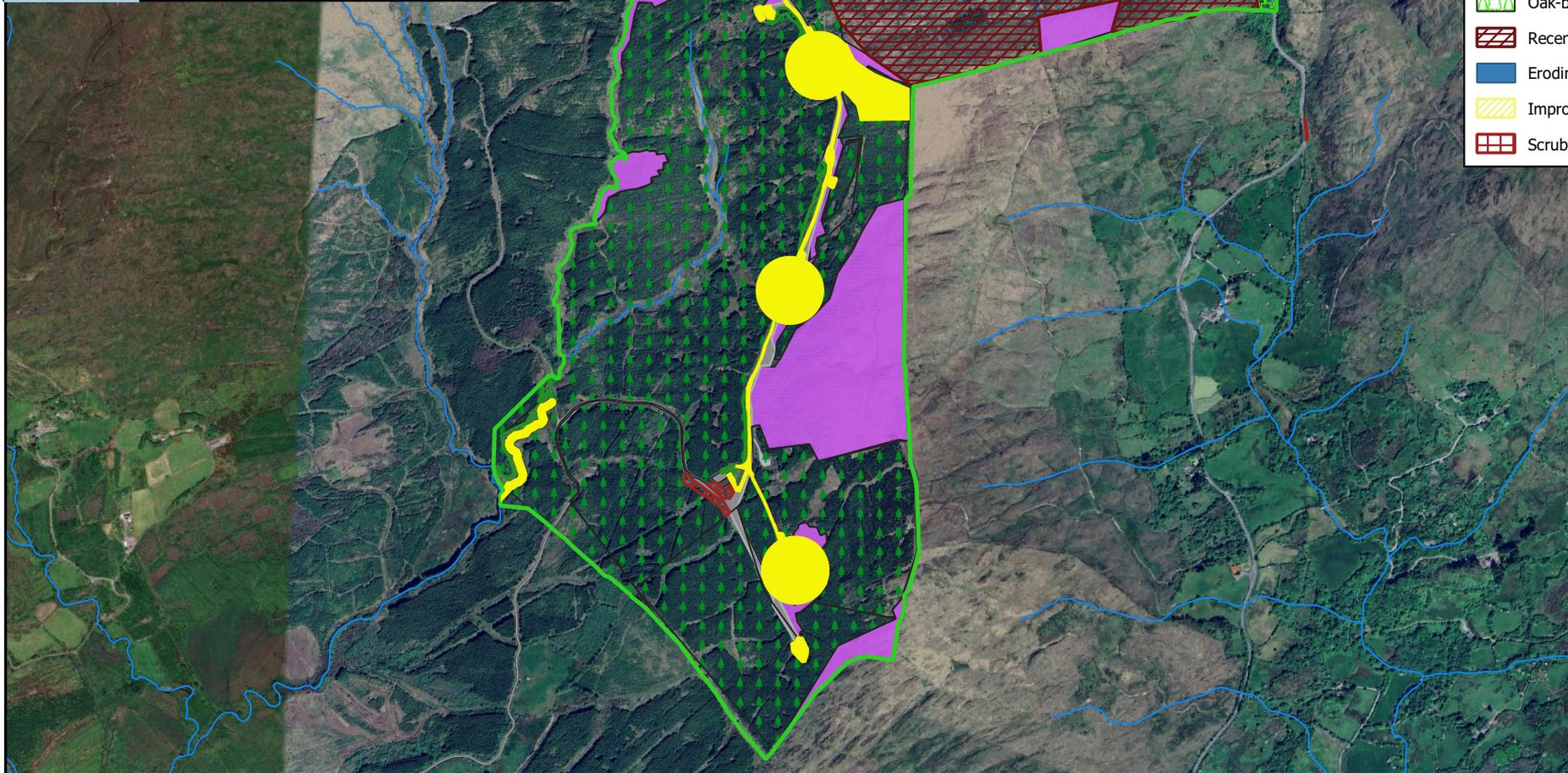
2025-09-11



MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkofireland.ie
Website: ww.mkofireland.ie



1:2,500



Map Legend

- EIAR Site Boundary
- Proposed Layout
- Hedgerows (WL1)
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Wet grassland (GS4)
- Wet heath (HH3)
- Montane heath (HH4)
- Upland blanket bog (PB2)
- (Mixed) broadleaved woodland (WD1)
- Conifer plantation (WD4)
- Oak-birch-holly woodland (WN1)
- Recently-felled woodland (WS5)
- Eroding/upland rivers (FW1)
- Improved agricultural grassland (GA1)
- Scrub (WS1)



Microsoft product screen
shots reprinted with
permission from Microsoft
Corporation
Ordnance Survey Ireland
Licence No. CYAL50267517
© Ordnance Survey
Ireland/Government of
Ireland

Drawing Title

Habitat Map

Project Title

Curraglass Wind Farm

Drawn By

PD

Checked By

CC

Project No.

240614

Drawing No.

Figure 6-5

Scale

1:16,000

Date

2025-09-11



MKO
Planning and
Environmental
Consultants
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
email: info@mkoireland.ie
Website: ww.mkoireland.ie

6.5.2 Fauna in the Existing Environment

6.5.2.1 Badger

The desk study revealed that the Proposed Development is located within the known geographical range of badger. The majority of the Site is comprised of Conifer forestry with some broadleaved woodlands also recorded. Whilst these habitats provide potential supporting habitat for badger, the footprint of the Proposed Development is dominated by areas of hard standing associated with forestry roads and existing wind farm infrastructure on the Site. Such areas do not provide suitable habitat for badger. No badger breeding or resting sites were recorded during the surveys undertaken.

No signs of badger presence including snuffle holes, latrines, tracks, prints or setts were recorded. However, taking a precautionary approach, it is assumed that the species may occur, at least on occasion, within the Site.

6.5.2.2 Otter

The desk study revealed that the Proposed Development is located within the known geographical range of otter. The majority of the Proposed Development footprint is dominated by areas of hard standing associated with forestry roads and existing wind farm infrastructure on the Site. Such areas do not provide suitable habitat for otter. A survey of watercourses within and adjacent to the Proposed Development footprint was carried out in relation to otter. No otter breeding or resting sites were recorded during the surveys undertaken and no signs of otter in the form of prints, slides, couches or spraints were recorded. However, given the presence of suitable habitat within the wider study area and the ubiquitous nature of the species; it is assumed that it may utilise watercourses in the Site for commuting and foraging purposes.

In addition, no signs of otter were recorded during the dedicated aquatic macroinvertebrate surveys carried out along watercourses outside of the Site.

6.5.2.3 Kerry Slug (*Geomalacus maculosus*)

The desk study revealed that the Proposed Development is located within the known geographical range of the Annex II and IV species Kerry Slug. The species occurs in two main natural habitats in Ireland: woodland, and blanket bog/wet heathland (NPWS 2019). In recent studies by Johnson et al. (2018) it has been shown that Kerry Slug can also be abundant in conifer plantation.

Kerry Slug was shown to be present during the 2020 survey and has been assumed to be present within the Site for the current application as a result. Further information on the locations, numbers, and habitat types are presented in **Appendix 6-4**.

6.5.2.4 Marsh Fritillary (*Euphydryas aurinia*)

Small, isolated patches of Devil's-Bit Scabious (*Succisa pratensis*), the food plant for this species, were identified at the entrance of the Site. That said, the extent of this habitat was small and isolated and did not provide significant supporting habitat for Marsh Fritillary.

6.5.2.5 Bats

A dedicated bat survey and assessment report is provided in **Appendix 6-1** of this EIAR. The following provides a summary of the key findings. Bat surveys were undertaken in 2023, in accordance with NatureScot Guidance (NatureScot, 2019) and form the core dataset for the assessment of effects on bats at the Site. Bat surveys included roost survey, manual transect surveys and ground-level static surveys.

Roost Surveys

Following the search for roosts in 2023, one structure (ITM Grid Ref: X 508844 Y 562170) containing potential suitable bat roost features was identified within the Site. No trees with significant suitable PRFs were identified within the search area. The majority of the trees located within the Site consists of commercial conifer plantation stock with no potential or *Negligible* roosting potential. Trees along the TDR consisted of a mix of broadleaved species which also lacked significant suitable roost features to support roosting bats. Further details are provided in **Appendix 6-1**.

Manual Transects 2023

Manual bat activity surveys were undertaken in spring, summer and autumn 2023. Bat activity was recorded on all surveys. A total of 606 bat passes were recorded across all surveys. In general, common pipistrelle (n=541) was recorded most frequently, followed by soprano pipistrelle (n=57) and Leisler's bat (n=5). Two instances of *Myotis* spp. were recorded and one instance of brown long-eared bat was observed. Further details are provided in **Appendix 6-1**.

Ground-level Static Surveys 2023

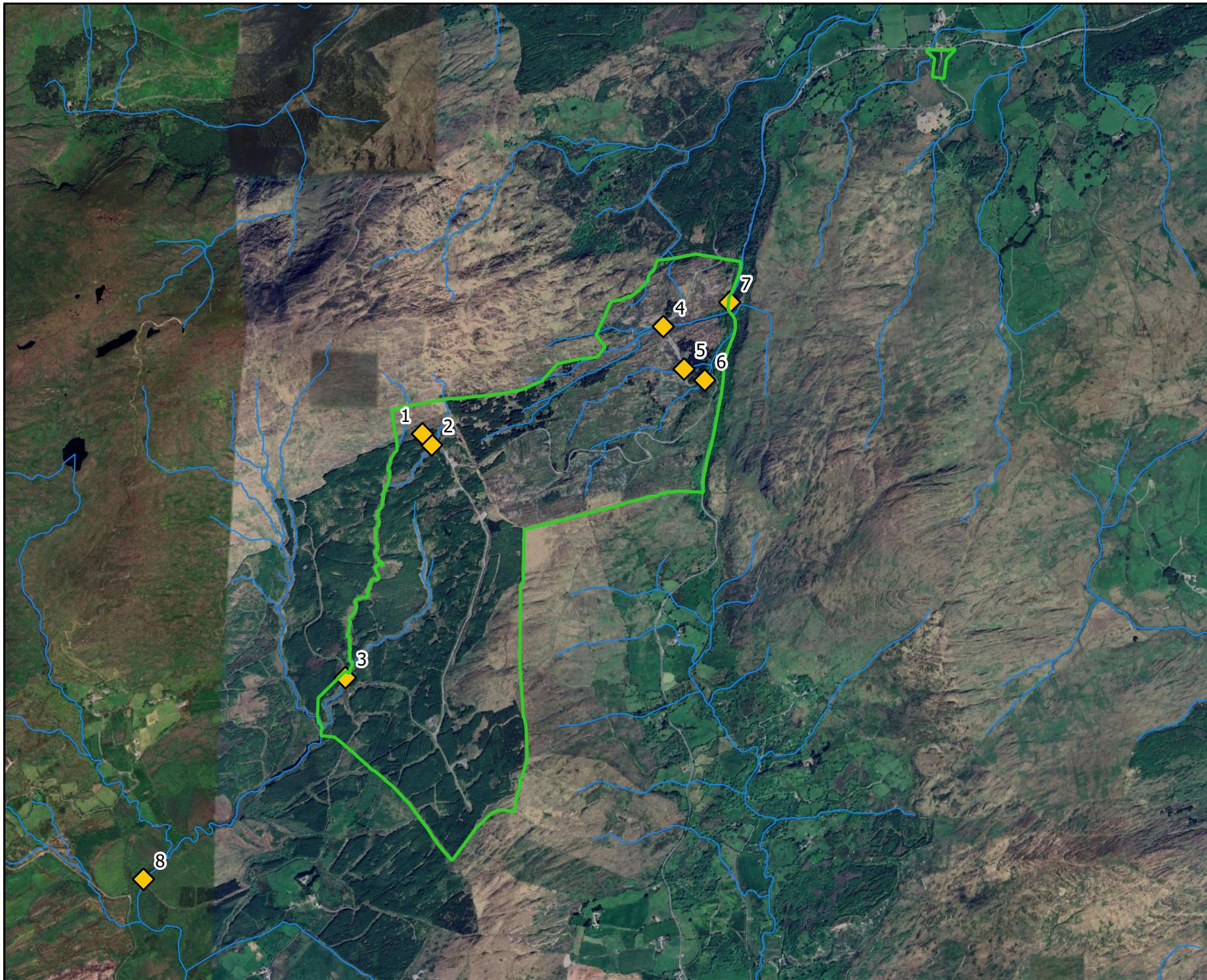
In total, 7,558 bat passes were recorded across all deployments. Common pipistrelle (n=6,124) occurred most frequently. Soprano pipistrelles (n= 615) occurred as second most recorded species, followed by brown long-eared bats (n=342), Leisler's bat (n=253) and *Myotis spp.* (n= 196). Instances of lesser horseshoe bats (n= 27) and Nathusius' pipistrelle (n=1) were less numerous. Further details are provided in **Appendix 6-1**.

Please refer to the Bat Report in **Appendix 6-1** for full details on all bat survey results.

6.5.2.6 Aquatic Surveys

A summary and results of the aquatic surveys undertaken in 2025 are summarised in Table 6-10 below. No rare or protected macro-invertebrate species (according to national red lists) were recorded in the biological water quality samples. No rare or protected macrophytes/aquatic bryophytes were recorded at any of the aquatic survey locations.

The fisheries assessments varied across samples and locations, ranging from having low fisheries suitability to having moderate fisheries value. All locations were assigned a Q-value of Q3-4 or Q4. The locations of aquatic surveys undertaken are provided in Figure 6-6, with photo record of the survey locations presented in Plates 6-27 to 6-34 in Table 6-10.



Map Legend

- EIAR Site Boundary
- ◆ Aquatic survey locations



Microsoft product screen shots reprinted with permission from Microsoft Corporation
Ordnance Survey Ireland Licence No. AR 0021821© Ordnance Survey Ireland/Government of Ireland

Drawing Title	
Kick Sampling Locations	
Project Title	
Curraglass Wind Farm	
Drawn By	Checked By
PD	CC
Project No.	Drawing No.
240614	Figure 6-6
Scale	Date
1:25,000	2025-09-10

MKO
 Planning and Environmental Consultants
 Tuam Road, Galway
 Ireland, H91 VW84
 +353 (0) 91 735611
 email: info@mkofireland.ie
 Website: ww.mkofireland.ie

Table 6-10 Summary and results of aquatic surveys.

Location and plate number	IG Reference	Fossitt code	Q value	Watercourse description	Fisheries assessment	Indication of otter
1 Plate 6-27	W08775 63619	FW1	No sample taken	Unmapped watercourse with little flow and upstream connectivity barrier (two culverts). Bank width was approx. 5 m with a wet width of 1.5m and average depth of 0.05m. No sample taken as insufficient water depth. Substrate of loose boulders and cobbles with no siltation. Dominant land use forestry with some sheep farming in adjacent heath habitat.	Low fisheries suitability due to insufficient water depth	None
2 Plate 6-28	W08840 63558	FW1	No sample taken	Highly modified watercourse which appears to have flow diverted elsewhere. Very little flow with significant build-up of emergent macrophytes. Bank width was approx. 2 m with a wet width of 0.3m and average depth of 0.15m. No sample taken due to unsuitability and lack of flow.	Low fisheries suitability due to very little flow and build up of macrophytes	None
3 Plate 6-29	W08395 63413	FW1	Q4	Typical upland eroding watercourse presenting pool, glide, riffle sequences. Sample taken from glide and riffle. Bank width was approx. 7 m with a wet width of 0.75m and average depth of 0.10m. Substrate of loose cobbles and gravel with no siltation. Dominant land use forestry with some heath habitat subject to low intensity grazing. Sample taken from area of degraded heath and dense bracken habitats on the western boundary of Site. Group A species present and in reasonable numbers, with an overall moderate diversity.	Moderate fisheries value	None
4 Plate 6-30	W10069 64117	FW1	Q3-4	Highly modified watercourse with sample taken downstream of culvert, which is a current connectivity barrier. Bank width was approx. 1.5 m with a wet width of 1.5m and average depth of 0.07m. Substrate of loose cobbles and gravels with some siltation. Dominant land uses forestry which has been recently felled. Wet grassland establishing. Sample taken from area of recently felled woodland. Group A species absent, with an overall moderate diversity.	Low to moderate fisheries value. Culvert barrier immediately upstream.	None
5 Plate 6-31	W10126 63946	FW1	Q3-4	Highly modified watercourse with sample taken downstream of culvert, which is a current connectivity barrier. Bank width was approx. 1 m with a wet width of 0.5m and average depth of 0.15m. Substrate of shallow layer of gravels on a bare peat, with little siltation. Dominant land use	Low fisheries value. Very shallow, little flow. Culvert barrier immediately upstream.	None

Location and plate number	IG Reference	Fossitt code	Q value	Watercourse description	Fisheries assessment	Indication of otter
				forestry. Emergent macrophytes included bog pondweed, water crowfoot, and lesser spearwort. Sample taken from area of conifer plantation. Group A species absent, with an overall moderate diversity.		
6 Plate 6-32	W10274 63867	FW1	Q3-4	Typical upland eroding watercourse presenting pool, glide, riffle sequences. Sample taken from glide and riffle. Bank width was approx. 10 m with a wet width of 1.5m and average depth of 0.10m. Substrate of loose cobbles and gravel with some siltation. Sample taken from beech woodland but dominant land uses upstream of forestry. Group A species present but in low numbers, with an overall low diversity.	Moderate fisheries value	None
7 Plate 6-33	W10374 64193	FW1	Q4	Typical upland eroding watercourse presenting pool, glide, riffle sequences. Sample taken from glide and riffle. Bank width was approx. 12m with a wet width of 1.5m and average depth of 0.20m. Substrate of loose cobbles and gravel with little siltation. Sample taken from oak birch holly woodland downstream of Site. Group A species present and in reasonable numbers, with an overall moderate diversity.	Moderate fisheries value	None
8 Plate 6-34	W07317 61298	FW1	Q4	Typical upland eroding watercourse presenting pool, glide, riffle sequences. Sample taken from glide and riffle. Bank width was approx. 3m with a wet width of 2m and average depth of 0.25m. Substrate of loose cobbles and gravel with little siltation. Sample taken from area of heath downstream of Site. Group A species present and in reasonable numbers, with an overall moderate diversity.	Moderate to high fisheries value.	None



Plate 6-27 Aquatic assessment at location 1.



Plate 6-28 Aquatic assessment at location 2.



Plate 6-29 Aquatic assessment at location 3.



Plate 6-30 Aquatic assessment at location 4



Plate 6-31 Aquatic assessment at location 5.

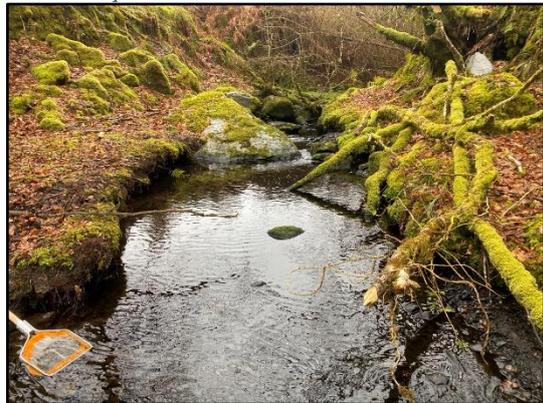


Plate 6-32 Aquatic assessment at location 6.



Plate 6-33 Aquatic assessment at location 7.



Plate 6-34 Aquatic assessment at location 8.

6.5.3 Identification of Key Ecological Receptors

Table 6-11 below summarises the ecological evaluation of all receptors as outlined in Section 6.2.4. It provides the rationale for the determination and identifies the habitats and fauna that are considered to be KERs and therefore those receptors that are subject to impact assessment and considered in Section 6.6 of this report. Following impact assessment, mitigation measures are incorporated into the Proposed Development where required, to avoid potential significant impacts on these KERs.

Table 6-11 Importance of Ecological Receptors.

Ecological Receptors and Geographic Importance	KER Y/N	Rationale
Designated Sites		
<p>Nationally Designated Sites</p> <ul style="list-style-type: none"> > Lough Allua pNHA (001065) > The Gearagh pNHA (000108) 	Yes	<p>These pNHAs have been assigned National Importance as they are sites proposed to be designated as Natural Heritage Areas (NHAs).</p> <p>The Proposed Development has hydrological connectivity to these National sites via several unnamed Order 1 and Order 2 streams in the northeastern portion of the Site. These subsequently flow into the River Lee (Cork) which drains into these National sites.</p> <p>Following the precautionary principle, a potential pathway for indirect effects on these Nationally Important Sites was identified arising from the construction phase of the Proposed Development.</p> <p>Therefore, these Nationally important sites are considered a KER.</p>
<p>European Designated Sites</p> <ul style="list-style-type: none"> > The Gearagh SAC (000108) > The Gearagh SPA (004109) 	Yes	<p>These designated sites have been assigned International Importance as they are sites designated as part of the Natura 2000 Network under the EU Habitats Directive.</p> <p>A potential pathway for likely significant effect on these European Sites, via the deterioration of water quality during the construction phase of the Proposed Development, was identified.</p> <p>These European Sites have been included as a KER as there is potential for indirect effects via a deterioration in water quality during the construction and operational phases of the Proposed Development.</p> <p>Therefore, these European Sites are included as KERs.</p> <p>Note: European Sites within the ZoI are considered in the NIS that accompanies this planning application.</p>
Habitats		
<p>Local Importance (<i>lower value</i>) habitats</p> <ul style="list-style-type: none"> > Buildings and artificial surfaces (BL3) > Recolonising bare ground (ED3) > Conifer plantation (WD4) > Wet grassland (GS4) 	No	<p>These habitats are classified as of Local Importance (<i>lower value</i>). Despite some containing small areas of semi-natural habitat that are of some local importance for wildlife, these are common and widespread in the local and wider landscape.</p>

Ecological Receptors and Geographic Importance	KER Y/N	Rationale
<ul style="list-style-type: none"> > Dense bracken (HD1) > Scrub (WS1) 		<p>Whilst there will be some loss of some of these habitats to facilitate the Proposed Development, these habitats are not included as KERs.</p>
<p>County Importance to Local Importance (<i>higher value</i>) habitats</p> <ul style="list-style-type: none"> > Upland blanket bog (PB2) > Dry siliceous heath (HH1) > Exposed siliceous rock (ER1) > Montane heath (HH4) 	No	<p>These habitats in the wider Site, which are likely to conform to Annex I habitats, have been entirely avoided in the design of the Proposed Development and no potential for any direct or indirect effect on them has been identified.</p> <p>Therefore, these habitats are not considered as KERs.</p>
<p>Local Importance (<i>higher value</i>) habitat</p> <ul style="list-style-type: none"> > Wet heath (HH3) 	Yes	<p>Whilst wet heath recorded within the Site was highly degraded due to drainage and grazing and does not conform to Annex I habitat areas, it nonetheless hosts a range of heath species and therefore, has been classified as Local Importance (<i>higher value</i>).</p> <p>To facilitate the Proposed Development, there will be a requirement to remove small sections of this habitat throughout the Site, particularly within the turbine footprints.</p> <p>Therefore, wet heath has been considered as a KER.</p>
<p>Local Importance (<i>higher value</i>) habitats</p> <p>The Site</p> <ul style="list-style-type: none"> > Mixed broadleaved woodland (WD1) > Oak-birch-holly woodland (WN1) <p>TDR</p> <ul style="list-style-type: none"> > Treelines (WL2) > Hedgerows (WL1) > Mixed broadleaved woodland (WD1) 	Yes	<p>There will be encroachment onto the verges of woodland habitats associated with road widening/upgrade works in the northeastern portion of the Site. These habitats are frequently occurring within and bordering the Site.</p> <p>Taking a precautionary approach however, there is potential for significant direct effects on these habitats and supported species during the construction phase of the Proposed Development.</p> <p>In addition, to facilitate the proposed TDR, there will be requirement for the temporary loss of vegetation within treelines, hedgerows and mixed broadleaved woodland.</p> <p>Therefore, these habitats have been considered as KERs.</p>
<p>Local Importance (<i>higher value</i>) to International Importance</p> <ul style="list-style-type: none"> > Aquatic receptors (surface/ groundwater and associated aquatic faunal species, including, lamprey, white-clawed crayfish, European eel, salmonids, coarse fish, otter, and other aquatic species) 	Yes	<p>The Site has downstream connectivity to National Sites and European Sites via several Order 1 and Order 2 streams which subsequently drain the River Lee (Cork) and therefore, aquatic receptors have been assessed as Local Importance (<i>higher value</i>) to International Importance.</p> <p>There is potential for impacts on surface and groundwater systems via the deterioration of water quality arising from runoff during the construction and operation phases of the Proposed Development.</p> <p>The potential for significant effects on aquatic species is restricted to indirect effects on their habitat resulting from a degradation of water quality.</p> <p>Therefore, Aquatic receptors have been considered as KERs.</p>

Ecological Receptors and Geographic Importance	KER Y/N	Rationale
Faunal Species		
<p>Local Importance (<i>higher value</i>) to National Importance</p> <p>➤ Bats</p>	Yes	<p>All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland, bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Act 1976 (as amended).</p> <p>The following bat species were recorded within the Site:</p> <ul style="list-style-type: none"> ➤ Common pipistrelle ➤ Soprano pipistrelle ➤ Leisler's bat ➤ <i>Myotis</i> spp. ➤ Brown long-eared bat ➤ Lesser horseshoe bats ➤ Nathusius' pipistrelle <p>Bats as an Ecological Receptor have been assigned Local Importance (<i>higher value</i>) on the basis that the habitats within the Site are utilized by a regularly occurring bat population of Local Importance. The lesser horseshoe bat population recorded within the Site was assigned National Importance, given their protection under Annex II of EU Habitats Directive.</p> <p>Given the nature of the Proposed Development, the potential for significant effects on bats, as a result of both the construction and operational phases of the development, requires consideration.</p> <p>Therefore, bats are considered a KER.</p>
<p>Local Importance (<i>higher value</i>)</p> <p>➤ Kerry Slug (<i>Geomalacus maculosus</i>)</p>	Yes	<p>Kerry Slug has been assessed as a receptor of County Importance as they represent a resident or regularly occurring population of an Annex II species of the Habitats Directive, as detailed in Appendix 6-6. There is potential for direct and indirect impacts on this species as a result of the construction phase of the Proposed Development.</p> <p>Therefore, Kerry Slug is considered a KER.</p>
<p>Local Importance (<i>higher value</i>)</p> <p>➤ Badger (<i>Meles meles</i>)</p>	No	<p>No evidence of badger was recorded within the Site. Significant effects are not anticipated, and further assessment was not deemed necessary.</p> <p>No potential for significant effect has been identified for this species associated with the Proposed Development. Therefore, badger is not included as a KER.</p>
<p>Local Importance (<i>higher value</i>) to International Importance</p> <p>➤ Otter (<i>Lutra lutra</i>)</p>	Yes	<p>As downstream connectivity was identified between the Site and the Gearagh SAC, for which otter is a QI, otter has been assessed as of Local Importance (<i>higher value</i>) to International Importance.</p>

Ecological Receptors and Geographic Importance	KER Y/N	Rationale
		<p>There were no evidence of otter within the Site during the surveys undertaken. However, taking a precautionary approach, the Proposed Development has the potential to result in indirect effects on this receptor as a result of deterioration in habitat associated with indirect water pollution or disturbance during construction/ decommissioning).</p> <p>Therefore, otter is considered a KER.</p>
<p>Local Importance (<i>higher value</i>)</p> <p>➤ Marsh fritillary (<i>Euphydryas aurinia</i>)</p>	<p>No</p>	<p>Given only a few incidental recordings of Devils bit scabious were recorded at the entrance to the Site, no significant supporting habitat for marsh fritillary was recorded within or adjacent to the Site.</p> <p>Therefore, there is no potential for significant effect on this species associated with the Proposed Development has been identified. Therefore, Marsh fritillary is not included as a KER.</p>
<p>Other fauna - Local Importance (<i>higher value</i>)</p>	<p>No</p>	<p>No species of conservation concern or protected under any Annexes of the EU Habitats Directive were recorded. Although other common species may occur within the Site, at least on occasion, no potential for significant effect has been identified on any other faunal species associated with the Proposed Development and are thus not included as KERs.</p>

6.6 Ecological Impact Assessment

6.6.1 Do-Nothing Effect

If the Proposed Development were not to proceed, no changes would be made to the current land-use practice of livestock grazing and conifer forestry, and the Site would continue to be managed under the existing arrangements. The biodiversity on the Site would likely remain similar to its current state as activity levels and land use would not change significantly.

However, if the Proposed Development doesn't proceed, the opportunity to both utilise existing infrastructure and capture the available renewable energy resource within a highly suitable location would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Furthermore, as this application includes a Biodiversity Management Enhancement Plan (BMEP) to be implemented during the development's operation, the opportunity to enhance the Site for biodiversity, at a local scale, would also be lost.

At a global scale, climate change has been proven to have negative impacts on biodiversity, either through reduced quality of habitat, displacement due to the changing baselines, and reduced or altered food sources. With Ireland's climate action plans in mind and the potential contribution of this Proposed Development in reducing dependency of fossil fuels, should it not proceed, this would contribute to the inhibition of the national targets in reducing greenhouse gas emissions in Ireland.

6.6.2 Assessment of Significant Effects During Construction Phase

6.6.2.1 Effects on Habitats During Construction

Table 6-12 below provides details of the extent of the habitats assessed as Local Importance (*higher value*) that will be lost to facilitate the footprint of the Proposed Development, as well as the TDR. The Proposed Development will result in the loss of additional habitats which have been assessed as being of Local Importance (lower value). The loss of these common and widespread habitats is not considered significant at any geographic scale, as discussed in Table 6-11 above. The effects on habitats that are identified as KERs are described in the below tables.

A map showing the Proposed Development footprint overlaying the habitat map is provided in Figure 6-5.

Table 6-12 Extent of habitat lost to the Proposed Development and the percentage of the total area of that habitat on site

KER Habitats	Area to be lost/impacted to development footprint or TDR (hectares ha)/meters (m)	Lost to facilitate:
Wet heath (HH3)	0.97ha	Development footprint
Oak-Birch Holly Woodland (WN1)	0.020ha	Development footprint
Mixed Broadleaved Woodland (WD1)	0.042ha	Development footprint
Eroding/ Upland River (FW1)	0.00	n/a
Treelines (WL2)*	316m	TDR
Hedgerow (WL1)*	648m	TDR
Mixed Broadleaved Woodland (WD1)*	0.069 ha	TDR

* Regards losses to hedgerows, treelines and mixed broadleaved woodland, this will only be cutting back of vegetation to accommodate the wheel arches of the trucks and oversail of the turbine blades. Vegetation will not be felled/removed in these habitats.

The effects on habitats that are identified as KERs are described in the below tables.

6.6.2.1.1 Assessment of Potential Effects on Groundwater, Surface Watercourses and Sensitive Aquatic Faunal Species

Table 6-13 Potential for Impact on Rivers and Streams, and Sensitive Aquatic Species during Construction.

Description of Effect	
	<p>Chapter 9 (Hydrology and hydrogeology) of the EIAR assess the potential for significant effects on water quality as a result of the following pathways during construction:</p> <ul style="list-style-type: none"> > Clear Felling of Coniferous Plantation > Earthworks Resulting in Suspended Solids Entrainment in Surface Waters > Potential Impacts on Groundwater Levels during Excavation Works > Excavation Dewatering and Potential Impacts on Surface Water Quality > Potential Release of Hydrocarbons during Construction and Storage > Groundwater and Surface Water Contamination from Wastewater Disposal > Release of Cement-Based Products > Potential Impacts on Hydrologically Connected Designated Sites > Potential Effects on Local Groundwater Well Supplies > Surface Water Quality Impacts on Lough Allua Water Supply Abstraction > Biodiversity Management and Enhancement Plan (BMEP) and Potential Hydrological/Water Quality Effects > Morphological and Hydrological Effects due to Watercourse Crossing Works <p>The effects on water quality are fully described in Chapter 9 (Hydrology and Hydrogeology) and are described here in relation specifically to ecology. This section assesses the potential for significant effects on surface/ groundwater and associated aquatic faunal species, including, lamprey, white-clawed crayfish, European eel, salmonids, coarse fish, otter, and other aquatic species identified during the desk study and dedicated aquatic surveys and likely to occur within or downstream of the Site.</p> <p>Surface Watercourses (and associated aquatic species)</p> <p><i>Direct impacts (mortality)</i></p> <p>There are 6 no. watercourses located within the Site, and a number of other drains/ditches with connectivity to the watercourses within the Site. The Proposed Development will not require any additional watercourse crossings, given the existing infrastructure. No sensitive aquatic receptors were recorded within any of the watercourses within the Proposed Development during the aquatic baseline surveys. Watercourses within the Proposed Development were deemed to have low fisheries value. Therefore, there is no potential for significant direct impacts on any sensitive aquatic receptors associated with the Proposed Development.</p> <p><i>Indirect impacts (water quality)</i></p> <p>A direct surface water pathway exists between the Site and downgradient watercourses. Within the Site, there are 6 no. watercourses and a number of drainage ditches across the Site which flow into these 6 no. watercourses. There is a risk that pollutants and sediment laden surface water run-off could discharge to surrounding ditches and watercourses impacting on sensitive watercourses and aquatic species downstream.</p> <p>There is also risk that pollutants will seep into groundwater systems, impacting on groundwater quality.</p> <p>Potential sources of pollution to surface and ground waters within the Site:</p> <ul style="list-style-type: none"> > Slit laden surface water run-off; > Release of chemicals, including hydrocarbons, from onsite machinery, concrete and other cement-based products. > Drainage and seepage water resulting from infrastructure excavations;

	<ul style="list-style-type: none"> ➤ Stockpiled excavated material providing a point source of exposed sediment; ➤ Construction of the cabling trench including small amounts of peat soils, resulting in entrainment of sediment from the excavations during construction; and, ➤ Erosion of sediment from emplaced site drainage channels.
Assessment of Significance prior to mitigation	In the absence of mitigation, and following the precautionary principle, there is potential for the Proposed Development to result in significant indirect effects on the identified aquatic habitats and species at a local geographic scale in the form of pollution to surface and groundwater during the construction phase of the Proposed Development.
Mitigation	<p>Detailed mitigation measures in relation to the protection of surface and ground water during construction are provided in Section 9.4.2 of Chapter 9 (Hydrology and Hydrogeology). In summary the key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by application of suitable buffer zones. A self-imposed buffer zone of 50m has been put in place for on-site streams and rivers. Manmade forestry drains at the Site are not considered a hydrological constraint and therefore no buffering of forestry drains has been undertaken. All of the key infrastructure areas are located significantly away from the delineated 50m watercourse buffer zones with the exception of the upgrades to existing site access tracks. Detailed control measures in relation to the protection of surface and ground waters during construction are detailed in Section 9.5.2. of Chapter 9 (Hydrology and Hydrogeology). In addition, the Construction Environmental Management Plan (CEMP) that is provided as Appendix 4-3 of the EIAR, provides the details of exactly how the measures will be implemented during construction.</p> <p>A drainage management plan for the Proposed Development is provided in Section 9.3.17 of Chapter 9 (Hydrology and Hydrogeology), as well as in Section 3.2.4 of the CEMP. This plan provides details of how water quality will be protected during the construction of the Proposed Development. The maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works with regular inspections of all installed drainage systems undertaken throughout the Site.</p>
Residual Effect following Mitigation	Following the implementation of mitigation, there will be no significant effect on aquatic habitats or species, at any geographic scale, as a result of the Proposed Development. Furthermore, with the provision of the proposed riparian planting in the BMEP, the Proposed Development is likely to improve water quality within the upper tributaries of the Owvane stream.

6.6.2.1.2 Assessment of Potential Effects on degraded Wet heath (HH3)

Table 6-14 Potential for Impact on degraded Wet heath during Construction.

Description of Effect	<p>The Proposed Development has been designed to minimise impacts on the receiving environment and maximises the use of existing infrastructure at the Site. Consequently, the Proposed Development footprint is dominated by modified habitats, associated with the existing infrastructure, and conifer plantation.</p> <p>Intact areas of heath and bog habitats have been totally avoided and will not be impacted by the Proposed Development.</p> <p>Direct impacts on degraded bog/heath habitats have also been largely avoided in the design of the windfarm development. However, approximately 1.0 ha of degraded wet heath habitat along the edge of an existing access road and conifer plantation will be lost to facilitate the Proposed Development. These losses would be permanent as they are within the Proposed Development footprint.</p> <p>The degraded peatland areas are classified as no greater than Local Importance (<i>higher value</i>) due to their highly modified and degraded state.</p> <p>The overall loss of wet heath associated with the development amounts to less than 3% of the overall amount of this habitat recorded within the Site.</p>
-----------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>There will be no loss of any heath or bog habitat associated with the turbine delivery route.</p> <p>Potential indirect effects include drainage associated with the construction phase of the Proposed Development. The effect will be localised and is not considered significant given the peatland habitat is already disturbed, degraded and subject to drainage associated with previous development at the Site and forestry activities.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>The permanent loss of these habitats is not considered to be a significant effect at any scale greater than the local geographical scale, given their widespread distribution in the surrounding landscape.</p> <p>All high-quality heath and bog habitats, as described in Section 6.5.1, within the Site have been deliberately avoided in the design of the Proposed Development.</p>
<p>Mitigation</p>	<p>The Proposed Development has been deliberately designed to avoid loss of peatland habitat within the Site. Turbine locations have been restricted, for the most part, to existing areas of hardstanding associated with previous turbine locations within the Site and/or to locations within conifer forestry. Road infrastructure as well as the borrow pit and temporary construction compound have all been designed so as not to impact on good quality peatland habitat within the Site.</p> <p>Furthermore, a Biodiversity Management Enhancement Plan (BMEP) has been included as part of this application (Appendix 6-5). The BMEP provides for the establishment of 2 ha of heath habitat, to ensure that the development results in a net gain of heath habitat.</p> <p>With the application of this BMEP, the loss of approximately 1 ha of degraded wet heath habitat will be offset, and a net gain of 1 ha will be established within the Site.</p> <p>Additionally, an Invasive Species Management Plan (ISMP) has been prepared to manage the minor infestation of rhododendron within the Site. This will further reduce the competitive pressure this high impact invasive species will have on all habitats within and adjacent to the Site.</p>
<p>Residual Effect following Mitigation</p>	<p>Following the specific design of the Proposed Development footprint and its restriction to habitat predominantly outside peatland areas, as well as the enhancement measures outlined in the BMEP, there will be no significant effect on wet heath habitat within the Site.</p>

6.6.2.1.3 Assessment of Potential Effects on Mixed Broad-leaved Woodland (WD1) and Oak-Birch-Holly Woodland (WN1)

Table 6-15 Loss of Mixed Broad-leaved woodland (WD1) and Oak-birch-holly woodland (WN1) during Construction.

<p>Description of Effect</p>	<p>The Proposed Development has been designed to minimise impacts on the receiving environment and maximises the use of existing infrastructure at the Site including internal access tracks and hard stand locations of former turbines. Consequently, the Proposed Development footprint is dominated by modified habitats associated with the existing infrastructure and conifer plantation.</p> <p>The existing road network passes through areas of Mixed Broad-leaved Woodland (WD1) and Oak-Birch-Holly Woodland (WN1) at the Site entrance. The existing road requires upgrade and widening at these locations and there will be the requirement for a combined loss of approximately 0.062 ha of these woodland types. The majority of this loss will be within woodland margins and non-native beech areas, with minor encroachment into native woodland. Where encroachment into Oak-Birch-Holly Woodland is anticipated, these are degraded sections with frequent occurrences of beech and willow.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>The permanent loss of these habitats is not considered to be a significant effect at any scale greater than the local geographical scale, given the minor loss and extent within and adjacent to the Site.</p>
<p>Mitigation</p>	<p>The Proposed Development has been deliberately designed to avoid loss of woodland habitat within the Site. The existing access road has been incorporated into the design as much as possible, with limited necessity for upgrades or new roads.</p> <p>Furthermore, a Biodiversity Management and Enhancement Plan (BMEP) has been included as part of this application (Appendix 6-5). The BMEP provides for the establishment of 0.7 ha of native riparian habitat, to ensure that the development results in a net gain of woodland habitat.</p> <p>With the application of this BMEP, the loss of approximately 0.15 ha of beech dominated woodland and small sections of native woodland will be offset, and a net gain of 0.55 ha will be established within the Site.</p> <p>Additionally, an Invasive Species Management Plan (ISMP) has been prepared to manage the minor infestation of rhododendron with the Site. This will further reduce the competitive pressure this high impact invasive species will have on woodland within and adjacent to the Site.</p> <p>In addition to the above, given that there will be works in close proximity to these woodland habitats, the following mitigation will be applied on a precautionary basis:</p> <ul style="list-style-type: none"> ➤ Prior to construction, woodlands adjoining the footprint of the Proposed Development, as per Figure 6-4, will be clearly fenced off using heras fencing under the supervision of a qualified ecologist. There will be no access beyond this fencing by any construction staff or machinery.
<p>Residual Effect following Mitigation</p>	<p>Following the mitigation measures above, there will be no significant effect on the Mixed Broad-leaved woodland (WD1) and Oak-birch-holly woodland (WN1) as a result of the Proposed Development.</p>

6.6.2.2 Effects on Habitats as a result of the TDR

Table 6-16 Loss of vegetation as a result of the proposed TDR.

<p>Description of Effect</p>	<p>Works such as road widening are sometimes required along proposed turbine transport routes to accommodate the large turbine components and associated vehicles seeking to access wind farm sites. The proposed turbine delivery route for the Proposed Development has been the subject of a route assessment to determine if any works are required along its length.</p> <p>There are sections on the TDR where pinch points may require specialist transport vehicles. These sections will be further considered by the appointed transport company following turbine procurement process. Accommodation works will be required at various locations on the national and regional road network between the port of arrival in Cork and the Site. Specifically, a turbine component turning area is required along the R584 to the north of the Site entrance.</p> <p>It has been identified that accommodation works will require vegetation to be cut back due to the proposed blade transition. Vegetation removal will occur along approx. 650m of Treelines, 316m of Hedgerow, and within 0.069 ha of Mixed broadleaved woodland. Vegetation removal will not require the felling or removal of these habitats.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>Whilst there will be losses of vegetation within these habitats, which have been assessed as Local Importance (higher value), these losses will be temporary as they will be allowed to grow back after construction. The temporary loss of this vegetation is not considered to be a significant effect at any scale greater than the local geographical scale, given the widespread distribution of the habitats within which cutting back is required, in the surrounding landscape.</p>
<p>Mitigation</p>	<p>To mitigate the losses of the above habitats to facilitate the proposed TDR, the following will be implanted during vegetation removal:</p> <ul style="list-style-type: none"> ➤ An ecological clerk of works (EcOW) will be appointed and will supervise all vegetation removal. ➤ All vegetation removal will be undertaken in line with the Wildlife Act (1979). ➤ Entire trees will only be removed where absolutely necessary, with pruning to be considered first. ➤ In the event where trees or shrubs are removed, they will be replanted using native species once construction works have been complete. <p>In addition, the BMEP provided in Appendix 6-5 provides for the additional planting of native riparian woodland either side a mapped watercourse within the Site. Total additional planting will amount to 0.7 ha, with the extent and location ensuring that new permanent, native commuting and foraging corridors will be established. This additional replanting will result in an overall net gain in linear habitat, as a result of the Proposed Development.</p>
<p>Residual Effect following Mitigation</p>	<p>Following the mitigation measures above, there will be no significant effect on the Treelines, Hedgerows, or Mixed broadleaved Woodland as a result of the Proposed Development.</p>

6.6.2.3 Effects on Fauna During Construction

The Proposed Development has the potential to result in habitat loss and disturbance impacts on faunal species included as KERs, see Table 6-11. Therefore, these species were taken forward for further assessment. The following species have been brought forward for further assessment:

- Otter
- Kerry Slug
- Bats



The potential for significant effects on sensitive aquatic species is restricted to indirect effects on their habitat resulting from water pollution. This has been assessed in Table 6-13 in Section 6.6.2.1.1 above and is not repeated below.

6.6.2.3.1 Assessment of Potential Effects on Otter

Table 6-17 below presents an assessment of potential effects on otter as a result of the construction phase of the Proposed Development.

Table 6-17 Assessment of Potential Impacts on Otter during Construction.

<p>Description of Effect</p>	<p>The Proposed Development has been designed to minimise impacts on the receiving environment and maximises the use of existing infrastructure at the Site including internal access tracks and hard stand locations of former turbines. Consequently, the Proposed Development footprint is dominated by modified habitats associated with the existing infrastructure and conifer plantation.</p> <p>The watercourses within the Site are typically first order streams and present limited supporting habitat for otter due to low fisheries potential. Whilst the Proposed Development will cross one watercourse in the northeastern section of the Site, this is a small stream and only provides marginal commuting habitat for otter.</p> <p>No indication of otter was recorded during any of the surveys undertaken. However, the watercourses within the Site have downstream connectivity to both Nationally and Internationally important sites for this species.</p> <p>Habitat Loss/Fragmentation</p> <p>Given the proposed works and the findings of the baseline surveys for otter, no significant habitat destruction, no loss of breeding or resting places and no direct mortality related impacts on this species are anticipated. No further assessment required.</p> <p>Disturbance, Mortality</p> <p>In relation to disturbance, no significant commuting, foraging, or breeding habitat for otter was recorded in close proximity to the Proposed Development. Additionally, otter are predominantly crepuscular in nature, and it is anticipated that construction activity associated with the Proposed Development will be confined to daytime hours, thus minimising potential disturbance related impacts to the species. Any disturbance impacts would be short-term in nature and not considered to have a significant impact on the local otter population. No further assessment required.</p> <p>Habitat Degradation (impacts on water quality)</p> <p>Taking a precautionary approach, it is assumed that otter may occur within and near the Proposed Development on occasion, particularly the lower reaches of the main watercourses downstream of the Proposed Development. There is potential for construction works to result in the run-off of silt and other pollutants such as hydrocarbons and cementitious material into watercourses downstream of the Proposed Development. This represents a potential indirect effect on otter in the form of habitat degradation/loss of prey resource through water pollution. The potential for significant impacts on water quality as a result of the Proposed Development is fully considered above in Table 6-13.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>Habitat Loss/Fragmentation</p> <p>Significant effects regarding habitat destruction, barrier effect, disturbance and mortality are not anticipated as a result of the Proposed Development.</p> <p>Disturbance, Mortality</p> <p>Significant effects regarding disturbance and/or mortality are not anticipated as a result of the Proposed Development.</p> <p>Habitat Degradation (impacts on water quality)</p>

	<p>Although otter as a KER has been assessed as of Local Importance (higher value) to International importance (due to otter being a qualifying interest species of the downstream Gearagh SAC), water quality impacts, should they occur in the absence of mitigation, would be considered significant at the local geographic scale only as impacts would occur on the local population only, given the hydrological distance (27.3 km) to the SAC.</p>
Mitigation	<p>Habitat Loss/Fragmentation</p> <p>No mitigation required.</p> <p>Disturbance, Mortality</p> <p>No mitigation required.</p> <p>Habitat Degradation (impacts on water quality)</p> <p>The potential for deterioration of water quality, and degradation of otter habitat, has been considered in Table 6-13 above, which assess the potential for significant impacts on aquatic receptors, and provides mitigations to prevent any such effects.</p>
Residual Effect following Mitigation	<p>Following the incorporation of the mitigation measures described above, no significant negative effects to otter are anticipated at any geographic scale.</p>

6.6.2.3.2 Assessment of Potential Effects on Kerry Slug

Table 6-18 below presents an assessment of potential effects on Kerry Slug as a result of the construction phase of the Proposed Development.

Table 6-18 Assessment of Potential effects on Kerry Slug during Construction.

Description of Effect	<p>This species occurs in two main natural habitats in Ireland: woodland, and blanket bog/wet heathland (NPWS 2019). In recent studies by Johnson et al. (2018) it has been shown that Kerry Slug can also be abundant in conifer plantation.</p> <p>The majority of the development footprint is dominated by hard stand areas associated with the previous development on the Site. Hard stand areas, including internal access tracks and former turbine locations, do not provide optimal feeding habitat or suitable refugia for this species. Consequently, the potential for habitat loss and mortality related effects relate to areas where new development is proposed outside the footprint of the existing on-site infrastructure. This habitat loss will be confined to Conifer plantation (WD4) and recently felled woodland (WS5), with small areas of wet heath and woodland margins also affected (there will be no loss of woodland).</p> <p>Habitat Loss/Fragmentation</p> <p>Kerry Slug is known to occur within the Site following dedicated surveys in 2020 (under licence C71/2020, in Appendix 6-4). Conifer plantation, wet heath, and woodland habitats provide suitable foraging and breeding habitat for this species, which was confirmed in the surveys undertaken in 2020. Approximately 220 ha of conifer plantation/recently felled woodland was recorded within the Site. The Proposed Development will result in the loss of 8.8 ha of Conifer plantation (WD4)/Recently felled woodland (WS5). This loss of conifer plantation/recently felled woodland accounts for approximately 2% of commercial forestry habitat types within the Site.</p> <p>To accommodate the Proposed Development, there will also be approximately 1.0 ha of wet heath habitat lost, comprised of multiple small sections. This loss of wet heath accounts for 3% of heath habitat within the Site.</p>
-----------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>In the northeastern section of the Site, to accommodate upgraded and new access roads, there will be minor encroachment into verges/margins of native and non-native woodland. However, habitat loss will only be associated with the woodland margins, adjacent to existing roads.</p> <p>Disturbance, Mortality</p> <p>The Site provides suitable foraging and breeding habitat for Kerry Slug, a species known to be present on site. Tree felling works and habitat removal associated with the Proposed Development have the potential to disturb or destroy Kerry Slug during construction works.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>Habitat Loss/Fragmentation</p> <p>The permanent loss of 8.8 ha of Conifer plantation(WD4)/Recently felled woodland (WS5), 0.97 ha of wet heath, and small sections of woodland margins habitat is not considered to be a significant effect on Kerry Slug, at any scale greater than the local geographical scale, as these habitats are widespread and common in uplands surrounding the Site, and therefore, any loss of habitat will displace local populations to other suitable habitat in close proximity to the works area.</p> <p>Disturbance/Mortality</p> <p>Given the known presence of Kerry Slug within the Site, and in the absence of mitigation, there is potential for a significant effect on the local Kerry Slug population as a result of mortality.</p>
<p>Mitigation</p>	<p>Habitat Loss/Fragmentation</p> <p>Whilst no significant effects are anticipated on Kerry Slug as a result of habitat loss/fragmentation, the BMEP in Appendix 6-5 provides for the enhancement of 5.75 ha of suitable habitat via peatland enhancement and felling of forestry within the Site. It additionally provides for the management of scrub and invasive species management within the Site, pressures which would degrade existing suitable habitat over time. Given the provisions of the BMEP, there will be an increase in supporting habitat for Kerry Slug within the Site.</p> <p>Disturbance/Mortality</p> <p>In order to prevent direct mortality of Kerry Slug during the construction phase of the Proposed Development, localised translocation of individual Kerry Slugs will be undertaken to remove individuals from the working areas. In order to undertake this work, a Kerry slug derogation licence (KSDL) has been sought from the National Parks and Wildlife Service (NPWS).</p> <p>In support of the KSDL application, a Kerry Slug Derogation Licence Report (KSDLR) was submitted to the NPWS and is included in Appendix 6-6. The derogation licence (DER-KERRY SLUG-2025-06) was issued on the 29/10/2025 and is included as Appendix 6-7. The KSDLR report has put forward proposed methodologies for the above translocation measures, to prevent significant impacts on Kerry Slug, as a result of the construction phase of the Proposed Development. These measures are summarised below.</p> <p><u>Translocation Methodology (Pre-Construction)</u></p> <ul style="list-style-type: none"> ➤ Search, trapping, and translocation will only occur during suitable weather conditions (wet/humid weather). ➤ Translocate to suitable habitat within 50m of the construction area (or to suitable habitat within a number of monitoring plots: 20x20). ➤ Prior to the commencement of construction, the location of the Proposed Development footprint will be surveyed by a suitably qualified professional, under a

	<p>survey license from NPWS. The results of this survey will be submitted to the NPWS for comment and approval and the survey will identify areas where further surveys or the removal of slugs may be required.</p> <ul style="list-style-type: none"> ➤ It is likely that some removal and translocation of slugs will be required. The areas where this will be required will be informed by the initial surveys to be undertaken. The methods by which this will be undertaken will be submitted to the NPWS for approval. Any translocation works will be carried out by suitably qualified professionals under this licence. The removal will be undertaken before the commencement of construction activity. ➤ Slugs will be translocated to suitable areas of similar habitat within the Site, such as forestry, wet heath, scrub, or woodland. These sites will be approved by the NPWS as part of their approval process for the translocation methodology. ➤ Slugs collected from forestry will be re-located to a forested habitat and slugs collected from grassland will be relocated to grassland etc. <p><u>Measures during Construction:</u></p> <ul style="list-style-type: none"> ➤ The extent of the development footprint will be clearly marked to prevent any encroachment on Kerry Slug habitat located outside the works area. ➤ Should Kerry Slugs be found in the works area during the construction phase the Site ECoW will notify the project ecologist and they will be relocated by a licenced and suitably qualified individual to a suitable habitat outside the works area to avoid direct mortality. ➤ Turves and boulders/exposed rock will be stored adjacent to the infrastructure footprint where practicable before reinstatement to maintain suitable habitat for the species in the vicinity of the works during construction. <p><u>Habitat management and enhancement</u></p> <p>The following enhancements for Kerry Slug specifically will be undertaken:</p> <ul style="list-style-type: none"> ➤ Tree stumps resulting from the felling of forestry will be left in situ to decay to provide suitable habitat for Kerry Slug. ➤ Rock outcrops, boulders and stonewalls will be retained where possible or, if removal can't be avoided, they will be replaced to enhance the value of the habitat surrounding the windfarm infrastructure. ➤ Monitoring programme <ul style="list-style-type: none"> ➤ The Kerry Slug population on the Site will be monitored to assess the success of the above enhancement measures and provide data on Kerry Slug in the area. This will involve conducting surveys on an annual basis for three years post construction, the results of which will be reported to NPWS. These surveys will be carried out during optimal weather conditions (mild, damp, overcast and not excessively windy) by suitably qualified professionals, under survey licence. They will follow Mc Donnell & Gormally (2011) and involve both hand searching and metric refuge trapping and will be carried out in the same locations and roughly around the same time every year to allow a comparison between years. If monitoring demonstrates that the enhancement measures are unsuccessful, the measures will be reviewed and additional methods will be explored. <p>The BMEP in Appendix 6-5 provides details on the locations for Kerry Slug enhancement, which are within the felling buffers of the proposed turbines.</p>
<p>Residual Effect following Mitigation</p>	<p>Following the incorporation of the above avoidance and mitigation measures, no significant negative effects to Kerry Slug are anticipated at any geographic scale.</p>

6.6.2.3.3 Assessment of Potential Effects on Bats

The impact assessment in relation to bats has been undertaken in accordance with NIEA¹² and NatureScot Guidance¹³. As per the NatureScot Guidance, wind farms present five potential risks to bats:

- Collision mortality, barotrauma and other injuries
- Loss or damage to commuting and foraging habitat
- Loss of, or damage to, roosts
- Displacement of individuals or populations
- Disturbance

For each of these five risks, the detailed knowledge of bat distribution and activity within the Site has been utilised to predict the potential effects of the Proposed Development on bats. Potential risk of collision, barotrauma and other injuries relate to the operational phase and are presented in Section 6.6.3.2.1.

A full impact assessment for bats is provided in the Bat Report in **Appendix 6-1** and is summarised below.

Table 6-19 Assessment on Potential Impacts on Bats during Construction.

Description of Effect	Loss of, or Damage to, Roosts
	<p>The Proposed Development is predominantly located within conifer plantations (at various stages of maturity) and peatland habitats. The trees contained within the commercial conifer forestry do not provide significant suitable roosting habitat for bats. There will be some requirement to remove trees to facilitate the proposed bat buffers, as detailed in Section 6.1.3 below. Trees within the bat buffers consist of conifer species and were assessed as having no potential (None) to Negligible suitability for roosting bats.</p> <p>One structure was identified within the Site and was subject to inspections and dusk activity surveys. A small common pipistrelle roost (3no. individuals) was identified within the existing onsite 38kV substation using it opportunistically in 2023. This structure will be retained and no building works on this structure are proposed as part of the Proposed Development. Some minor short-term works will be required adjacent to the building to connect the internal cable network to the existing onsite 38kV substation. A pre-commencement survey will take place prior to these works to ensure bats are not present during the works.</p> <p>There will be some requirement to temporarily trim trees to allow for oversail during the delivery of turbine components. No significant potential roost features were identified along the TDR pinch points and trees were assessed as having no (None) to Negligible potential. It was noted that Carriganass Castle is a historic Daubenton's bat roost and is located adjacent to the proposed TDR route. Carriganass Castle will be entirely avoided as part of the TDR and no loss of roosting habitat is anticipated.</p>
	<p>Loss or Damage to Commuting and Foraging Habitat</p> <p>In the absence of appropriate design, the loss or degradation of commuting/foraging habitat has potential to reduce feeding opportunities and/or displace bat populations. The Proposed Development is predominantly located in conifer plantation and clearfell with existing turbine infrastructure present.</p> <p>Approximately 8.8 ha of Conifer plantation(WD4)/Recently felled woodland (WS5) will be felled to accommodate the Proposed Development and its associated infrastructure. The felling of trees is required to achieve the required buffer distance for the protection of bats, from the turbines to the canopy of the nearest habitat feature.</p>

¹² Northern Ireland Environment Agency Natural Environment Division (NED) published Guidance on Bat Surveys, Assessment and Mitigation for Onshore Wind Turbine Developments in Northern Ireland (NIEA, 2021).

¹³ NatureScot published Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Version: August 2021 (NatureScot, 2021).

	<p>Further details on buffer calculations can be found in Section 6.1.3 of the Bat Report (Appendix 6-1).</p> <p>Bat buffers will be created around turbines as detailed in Section 6.1.3 of the Bat Report. The creation of buffers will not sever existing corridors but has the potential to create additional habitat for foraging and commuting bats along proposed keyholes, where trees are not harvested by ongoing forestry operations.</p>
	<p>Disturbance/Displacement of Individuals or Populations</p> <p>The Proposed Development is predominantly located within conifer plantation and peatland habitats, with existing infrastructure present. There will be no net loss of linear landscape features for commuting and foraging bats and there will be no loss of any roosting site of ecological significance. The habitats on the Site will remain suitable for bats and no significant displacement of individuals or populations is anticipated.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>Loss of, or Damage to, Roosts</p> <p>No potential for significant effect with regard to the loss of, or damage to, roosting habitat as a result of the Proposed Development is anticipated. No mitigation is required.</p>
	<p>Loss or Damage to Commuting and Foraging Habitat</p> <p>Given the extensive area of habitat that will remain undisturbed throughout the Site and the avoidance of the most significant areas of faunal habitat (i.e. broadleaved woodland), no significant effects with regard to loss of commuting and foraging habitat are anticipated.</p>
	<p>Disturbance/Displacement of Individuals or Populations</p> <p>No potential for significant effect with regard to the Disturbance/Displacement as a result of the Proposed Development is anticipated. No mitigation is required.</p>
<p>Mitigation</p>	<p>Loss of, or Damage to, Roosts</p> <p>No mitigation required.</p> <p>However, on a precautionary basis, a pre-commencement inspection of the trees proposed for trimming along the TDR will be undertaken prior to works to reassess their baseline condition and ensure no significant potential roosting features have developed over time. This measure is in line with best practice guidance to assess any changes in baseline given the likely lapse in time from when the surveys were undertaken and when the construction phase will take place.</p>
	<p>Loss or Damage to Commuting and Foraging Habitat</p> <p>No mitigation required.</p> <p>As part of the application, Biodiversity enhancement measures are proposed in the form of riparian woodland planting. To create a permanent corridor from the Site to the wider environment, it is proposed to plant approx. 350m of riparian woodland either side of a section of the Lackavane river in the southwestern corner of the Site. This will amount to approx. 0.7 ha in area, with a total of approx. 700m of linear habitat. This area has been selected as, once established, it will create a permanent commuting corridor for bats from the Site to lands to the west and south. Full details on this enhancement are provided in the BMEP in Appendix 6-5.</p>

	<p>Disturbance/Displacement of Individuals or Populations</p> <p>No mitigation required.</p> <p>However, the following construction best practice will be employed to minimise general noise and disturbance potential. During the construction phase, plant machinery will be turned off when not in use and all plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (S.I. No. 632 of 2001).</p> <p>Where lighting is required, directional lighting will be used to prevent overspill on to forestry edges. Exterior lighting during construction, shall be designed to minimize light spillage, thus reducing the effect on areas outside the Proposed Development footprint, and consequently on bats i.e. Lighting will be directed away from mature trees/treelines around the periphery of the Proposed Development footprint to minimize disturbance to bats. Directional accessories can be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013). The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands.</p> <p>The proposed lighting around the Site shall be designed in accordance with the Institute of Lighting Professionals Guidance Note 08/23 Bats and artificial lighting in the UK.</p> <p>In addition, should it be required, the Applicant commits to the use of lights during construction (such that they are necessary) in line with the following guidance that is provided in the Dark Sky Ireland Lighting Recommendations:</p> <ul style="list-style-type: none"> > Every light needs to be justifiable, > Limit the use of light to when it is needed, > Direct the light to where it is needed, > Reduce the light intensity to the minimum needed, > Use light spectra adapted to the environment, > When using white light, use sources with a “warm” colour temperature (less than 2700k). <p>Full details of best practice measures during construction to negate impacts on bats is provided in Section 6.1 of the Bat Report.</p>
<p>Residual Effect following Mitigation</p>	<p>Taking into consideration the sensitive design of the Proposed Development and the proposed best practice measures, significant residual effects on bats as a result of loss or damage to commuting and foraging habitat, loss of, or damage to, roosts, displacement of individuals or populations, and disturbance, are not anticipated.</p>

6.6.3 Assessment of Significant Effects During Operational Phase

6.6.3.1 Effects on Habitats during Operation

The operation of the Proposed Development will not result in any additional loss of habitats considered as KERs and as such, there is no potential for any significant effects in this regard. These habitats are not considered to be a KER in the context of the operation of the Proposed Development.

Potential for effects on rivers, streams and sensitive aquatic species remains a KER during operation and is assessed in detail in the following subsections.

6.6.3.1.1 Effects on surface watercourses during operation

Table 6-20 Assessment of Potential Impacts on Rivers, Streams and Sensitive Aquatic Faunal Species.

<p>Description of Effect</p>	<p>This section assesses the potential for significant effects on aquatic receptors including aquatic habitats (i.e. watercourses), salmonids, otter, lamprey, coarse fish, white-clawed crayfish, European eel, aquatic invertebrates, molluscs (including Freshwater Pearl Mussel) and other aquatic species during the operation of the Proposed Development.</p> <p>The Proposed Development has been designed to minimise impacts on the receiving environment and maximises the use of existing infrastructure at the Site including internal access tracks, existing onsite 38KV substation and hard stand locations of former turbines. Consequently, the Proposed Development footprint is dominated by modified habitats associated with the existing infrastructure and conifer plantation.</p> <p>The small-scale increase in the amount of hard standing associated with the proposed infrastructure has the potential to result in faster water runoff from the Site to the surrounding watercourses. This may have the indirect effect of causing erosion, which could lead to deterioration of surface water and supporting habitat quality. Additionally, there is the potential for the faster run off of any pollutants that may be associated with the operation of the Proposed Development.</p> <p>These impacts on water quality during operation are fully described in Chapter 9 (Hydrology & Hydrogeology) of this EIAR and are discussed here specifically in relation to biodiversity.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>Given the minor increase in hardstanding as a result of the Proposed Development, significant effects on water quality are not anticipated at any geographic scale during the operation of the Proposed Development.</p> <p>Whilst no significant effects on water quality are anticipated, potential for effects on water quality associated with the operational phase drainage of the Site has been fully mitigated through appropriate design and mitigation as fully described in Section 9.4.3 of Chapter 9 (Hydrology & Hydrogeology) and summarised below.</p>
<p>Mitigation</p>	<p>The operational phase drainage system of the Proposed Development will be installed and constructed in conjunction with the road and hardstanding construction work as shown on the Drainage drawings submitted with this planning application. These drainage measures are fully discussed in Section 3.3.4 of the Surface Water Management Plan (SWMP) included in Appendix 4-4.</p> <p>Once the proposed site drainage has been constructed, the Project Hydrologist will inspect and review the drainage system and provide guidance on the requirements of an operational phase drainage system. The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.</p>

Residual Effect following Mitigation	Following the implementation of the mitigation measures outlined above, no potential for significant effect has been identified at any geographic scale as a result of the Proposed Development.
---------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

6.6.3.2 Effects on Fauna during Operation

The operation of the Proposed Development will not result in any additional habitat loss or deterioration.

There is no potential for significant negative effects on terrestrial faunal KERs, such as Kerry Slug and otter, during the operational phase of the Proposed Development.

The development footprint maximises the existing infrastructure within the Site. Any maintenance works associated with the operation of the project will be confined to the Proposed Development footprint.

It should be noted that no significant habitat for salmonids, lamprey, freshwater pearl mussel, European eel, or other aquatic species was recorded within the footprint of the Proposed Development and all new major infrastructure such as turbine bases are located over 50 metres from the watercourses within the Site. The potential for significant effects on the above aquatic species is restricted to indirect effects on their habitat resulting from water pollution. This has been assessed in Section 6.6.3.1.1 and is not repeated below.

Potential for effects on bat species resulting from the operation of the Proposed Development was identified and therefore, bat species are discussed and assessed in relation to the operational phase below.

6.6.3.2.1 Assessment of Potential Effects on Bats during operation

Table 6-21 Assessment of Potential Impacts on Bats

<p>Description of Effect</p>	<p>The Proposed Development has been designed to minimise impacts on the receiving environment and maximises the use of existing infrastructure at the Site including internal access tracks and hardstand areas, and the existing onsite 38kV substation. Consequently, the Proposed Development footprint is dominated by modified habitats associated with the existing infrastructure and conifer plantation.</p> <p>A full impact assessment for bats is provided in the Bat Report in Appendix 6-1 and is summarised below.</p> <p>As per SNH Guidance, wind farms present four potential risks to bats:</p> <ul style="list-style-type: none"> • Collision mortality, barotrauma and other injuries; • Loss or damage to commuting and foraging habitat; • Loss of, or damage to, roosts; • and Displacement of individuals or populations. <p>No effects in relation to 1) Loss or damage to commuting and foraging habitat; 2) Loss of, or damage to, roosts; and 3) Displacement of individuals or populations is anticipated as a result of the operation of the development.</p> <p>Collision mortality, barotrauma and other injuries</p> <p>Activity levels for low risk species at the Site including Myotis species, brown long eared bat and lesser horseshoe bat were low. As per SNH guidance, these species are not identified as being particularly vulnerable to collision mortality. Given the low levels of activity recorded, no significant effects are anticipated.</p> <p>The following high-risk species were recorded during the dedicated surveys:</p> <ul style="list-style-type: none"> • Leisler’s Bat; • Common pipistrelle; • Soprano pipistrelle; • Nathusius’ pipistrelle. <p>Site-level collision risk for high collision risk bat species was typically Low to Medium. Overall bat activity levels were typical of the nature of the Site, which is predominantly conifer plantations, existing infrastructure and peatland habitats. During manual transect surveys, the majority of activity recorded was common pipistrelle. No detectors recorded High median activity levels during any season surveyed.</p>
<p>Assessment of Significance prior to mitigation</p>	<p>A potential for long-term negative effects was identified for Leisler’s bat, common pipistrelle, soprano pipistrelles, and Nathusius’ pipistrelle due to the <i>low-moderate</i> levels of activity recorded in summer within the Site and their classification as high-risk species. The potential unmitigated effects on these high-risk species as a result of their potential interaction with wind turbines are considered significant at a local geographic scale only. No significant effects are anticipated at any other geographic scale.</p>
<p>Mitigation</p>	<p>In order to reduce the value of the habitat for bat species in the areas surrounding the turbines, a buffer of at least 50m between the tip of the blade and any trees or other tall vegetation that could provide high quality foraging habitat for bat species will be implemented. Details of this mitigation and how it is calculated is provided in Appendix 6-3 of the Bat Report.</p> <p>Detailed mitigation measures in relation to bats is provided in Section 6.1 of the Bat Report in Appendix 6-1 and summarised below. Mitigation measures are proposed together with post-construction monitoring:</p> <ul style="list-style-type: none"> > Introduce felling buffers around turbines

Residual Effect following Mitigation	<ul style="list-style-type: none"> ➤ Implement blade feathering as a standard ➤ Lighting and noise restrictions ➤ Implement curtailment, as required, on proposed turbines which recorded high median activity levels. ➤ A minimum of three years operational monitoring to assess changes in bat activity patterns post construction and to monitor the implementation of the mitigation strategy. ➤ Adaptive mitigation strategy based on the results of the post-construction monitoring. <p>In addition, as per Section 6.2 of the Bat Report, an adaptive bat monitoring plan will be implemented for three years post construction, to assess the ongoing health on local population of bats within the Site.</p> <p>Full details of all the above mitigations are provided in the Bat Report.</p>
--------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

6.6.4 Assessment of Significant Effects During Decommissioning Phase

The proposed turbines are expected to have a lifespan of approximately 35 years. Following the end of their useful life, the equipment may be replaced with a new technology, subject to planning permission being obtained, or the Proposed Development may be decommissioned fully.

Decommissioning of the Proposed Development is discussed in Section 4.11 of Chapter 4 (Description of the Proposed Development) and are fully detailed in the Decommissioning Plan in Appendix 4-6.

The same mitigation to prevent significant impacts on water quality and associated aquatic fauna and other terrestrial fauna during construction will be applicable to the decommissioning phase. It can be concluded that following the implementation of preventative mitigation, there is no potential for the decommissioning of the Proposed Development to result in significant effects on biodiversity.

6.6.5 Effects on Designated Sites

6.6.5.1 European Designated Sites

The Proposed Development is located completely outside of the boundary of any European site. Watercourses within the Site have a direct hydrological link to the below listed European Sites, upon which a potential for likely significant effect was identified:

- The Gearagh SAC (000108)
- The Gearagh SPA (004109)

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

As per the EPA Guidance (2022), “A biodiversity section of an EIAR, for example, should not repeat the detailed assessment of potential effects on European sites contained in documentation prepared as part of the Appropriate Assessment process, but it should refer to the findings of that separate assessment in the context of

likely significant effects on the environment, as required by the EIA Directive”. This section provides a summary of the key assessment findings with regard to potential impacts on European sites.

The Stage 1 Screening 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 Proposed Development, individually or in combination with other plans and projects, would be likely to have a significant effect on the following European Sites:

- The Gearagh SAC (000108)
- The Gearagh SPA (004109)

As a result, an Appropriate Assessment is required and a Natura Impact Statement shall be prepared in respect of the Proposed Development.’

The findings presented in the NIS are that:

‘Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Development does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded that the Proposed Development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.’

6.6.5.2 Nationally Designated Sites

The following pNHAs were identified to be within the Likely Zone of Influence of the Proposed Development as they have downstream surface water connectivity to the Site:

- Lough Allua pNHA (001065)
- The Gearagh pNHA (000108)

With the implementation of the mitigations and best practice procedures for both the construction and operational phases of the Proposed Development, as described in Table 6-12 and 6-18, respectively, which aim to negate potential impacts from deterioration of surface water quality, as well as those in Chapter 9 (Hydrology & Hydrogeology) and in the CEMP (Appendix 4-3), no significant impacts on these National Sites are anticipated.

6.7 Cumulative Impact Assessment

The Proposed Development was 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 Table 6-11 of this report, including European 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 listed in Appendix 2-3 of Chapter 2 (Background to the Proposed Development) of this EIAR.

6.7.1 Assessment of Plans

The following development plans have been reviewed and taken into consideration as part of this assessment:

- Cork County Development Plan 2022-2028

- > Regional Spatial and Economic Strategy for the Southern Region, Project Ireland 2040
- > Ireland's 4th National Biodiversity Action Plan 2023-2030

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 6-22.

Table 6-22 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
<p>Cork County Development Plan 2022-2028</p>	<p>It is the Policy of the Council to:</p> <p>RP 5-19 Greenbelts around Settlements</p> <p>b) Reserve generally for use as agriculture, open space or recreation uses those lands that lie in the immediate surroundings of towns. Where Natura 2000 sites, Natural Heritage Areas, proposed Natural Heritage Areas and other areas of biodiversity value occur within Greenbelts, these shall be reserved for uses compatible with their nature conservation designation and biodiversity value.</p> <p>WM 11-1: EU Water Framework Directive and the River Basin Management Plan</p> <p>f) Support the prioritisation of the provision of water services infrastructure in:</p> <ul style="list-style-type: none"> • All settlements where services are not meeting current needs, are failing to meet the requirements of the Urban Wastewater Treatment Directive, and where these deficiencies are having negative impacts on Natura 2000 sites; and <p>g) Development may only proceed where appropriate wastewater treatment is available which meets the requirements of environmental legislation, the Water Framework Directive and the requirements of the Habitats Directive.</p> <p>GI 14-1: Countywide Green and Blue Infrastructure Objectives</p> <p>b) Develop the green infrastructure network (including green corridors) to ensure the conservation and enhancement of biodiversity, including the protection of Natura 2000 European Sites, the provision of accessible parks, open spaces and recreational facilities (particularly within settlements), the sustainable management of water, the maintenance of landscape character and the protection and enhancement of architectural and archaeological heritage.</p> <p>BE 15-2: Protect sites, habitats and species</p>	<p>The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites.</p> <p>The Proposed Development has been designed in order to avoid likely significant effect on biodiversity. Where the potential for adverse effect on biodiversity has been identified, mitigation will be implemented as prescribed within this chapter to ensure that there is no significant impact.</p> <p>Where pathways for effects on Designated Sites have been identified, mitigation shall also be implemented to ensure that there are no significant effects.</p> <p>No potential for negative cumulative impacts when considered in conjunction with the Proposed Development were identified.</p>

	<p>a) Protect all natural heritage sites which are designated or proposed for designation under European legislation, National legislation and International Agreements. Maintain and where possible enhance appropriate ecological linkages between these. This includes Special Areas of Conservation, Special Protection Areas, Marine Protected Areas, Natural Heritage Areas, proposed Natural Heritage Areas, Statutory Nature Reserves, Refuges for Fauna and Ramsar Sites. These sites are listed in Volume 2 of the Plan.</p> <p>b) Provide protection to species listed in the Flora Protection Order 2015, to Annexes of the Habitats and Birds Directives, and to animal species protected under the Wildlife Acts in accordance with relevant legal requirements. These species are listed in Volume 2 of the Plan.</p> <p>c) Protect and where possible enhance areas of local biodiversity value, ecological corridors and habitats that are features of the County’s ecological network. This includes rivers, lakes, streams and ponds, peatland and other wetland habitats, woodlands, hedgerows, tree lines, veteran trees, natural and semi-natural grasslands as well as coastal and marine habitats. It particularly includes habitats of special conservation significance in Cork as listed in Volume 2 of the Plan.</p> <p>e) Encourage, pursuant to Article 10 of the Habitats Directive, the protection and enhancement of features of the landscape, such as traditional field boundaries, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species.</p> <p>BE 15-17: Waste Prevention and Management</p> <p>a) Planning applications for infilling of marginal land through soil importation will be supported where it can be demonstrated that the developments accord with proper planning and sustainable development, ensuring that they are compatible with the protection of environmental resources including water quality, Natura 2000 sites, biodiversity, archaeological and landscape resources.</p>	
<p>Regional Spatial and Economic Strategy for the Southern Region, Project Ireland 2040</p>	<p>Regional Policy Objective 1:</p> <p>b - The RSES seeks to protect, manage, and through enhanced ecological connectivity, improve the coherence of the Natura 2000 Network in the Southern Region.</p> <p>c - RSES support for other plans/ programmes (and initiatives arising) is on the basis of appropriate SEA, SFRA, EIA and AA processes being undertaken in order to ensure the avoidance of adverse effects on European Sites and ensure implementation of mitigation measures where required</p> <p>d - Development Plans shall include an objective for the protection of European sites and Natural Heritage Areas (designated and notified proposed NHAs).</p>	<p>The strategy was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites.</p> <p>The Proposed Development has been designed in order to avoid likely significant effect on biodiversity and designated sites.</p>

	<p>Regional Policy Objective 38.c - Support initiatives that retrofit environmental amenities to address adverse effects on biodiversity and the environment.</p> <p>Regional Policy Objective 117 - It is an objective to avail of opportunities to enhance biodiversity and amenity and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned. Plans and projects that have the potential to negatively impact on Natura 2000 sites are subject to the requirements of the Habitats Directive.</p>	<p>Where pathways for effects on Designated Sites have been identified, mitigation shall be implemented to ensure that there are no significant effects.</p> <p>No potential for negative cumulative impacts when considered in conjunction with the Proposed Development were identified.</p>
<p>Ireland's 4th National Biodiversity Action Plan 2023-2030</p>	<ul style="list-style-type: none"> ➤ 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. 	<p>The action plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites.</p> <p>The Proposed Development has been designed in order to avoid likely significant effect on biodiversity. Where the potential for adverse effect on biodiversity has been identified, mitigation will be implemented as prescribed within this chapter to ensure that there is no significant impact.</p> <p>Where pathways for effects on Designated Sites have been identified, mitigation shall also be implemented to ensure that there are no significant effects.</p> <p>No potential for negative cumulative impacts when considered in conjunction with the Proposed Development were identified.</p>

6.7.2 Assessment of Projects

As described in Section 2.9 of the EIAR, relevant projects have been assessed in-combination with the Proposed Development and include planning applications in the vicinity of the Site, within the likely zone of influence of all habitats and species considered in this report and include other wind energy applications within the wider area. These have not been repeated here to reduce the duplication of information within this EIAR. However, they have been fully considered in the assessment with further detail provided below. In addition, Section 6.7.4 concludes on their potential for impact on biodiversity.

Table 6-21 provides the cumulative study areas for individual EIAR topics that are also relevant in relation to ecological receptors i.e., hydrological connectivity is important for assessing potential for effects on designated sites. Potential for cumulative effects in relation to birds is assessed separately within Chapter 7 (Birds) of this EIAR.

Table 6-21 Cumulative Study Areas in relation to ecological receptors (birds are assessed separately within Chapter 7 of this EIAR)

Individual Topic	Maximum Extent	Justification
Biodiversity (including Bats)	10 km from the Proposed Development Consideration for the Biodiversity cumulative extent is also given to the Birds and Water Cumulative geographical boundaries.	Using the precautionary approach and given the nature and scale of the Proposed Development, the geographical boundary for terrestrial ecological aspects, i.e. habitats, is 10 km for cumulative assessment for the Proposed Development.
Water	Proposed Development: Lee (Cork) and Coomhola sub-catchments for large infrastructural developments such as wind farms, energy and public transport developments. River Sub Basins for all smaller proposed, permitted or existing plans or projects (i.e. private and commercial type developments).	Regional surface water catchments are used for cumulative impact assessment with regard large infrastructural developments such as wind farms, energy and public transport developments. The potential for cumulative effects for these developments likely exists on a regional catchment scale (i.e. significant works likely existing in several sub-basins). River Sub Basins are used for smaller developments (i.e. private & commercial type developments). These developments are not likely to present a significant cumulative impact risk on a regional catchment scale as any effects would likely be imperceptible as a result of the setback distances and localised nature of the associated works. Given the nature and scale of the proposed works and the lack of hydrological cumulative impact potential beyond the river sub basin scale, the Water cumulative study area is defined by river sub basins in which the Proposed Development is located.

6.7.2.1 Wind Farm Projects

For the purposes of this cumulative assessment, wind farms within a 10-kilometre radius of the Site, as per NatureScot (2021), were considered. These are listed in Table 6-23 and are assessed further in this Section. Further details of these wind farm projects are provided in Appendix 2-3 of this EIAR.

Table 6-23 Wind farm projects within 10km of the Proposed Development.

Wind Farm	Planning Status	Number of Turbines	Separation Distance (km to nearest turbine)	County
Kealkill Wind Farm	Permitted	10	0.00	Co. Cork
Maughanaclea Wind Farm	Pre App	14	4.01	Co. Cork
Gortloughra Wind Farm	Refused	8	5.28	Co. Cork
Shehy More Wind Farm	Permitted	3	6.44	Co. Cork
Grousement Wind Farm	Permitted	38	7.16	Co. Kerry
Derragh Wind Farm	Permitted	6	9.52	Co. Cork

6.7.2.2 Kealkill Wind Farm

The Kealkill Wind Farm refers to the previous 10-turbine wind farm, 38kV substation, and associated infrastructure at the Site, which is detailed in Section 1.1 of Chapter 1 (Introduction). This wind farm was granted under *PL04.127297* / ABP Ref. 04.127297; on 30th May 2002, with the turbines removed in June 2018. As such, there is no potential for in-combination effects with the Proposed Development.

6.7.2.3 Maughanaclea Wind Farm

This project is in the pre-application consultation phase and therefore an EIAR and NIS has not been produced as of yet. This proposed wind farm is located approximately 3.6 km to the south of the Site.

6.7.2.4 Gortloughra Wind Farm

Gortloughra Wind Farm is proposed wind farm consisting of 8 no. turbines and is and is approx. 5.3km from the Site. The Gortloughra wind farm has already been refused by Cork County Council and is currently under appeal with ACP. This wind farm consists of 8 no. turbines. The Proposed Gortloughra Wind Farm and the Site are located partially within the same sub catchments. Both the EIAR and the NIS for the Gortloughra Wind Farm project were reviewed as part of this assessment. These reports identified potential for significant effects on downstream water aquatic receptors (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such, the potential for in-combination effects with the Proposed Development specifically in relation to aquatic receptors were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this EIAR and the mitigation measures outlined within the EIAR for the Gortloughra Wind Farm, no potential for in-combination effects were identified.

6.7.2.5 Shehy More Wind Farm

Shehy More Wind Farm is an existing wind farm consisting of 12 no. turbines and is approx. 5.5 km from the Site. As per the assessment of residual effects from the Proposed development, there is no potential for significant effects, in the absence of mitigation, on downstream watercourses during construction. Additionally, The Shehy More wind farm has already been constructed and as such there is no potential for cumulative effects with the Proposed Development. No potential for in-combination effects given the projects will not be constructed at the same time.

6.7.2.6 Grousemount Wind Farm

Grousemount Wind Farm is an existing wind farm consisting of 38 no. turbines and is and is approx. 3.7km from the Site. As per the assessment of residual effects from the Proposed development, there is no potential for significant effects on downstream watercourses during construction (in the absence of mitigation). Additionally, The Grousemount wind farm has already been constructed and as such there is no potential for cumulative effects with the Proposed Development. No potential for in-combination effects given the projects will not be constructed at the same time. Furthermore, the EIAR identified no potential for significant effects during operation, and therefore, no potential for operational cumulative effects exists either.

6.7.2.7 Derragh Wind Farm

Derragh Wind Farm is an existing wind farm consisting of 6 no. turbines and is and is approx. 7.7km from the Site. Additionally, Derragh wind farm has already been constructed and as such there is no potential for cumulative effects with the Proposed Development. No potential for in-combination effects given the projects will not be constructed at the same time. Furthermore, the EIAR identified no potential for significant effects during operation, and therefore, no potential for operational cumulative effects exists either.

6.7.3 Existing Habitats and Land Uses

The potential for the Proposed Development to result in a cumulative loss or deterioration of habitats, or impact on the KER species identified, was considered in relation to the existing land uses in the area.

The Proposed Development is located primarily on forestry, heath, and unutilised existing wind farm infrastructure. The Proposed Development will result in the loss of conifer plantation and degraded heath habitat. However, the loss of these habitats within the Site will be minimal in the context their distribution in the wider landscape. The loss of these habitats associated with other wind farm developments in the wider area will also be minimal and cumulative loss of this habitat type in the wider landscape is not considered significant. Furthermore, forestry re-planting is ongoing within the Site and the wider landscape.

The Proposed Development will not contribute to any net loss of high value habitat as it has been deliberately designed to be located on habitats of low value for faunal species and includes a BMPEP which provides for an overall net gain of high value habitats.

Forestry activity was identified as a pathway for effect on aquatic receptors in this application. Whilst forestry is a common practice in the wider area, given the measures to prevent significant impacts on water quality in this application, there is no potential for this application to result in cumulative impacts on water quality, in combination with forestry activities in the wide landscape.

6.7.4 Assessment of Cumulative Effects

The residual construction, operational and decommissioning impacts of the Proposed Development are considered cumulatively with other plans and projects as described in Sections 6.7.1, and 6.7.2. Particular focus has been placed on those plans and projects that are in closest proximity to the Proposed Development and those that could potentially result in cumulative impacts on designated sites, surface water, habitats and species.

Following the detailed surveys undertaken and impact assessment provided in Section 6.6 (including mitigation measures), it is concluded that there will be no significant residual habitat loss, disturbance, deterioration of water quality associated with the Proposed Development and therefore it cannot contribute to any cumulative effect when considered in-combination with other plans and projects. The other wind farms in the area were considered (among other projects) but the Proposed Development has been deliberately designed to minimise the effects on biodiversity through the siting of the Proposed Development on habitats of low ecological value and an emphasis on protection of surface water features (and associated aquatic fauna) during construction of the Proposed Development. The Proposed Development also includes a Biodiversity Management and

Enhancement Plan, which further minimises /mitigates any potential for individual or cumulative negative effects on biodiversity and proposes enhancement measures for habitats and species within the EIAR boundary.

No significant effects as a result of the Proposed Development in relation to disturbance, displacement or mortality of faunal species has been identified. Therefore, there is no potential for the Proposed Development to contribute to any cumulative effect in this regard.

6.7.5 Conclusion of Cumulative Assessment

Following the thorough consideration of plans, projects and land uses, it is concluded that, the Proposed Development will not result in any significant negative effects on biodiversity either within the Site or outside it. Having considered other projects in the area including those listed above and in Appendix 2-3 of Chapter 2 (Background to the Proposed Development), no potential for the Proposed Development to contribute to any likely significant negative cumulative effects on biodiversity was identified when considered in-combination with other plans and projects.

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 Proposed Development.

Conclusion

Following consideration of the residual effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified KERs. No significant effects on receptors of International, National, County Importance or Local importance (*higher value*) were identified.

The potential for effects on the European Designated Sites is fully described in the Natura Impact Statement that accompanies this application. The NIS concludes that in view of best scientific knowledge and on the basis of objective information, the Proposed Development either individually or in combination with other plans or projects, is not likely to have adverse effects on the European Sites that were assessed as part of the Appropriate Assessment process. Similarly, with the prescribed mitigations in place, there is no potential for impact on any nationally designated site.

Provided that the Proposed Development is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant individual or cumulative effects on biodiversity are not anticipated at the International, National, County, or local scales or on any of the identified KERs.