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Environmental Impact Assessment Report

Taurbeg Wind Farm Extension of Operational Life

Chapter 6 - Biodiversity

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6. BIODIVERSITY

6.1 Introduction

This chapter assesses the likely significant effects (both alone and cumulatively with other plans and projects) that the Proposed Project may have on Biodiversity. Mitigation by design was applied to the finalised Proposed Project 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 non-avian species and habitats with national and international protection under the Wildlife Acts 1976-(as amended) and the EU Habitats Directive 92/43/EEC. **Impacts on avian receptors are considered in Chapter 7 of this EIAR.**

The full description of the Proposed Project is provided in Chapter 4 of this EIAR.

The chapter is structured as follows.

- The Introduction provides a description of the legislation, guidance and policy context applicable to Biodiversity.
- This is followed by a comprehensive description of the ecological survey and impact assessment methodologies that were followed to inform the robust assessment of likely significant effects on ecological receptors.
- A description of the Baseline Ecological Conditions and Receptor Evaluation is then provided.
- This is followed by an Assessment of Effects which are described with regard to each phase of the Proposed Project. There is no construction phase associated with the Proposed Project. In order to address the significant effect on Hen Harrier identified within Chapter 7, Proposed Offsetting Measures have been designed. Other phases of the Proposed Project include the extended operational phase (of the existing Taurbeg Wind Farm and of the Proposed Offsetting Measures), and decommissioning phase. Potential Cumulative effects in combination with other plans and projects are fully assessed.
- Proposed mitigation and best practice measures that will be implemented in full to avoid, reduce or offset the identified effects on biodiversity, flora and fauna 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.

As detailed in Section 1.1.1 in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references:

- Where the 'Proposed Lifetime Extension' is referred to, this relates to the continued 10-year operation of the existing Taurbeg Wind Farm from 2026. This includes all elements within the existing Taurbeg Wind Farm Site as shown in Figure 1-2 (Chapter 1 of this EIAR).
- Where 'the Site' is referred to, this relates to the primary study area for the Proposed Lifetime Extension, as delineated by the EIAR Site Boundary in green and encompasses an area of approximately 112 hectares (ha) as shown on Figure 1-2 (Chapter 1 of this EIAR).
- Where the 'Proposed Offsetting Measures' is referred to, this relates all works associated with the creation of new habitat in the townlands of Knockatee and Coom, Co. Kerry for the purposes of offsetting the potential significant adverse effects on hen harrier due to the continued operation of Taurbeg Wind Farm.
- Where the 'Proposed Offsetting Lands' are referred to, this relates to the lands in which the Proposed Offsetting Measures will take place, encompassing an area of approximately 123.2 hectares (ha).

- Where the 'Proposed Project' is referred to, this relates to the Proposed Lifetime Extension and the Proposed Offsetting Measures. The Proposed Project is described in detail in Chapter 4: Description of the Proposed Project of this EIAR.

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6.2 Requirements for Ecological Impact Assessment

National Legislation

The Wildlife Act, (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 creatures and flora. These species are therefore considered in this report as ecological receptors.

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that are designated for the protection of flora, fauna, habitats and geological sites. Only NHAs are designated under the Wildlife (Amendment) Act 2017. NHAs are legally protected from damage from the date they are formally proposed for designation[1]. 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

Irelands 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.

[1] https://www.npws.ie/protected-sites/nha (accessed February 2025).

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- 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.

In addition, the National Biodiversity Data Centre published guidance on Pollinator-friendly management of Wind Farms[2]. This identifies an evidence-based action plan for wind farm operators that can help pollinators by employing changes to existing management strategies.

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

European Legislation

Habitats and species of European importance are provided legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive) and the EU Birds Directive 2009/147/EC (the Birds Directive) this legislation forms the cornerstone of Europe's nature conservation within the EU. It is built around two pillars: the Natura 2000 network of protected sites (hereafter referred to as European sites[3]) and the strict system of species protection. Both the Habitats and Bird Directives have been transposed into Irish law by Part XAB of the Planning and Development Acts 2000 (as amended) (from a land use planning perspective) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011).

Annex I of the Habitats Directive lists habitat types whose conservation requires the designation of Special Areas of Conservation (SAC). Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. Annex II of the Directive lists animal and plant species (e.g. marsh fritillary, Atlantic salmon, and Killarney fern) whose conservation also requires the designation of SAC. Annex IV lists animal and plant species in need of strict protection such as lesser horseshoe bat and otter, and Annex V lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish hare, common frog and pine marten. Species can be listed in more than one Annex, as is the case with otter and lesser horseshoe bat which are listed in 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 chapter.

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

[2] https://pollinators.ie/wp-content/uploads/2022/12/Wind-Farm-Pollinator-Guidelines-2022-WEB.pdf *(accessed January 2024).*
[3] *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.*

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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 Project having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs[4],, SPAs or cSPAs) has been carried out in the Appropriate Assessment Screening Report (AASR) and Natura Impact Statement (NIS). A separate assessment has not been carried out in this chapter, to avoid duplication of assessments. However, the relevant conclusions have been cross-referenced and incorporated.

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

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

[4] *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 if ongoing the term SAC will be used to conform with nomenclature used in the National Parks and Wildlife Services (NPWS) databased. The name applies to candidate SPAs.*

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6.3 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, Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2018), were consulted in the preparation of this document to provide the scope, structure and content of the assessment.

This assessment has been carried out in accordance with the Environmental Impact Assessment guidance as outlined in Chapter 1 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
- Kerry County Development Plan 2022-2028
- Southern Regional Assembly Regional Spatial and Economic 2020-2040 Strategy (RSES)
- National Planning Framework. Ireland 2040 Our Plan.
- National Development Plan 2021-2030.
- Ireland's 4th National Biodiversity Action Plan 2023-2030.

6.3.1 Statement of Authority

This EIAR chapter has been prepared by Aran von der Geest Moroney (B.Sc. Ecology) and Kieran Sugrue (B.Sc. Zoology) and reviewed by Pat Roberts (B.Sc. Env., MCIEEM).

Pat is Principal Ecologist at MKO with over 20 years' professional consultancy experience, Aran is a Senior Ecologist at MKO and Kieran is an Ecologist with MKO. Aran, Kieran and Pat have extensive experience in undertaking ecological surveys and impact assessments for large scale infrastructural projects such as wind farms, railways, roads and flood relief schemes.

The baseline ecological surveys were undertaken across multiple dates in 2024 and 2025 by MKO ecologists Aran von der Geest Moroney, Kieran Sugrue, Bronagh Boylan (B.Sc. Env), Rachel Walsh (B.Sc. Env), and Tim O'Ceallaigh (B.Sc.). All surveyors have the necessary skills, experience and training required to carry out the ecological field surveys.

Bat ecologists Nora Szijarto (B.Sc., M.Sc.), Sara Fissolo (B.Sc.), Stephanie Corkery (B.Sc., M.Sc.) and Cuan Feely (B.Sc., M.Sc.) conducted specific bat surveys within the Site in 2024. The Bat Report has been prepared by Nora and reviewed by Sara, Project Ecologist with MKO.

Aquatic surveys were conducted by Triturus Environmental Ltd in July 2024.

Detailed results of the bat and aquatic surveys are included within the Bat Report and Aquatic Baseline Report, see Appendix 6-1 & Appendix 6-2.

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

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6.4 Methodology

The following sections describe the methodologies followed to establish the baseline ecological condition of the Proposed Project 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).

6.4.1 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 2007.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS)[5], EPA maps[6], Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI)[7].
- Inland Fisheries Ireland (IFI) Reports, where available.
- Data on potential occurrence of rare plant and bryophytes – as per NPWS online map viewers; Flora Protection Order 2022 Map Viewer[8].
- A data request was sent to the National Parks and Wildlife Service, scientific data unit. The feedback is provided in Section 6.5.1.
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.
- Potential for in-combination effects have been considered in Chapter 2 of this EIAR and Section 6.8 of this Chapter. This was informed by a review of the EIARs/NISs prepared for other plans and projects occurring in the wider area.

6.4.1.1 Designated Sites

6.4.1.1.1 *Identification of the Designated Sites within the Likely Zone of Influence (ZOI) of the Proposed Project*

The potential for the Proposed Project 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 AASR and NIS that accompany this application. As per EPA Guidance (EPA, 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 6.7.5 of this chapter provides a summary of the key assessment findings with regard to European Designated Sites.

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.

[5] https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba
[6] https://gis.epa.ie/EPAMaps/
[7] https://ifigis.maps.arcgis.com/apps/webappviewer/index.html?id=9a31fedb077c4fb2991184842b7ef025
[8] https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=a41ef4e10227499d8de17a8abe42bd1e

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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 Project:

- A study was undertaken to identify any designated sites that could be significantly affected by the Proposed Project.
- The designation features of these sites, as per the NPWS website (www.npws.ie), were reviewed at the time of preparing this report.
- Where potential pathways for Likely Significant Effect are identified, the site is included within the Likely Zone of Influence (ZoI) and further assessment is required.

6.4.1.2 NPWS Article 17 Reporting

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

6.4.2 Scoping and Consultation

MKO undertook a scoping exercise during preparation of this EIAR, as described in Chapter 2, Section 2.10 of this EIAR.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. If further responses are received, the comments of the consultees will be considered in the Proposed Project in the event of a grant of planning permission. The recommendation of the consultees has informed the project design and scope of assessments undertaken and the contents of the EIAR.

Table 6-1 below provides a list of the organisations consulted with regard to biodiversity during the scoping process and their response. All scoping responses are available in Appendix 2-1 and had been reviewed and taken into account in the assessment.

Table 6-1 Organisations consulted with regard to biodiversity

Consultee Name	Scoping Reply
An Taisce	No response
Bat Conservation Ireland	No response
BirdWatch Ireland	16.02.2024
Butterfly Conservation Ireland (BCI)	No response
Cork County Council-Environment	01.03.2024
Department of Agriculture, Food and the Marine	14.03.2024
Department of Communications, Climate Action and the Environment	No response
Department of Housing, Local Government and Heritage	16.02.2024
Environmental Protection Agency	No response
Forest Service	14.03.2024
Geological Survey of Ireland	06.03.2024
Inland Fisheries Ireland	No response
Irish Peatland Conservation Council	No response
Irish Red Grouse Conservation trust	No response
Irish Raptor Study Group	No response
Irish Wildlife Trust	21.02.2024
Office of Public Works	No response
The Heritage Council	No response
Transport Infrastructure Ireland	01.03.2024

Consultee Name	Scoping Reply
Uisce Éireann	07.03.2024
Waterways Ireland	15.02.2024

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6.4.3 Field Surveys

A comprehensive survey of the biodiversity within the Proposed Project 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 of the Site were carried out between February 2024 and October 2024 and are summarised in Table 6-2 below. Surveys of the Proposed Offsetting Lands were undertaken in October 2024 and January 2025 and are summarised in
Table *6-2* below.

Table 6-2. Ecology Surveys Informing the EIAR

Survey Area	Survey Type	Dates	Appendix
The Site	Mammal survey (including otter, badger)	• 22nd February 2024	N/A
	Multi-disciplinary walkover surveys (incl. Habitats)	• 2nd July 2024	N/A
	Bat Surveys	• Bat Habitat Suitability Appraisal: 14th March 2024 • Daytime Roost Inspections: March – October 2024 inclusive • Manual Activity Surveys: 15th May 2024, 25th June 2024, 29th August 2024	Bat Report, Appendix 6-1
	Aquatic surveys (including otter)	• 15th July 2024 • 16th July 2024 • 17th July 2024	Aquatics Baseline Report, Appendix 6-2
Proposed Offsetting Lands	Multi-disciplinary walkover (incl. Mammals, Habitats, Aquatic Surveys)	• 21st October 2024 • 20th January 2025 • 21st January 2025 • 22nd January 2025	N/A

6.4.3.1 Multi-disciplinary Walkover Surveys

Multidisciplinary walkover surveys were undertaken within the Proposed Project (Site and Proposed Offsetting Lands). Habitat surveys of the Site were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). Habitat surveys of the Proposed Offsetting Lands were undertaken in October and January; however, all habitats were readily identifiable at the time of survey. A comprehensive walkover of the Site and Proposed Offsetting Lands was completed with incidental records also incorporated from other dedicated species/habitat specific surveys. During the multidisciplinary surveys, a search was conducted for Invasive Alien Species (IAS) listed on the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011).

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, 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 Site and Proposed Offsetting Lands (e.g. otter etc.). Bird species observed during the multi-disciplinary surveys were also recorded.

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The multi-disciplinary walkover surveys comprehensively covered the entire Proposed Project area. Further detailed targeted surveys were carried out for features and locations of ecological significance. Other targeted surveys undertaken within the Site and the Proposed Offsetting Lands are described in the following subsections.

All habitats recorded on the Site and the Proposed Offsetting Lands described in this Biodiversity chapter have been classified in accordance with Fossitt (2000).

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

- Commission of the European Communities (2013) Interpretation manual of European Union habitats. Eur 27. 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, 2010).

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 Key Ecological Receptors (KERs).

During the multidisciplinary walkover survey, any suitable habitat for Marsh Fritillary (*Euphydryas aurinia*) was noted (in line with TII guidance (NRA, 2009)).

During the multi-disciplinary 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 (Birds and Natural Habitats) Regulations 2011 (As Amended) (S.I. 477 of 2015).

6.4.3.2 Terrestrial Fauna Surveys

The results of the desk study, scoping replies and incidental records of protected species recorded during multidisciplinary walkover surveys were all used to inform the scope of targeted ecological surveys required. Based on these findings dedicated surveys for bats, otter and badger were undertaken at the times set out below following the methodologies also provided below. During the multidisciplinary walkover surveys, records of invertebrates including butterflies, damselflies, dragonflies, moths, beetles etc. were recorded. Following the completion of ecological walkover surveys, no requirement for additional dedicated faunal surveys was identified.

6.4.3.2.1 *Badger Survey*

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The badger surveys adhered to best practice guidance (NRA, 2009b) and CIEEM best practice competencies for species surveys[9]. Areas identified as providing potential habitat for badger within the Site were subject to specialist targeted survey. Areas identified as providing potential habitat for badger within the Proposed Offsetting Lands were surveyed during multi-disciplinary walkover surveys. Badger surveys aimed to determine the presence or absence of badger within Site and Proposed Offsetting Lands. This involved a search for all potential badger signs (latrines, badger prints, mammal tracks and setts). The badger survey was not constrained by vegetation given the nature of the habitats within the Site and Proposed Offsetting Lands and the timing of the surveys.

6.4.3.2.2 *Bats*

A detailed description of the survey methodologies undertaken in relation to bats is provided in Section 3 of 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 2024 was fully in accordance with the best practice guidelines available. Surveys were undertaken 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.

6.4.3.3 Aquatic surveys

The Site

Aquatic surveys were conducted on the 15th, 16th and 17th July 2024 by Triturus. Survey effort focused on both instream and riparian habitats at each aquatic sampling location and included an otter survey, a fisheries assessment (electro-fishing and fisheries habitat appraisal), white-clawed crayfish survey, macrophyte and aquatic bryophyte survey and biological water quality sampling (Q-sampling) (Figure 2.1, Appendix 6-2). This holistic approach informed the overall aquatic ecological evaluation of each site/watercourse in context of the Proposed Lifetime Extension and ensured that any habitats and species of high conservation value would be detected to best inform mitigation. Full details of all dedicated aquatic survey methodologies for the Proposed Lifetime Extension are provided in Section 2 of Appendix 6-2.

In addition, aquatic habitats and potential for watercourses within the Site to support aquatic species were assessed during the multi-disciplinary walkover surveys carried out by MKO.

An otter survey of watercourses flowing within the Site were conducted by MKO on the 22nd February 2024, adhering to best practice guidance (NRA, 2009b) and CIEEM best practice competencies for species surveys[10]. All watercourses within and immediately adjacent to the Site were identified as providing potential habitat for otter and were subject to targeted surveys for this species. This involved a search for all otter signs (e.g. spraints, scat, prints, slides, trails, couches and holts) within 150m of each survey site. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS 2009).

The Proposed Offsetting Lands

Aquatic habitats and potential for watercourses within the Proposed Offsetting Lands to support aquatic species were assessed during the multi-disciplinary walkover surveys carried out by MKO. Following initial site visits, habitat suitability for protected aquatic species of conservation interest, known or suspected to occur within/ downstream of the Proposed Offsetting Lands boundary (e.g. fish species, otter), were conducted in January 2025. Survey design and methodologies were derived from current

[9] *CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey: Badger, Online, Available at: https://cieem.net/wp-content/uploads/2019/02/CSS-BADGER-April-2013.pdf*
[10] *CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey: Otter, Online, Available at: https://cieem.net/wp-content/uploads/2019/02/CSS-EURASIAN-OTTER-April-2013.pdf*

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ecological best practice guidance documents (EA, 2003; NRA, 2009b; Maitland, 2003; O'Grady, 2006; CIEEM, 2013).

Macroinvertebrate surveys to determine biological water quality were carried out in watercourses within and adjacent to the Proposed Offsetting Lands. The methodology followed was the same as that used by the EPA for their national water sampling regime (Toner *et al.* 2005). A two-minute kick sample was collected from a stream bed area of approximately one square metre with a standard handnet (250 mm x 250 mm, with a 300 mm bag depth and a 1 mm mesh size). One minute hand searches, of large objects such as tree branches or stones, was undertaken prior to each of the kick samples. The kick sampling time was then divided proportionally among the habitats present in the area, such as fast-moving riffles, shallow water, and silted banks. Samples were sorted on site with identified species classed into groups according to their pollution tolerance levels, as per Environmental Protection Agency (EPA) practice (Toner et al., 2005). Specimens were identified using the FBA Guide to Freshwater Invertebrates (Dobson *et al.*, 2012).

6.4.4 Methodology for Assessment of Impacts and Effects

6.4.4.1 Identification of Target Receptors and Key Ecological Receptors

The criteria used to assess the ecological value and significance of the study area 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).

6.4.4.2 Determining Importance of Ecological Receptors

The importance of the ecological features identified within the Site and Proposed Offsetting Lands was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the *Guidelines for Assessment of Ecological Impacts of National Roads Schemes* (NRA, 2009a). 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, cSAC, SPA or cSPA) 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 Key Ecological Receptors (KERs). KERs are within the ZoI of the Proposed Project 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

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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.

6.4.4.3 Characterisation of Impacts and Effects

The Proposed Project 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). This chapter has also been prepared in accordance with the corresponding EPA Guidelines (EPA 2022) as detailed in Chapter 1. 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 Project results in a positive or negative effect on the ecological receptor.
- Extent. Description of the spatial area over which the effect has the potential to occur.
- Magnitude. Refers to size, amount, intensity and volume. It should be quantified if possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.
- Duration is defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. For example, five years, which might seem short-term in the human context or that of other long-lived species, would span at least five generations of some invertebrate species.
- Frequency and Timing. This relates to the number of times that an impact occurs and its frequency. A small-scale impact can have a significant effect if it is repeated on numerous occasions over a long period.
- Reversibility. This is a consideration of whether an effect is reversible within a 'reasonable' timescale. What is considered to be a reasonable timescale can vary between receptors and is justified where appropriate in the impact assessment section of this report.

6.4.4.4 Determining the Significance of Effects

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

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

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Integrity

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

Conservation status

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

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

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

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

The conservation of a species is favourable when:

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

6.4.4.5 Incorporation of Mitigation

Section 6.7 of this Biodiversity chapter assesses the potential effects of the Proposed Project to ensure that all effects on KERs are adequately addressed. Where significant effects on KERs are predicted, mitigation is incorporated into the project design or layout to address such impacts. The mitigation measures prescribed are designed to avoid, reduce or offset any potential significant effects and ensure no significant residual effects.

6.4.4.6 Limitations

The information provided in this assessment accurately and comprehensively describes the baseline ecological environment following surveys undertaken across 2024 and 2025. It provides an accurate prediction of the likely ecological effects of the Proposed Project and prescribes best practice and mitigation as necessary.

The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines.

The habitats and species on the Site and Proposed Offsetting Lands were readily identifiable and comprehensive assessments were made during the field visits.

No significant limitations in the scope, scale or context of the assessment have been identified.

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6.5 Establishing the Ecological Baseline

6.5.1 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 6.4.1.

6.5.1.1 Designated Sites

Table 6-3 provides details of all relevant European and Nationally designated sites initially considered to potentially be within the ZoI of the Proposed Project. All relevant European Designated Sites are fully described and assessed in the NIS and associated volumes associated with this project. In summary, three European sites were identified within the Likely Zone of Influence.

- Lower River Shannon SAC [002165]
- Blackwater River (Cork/Waterford) SAC [002170]
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]

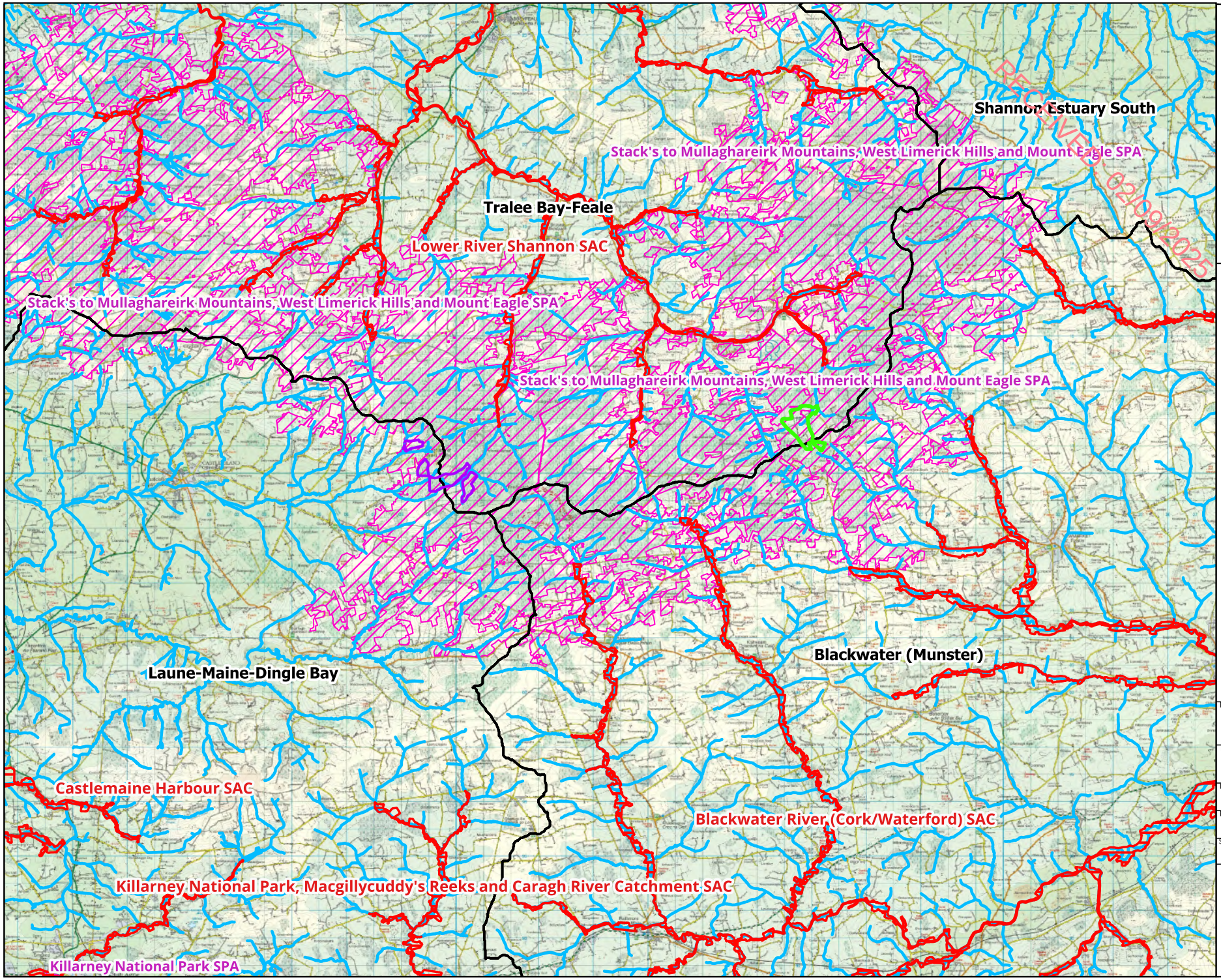
Due to the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161] being of Ornithological interest, within this EIAR, further consideration of effects on this SPA are contained within Chapter 7 Ornithology and are not included further in Chapter 6 Biodiversity.

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.

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.

All Nationally Designated Sites as outlined above, and relevant Ramsar sites are fully described and assessed within Table 6-4 below.

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



Map Legend

- Taurbeg EIAR Site Boundary
- Proposed Offsetting Lands
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- WFD Hydrological Catchments
- WFD River Waterbodies

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Drawing Title
The Proposed Project in relation to European Designated Sites

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
NR	AvdGM
Project No.	Drawing No.
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Scale	Date
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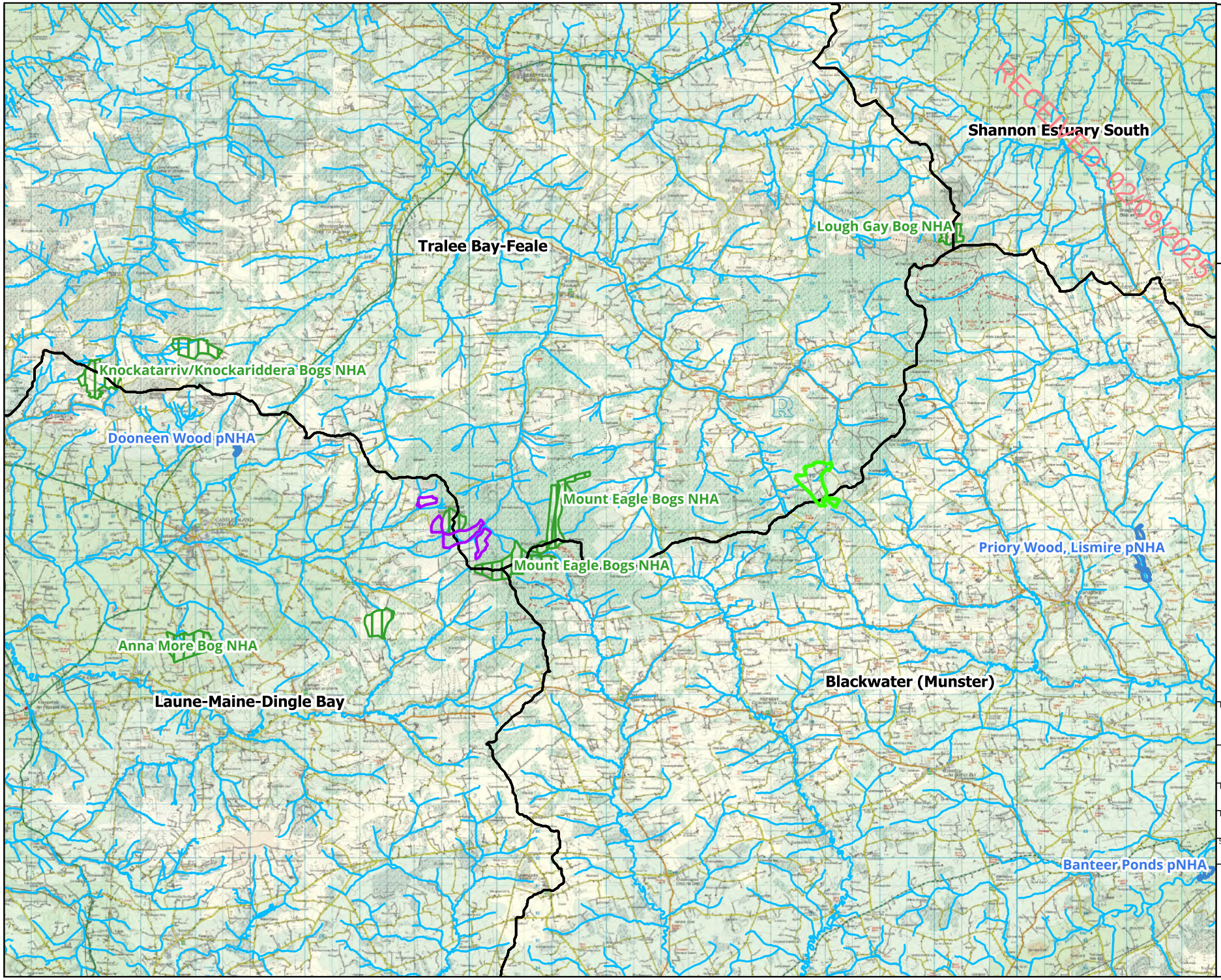

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Map Legend

- Taurbeg EIAR Site Boundary
- Proposed Offsetting Lands
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- WFD Hydrological Catchments
- WFD River Waterbodies

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Drawing Title
The Proposed Project in relation to Nationally Designated Sites

Project Title
Taurbeg Wind Farm Extension of Operational Life

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Table 6-3 Assessment of designated sites in the Zone of Influence

Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
Natural Heritage Areas (NHA)			
Mount Eagle Bogs NHA [002449]	**Distance to the Site:** › 7.5km straight line distance › No hydrological connectivity **Distance to the Proposed Offsetting Lands:** › 0m straight line distance › No downstream hydrological connectivity	**The Site:** The Site is located entirely outside the NHA boundary. Due to the intervening distance between the Site and the NHA (7.5km), and the terrestrial nature of the peatland habitats for which they are designated, no potential pathway for likely significant direct or indirect effect was identified as a result of the proposed continued operation of the existing Taurbeg Wind Farm. In addition, there is no downstream hydrological connectivity between the Site and the NHA, and all groundwater bodies which the Site and the NHA share have short flow paths between 30-300m (GSI.ie). Given the distance between the Site and the NHA (7.5km), and the lack of connectivity, there is no potential for likely significant effect on the NHA as a result of the proposed continued operation of the existing Taurbeg Wind Farm. **The Proposed Offsetting Lands:** The NHA boundary slightly overlaps with the Proposed Offsetting Lands and is located adjacent to it. The habitats present within the overlap consist of conifer plantation, recolonising bare ground and drainage ditches. None of the peatland habitats for which the NHA is designated are present within the overlap area with the Proposed Offsetting Lands. Therefore, there is no potential for direct negative effect on the terrestrial peatland habitats of the NHA. The removal of conifer plantation forestry from the vicinity of the NHA and from within the boundary of the NHA has the potential to benefit the peatland habitats of the NHA by reducing the local source of conifer seedlings that may naturally colonise the NHA. The peatland habitats of the portion of the NHA adjacent to the Proposed Offsetting Lands are located on a hill at a higher elevation to the Proposed Offsetting Lands, with the edges of the hill cut vertically to the edges of the recolonising trackways which make up the boundary, therefore, due to the physical separation between the upgradient peatland habitats of the NHA and the Proposed Offsetting Lands, and the distance between the remainder of the NHA from the Proposed Offsetting Lands, no potential for likely significant effect on the NHAs hydrogeological regime exists.	**Yes**

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
		As described in section 6.6.3 of this Biodiversity Chapter, the third schedule invasive alien plant species Rhododendron ponticum was identified growing within Areas 1, 2 and 4 of the Proposed Offsetting Lands. Deforestation activities without proper cognisance of the presence of rhododendron have the potential to create habitat suitable for the accelerated proliferation of the invasive species which could increase the potential for colonisation of the NHA habitats by *rhododendron*. Therefore, taking a precautionary approach, there exists the potential for likely significant effect on the habitats of the NHA via increased potential for colonisation by invasive species. In the absence of any Proposed Offsetting Measures the stands of rhododendron have the potential to spread naturally towards the NHA. **A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on this Nationally Designated Site. Therefore, the Nationally Designated Site is located within the Likely Zone of Influence and is considered further in this assessment.**	
Lough Gay Bog NHA [002454]	Distance to the Site: › 8.6km straight line distance › No hydrological connectivity Distance to the Proposed Offsetting Lands: › 19.5km straight line distance › No hydrological connectivity	There is no potential for direct effects as the Site and Proposed Offsetting Lands are located entirely outside of this designated site. Due to the intervening distances between the Site and Proposed Offsetting Lands and the Lough Gay Bog NHA, and the predominantly terrestrial nature of the peatland habitats for which the NHA is designated, no potential pathway for likely significant indirect effect was identified. Due to the lack of connectivity between both the Site and the Proposed Offsetting Lands, and the NHA, no complete source-pathway-receptor chain exists. **No pathway for effect on this Nationally Designated Site exists and the NHA is not within the Likely Zone of Influence. It is concluded, on the basis of objective information, that the Proposed Project, individually or in combination with other plans or projects, will not have a significant effect on this Nationally Designated site.**	No

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
Knockatarriv/Knockariddera Bogs NHA [002448]	**Distance to the Site:** › 9km straight line distance › No hydrological connectivity Distance to the Proposed Offsetting Lands: › 8.9km straight line distance › No hydrological connectivity	There is no potential for direct effects as the Site and Proposed Offsetting Lands are located entirely outside of this designated site. Due to the intervening distances between the Site and Proposed Offsetting Lands and the Knockatarriv/ Knockariddera Bogs NHA, and the predominantly terrestrial nature of the peatland habitats for which the NHA is designated, no potential pathway for likely significant indirect effect was identified. Due to the lack of connectivity between both the Site and the Proposed Offsetting Lands, and the NHA, no complete source-pathway-receptor chain exists. **No pathway for effect on this Nationally Designated Site exists and the NHA is not within the Likely Zone of Influence. It is concluded, on the basis of objective information, that the Proposed Project, individually or in combination with other plans or projects, will not have a significant effect on this Nationally Designated site.**	No
Anna More Bog NHA [000333]	**Distance to the Site:** › 21.4km straight line distance › No hydrological connectivity **Distance to the Proposed Offsetting Lands:** › 8.9km straight line distance	There is no potential for direct effects as the Site and Proposed Offsetting Lands are located entirely outside of this designated site. Due to the intervening distance between the Site and Proposed Offsetting Lands and the Anna More Bog NHA, and the predominantly terrestrial nature of the peatland habitats for which the NHA is designated, no potential pathway for likely significant indirect effect was identified. Due to the lack of connectivity between both the Site and the Proposed Offsetting Lands, and the NHA, no complete source-pathway-receptor chain exists. **No pathway for effect on this Nationally Designated Site exists and the NHA is not within the Likely Zone of Influence. It is concluded, on the basis of objective information, that the Proposed Project, individually or in combination with other plans or projects, will not have a significant effect on this Nationally Designated site.**	No

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
	› No hydrological connectivity		
Proposed Natural Heritage Areas (pNHA)			
Priory Wood, Lismire pNHA [001072]	**Distance to the Site:** › 10.9km straight line distance › No hydrological connectivity **Distance to the Proposed Offsetting Lands:** › 23.5km straight line distance › No hydrological connectivity	There is no potential for direct effects as the Site and Proposed Offsetting Lands are located entirely outside of this pNHA. Due to the intervening distances between the Site and Proposed Offsetting Lands and the Priory Wood, Lismire pNHA, and the predominantly terrestrial nature of the habitats for which the pNHA is designated, no potential pathway for likely significant indirect effect was identified. Due to the lack of connectivity between both the Site and the Proposed Offsetting Lands, and the pNHA, no complete source-pathway-receptor chain exists. **This pNHA is not within the Likely Zone of Influence and no further assessment is required.**	No
Dooneen Wood pNHA [001349]	**Distance to the Site:** › 20.3km straight line distance › No hydrological connectivity	There is no potential for direct effects as the Site and Proposed Offsetting Lands are located entirely outside of this pNHA. Due to the intervening distances between the Site and Proposed Offsetting Lands and the Dooneen Wood pNHA, and the predominantly terrestrial nature of the habitats for which the pNHA is designated, no potential pathway for likely significant indirect effect was identified. Due to the lack of connectivity between both the Site and the Proposed Offsetting Lands, and the pNHA, no complete source-pathway-receptor chain exists.	No

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
	Distance to the Proposed Offsetting Lands: › 6.7km straight line distnace › No hydrological connectivity	**This pNHA is not within the Likely Zone of Influence and no further assessment is required.**	
Castlemaine Harbour pNHA [000343]	**Distance to the Site:** › 41.1km straight line distance › No hydrological connectivity **Distance to the Proposed Offsetting Lands:** › 27.6km straight line distance › Approx. 33.6km hydrological	The Site and Proposed Offsetting Lands are located completely outside of the pNHA boundary, therefore, there is no potential for direct effect. Indirect effects on the terrestrial habitats/species of the Castlemaine Harbour pNHA can be ruled out due to the terrestrial nature of the habitats/species, the distances from the pNHA to the Site and Proposed Offsetting Lands, and the absence of a complete source-pathway-receptor chain for effect. The Site is located within a separate hydrological catchment and groundwater body to the pNHA. Therefore, no source-pathway-receptor chain for likely significant effect exists between the Site and the pNHA. The Proposed Offsetting Lands are located approximately 33.6km upstream of the pNHA. While there exists hydrological connectivity between the Proposed Offsetting Lands and the pNHA, due to the large separation distance, assimilative capacity of the intervening waters and nature of the Proposed Offsetting Measures comprised primarily of conifer deforestation, there is no potential for likely significant effect as a result of the Proposed Offsetting Measures. There is no potential for likely significant effects upon the coastal/marine habitats/ species of this pNHA due to; the estuarine/ coastal nature of the habitats, and the significant intervening hydrological distance between the Proposed Offsetting Lands and the coastal/ estuarine habitats of the pNHA. **This pNHA is not within the Likely Zone of Influence and no further assessment is required.**	No

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
Cashen River Estuary pNHA [001340]	**Distance to the Site:** › 37.2km straight line distance › 61.6km hydrological connectivity **Distance to the Proposed Offsetting Lands:** › 27.5km straight line distance › 56.5km hydrological connectivity	The Site and Proposed Offsetting Lands are located completely outside of the pNHA boundary, therefore, there is no potential for direct effect. Indirect effects on the terrestrial habitats/species of the Cashen River Estuary pNHA can be ruled out due to the terrestrial nature of the habitats/species, the distance from pNHA to the Site and Proposed Offsetting Lands, and the absence of a complete source-pathway-receptor chain for effect. The Site is located approximately 61.6km upstream of the pNHA and the Proposed Offsetting Lands are located approximately 56.5km upstream of the pNHA. There exists hydrological connectivity between the Proposed Offsetting Lands & the Site, and the pNHA. However, due to the large separation distances, assimilative capacity of the intervening waters, estuarine/ coastal nature of the habitats/ species of the pNHA, and nature of the Proposed Project, there is no potential for likely significant indirect effect on the pNHA as a result of the continued operation of the existing Taurbeg Wind Farm or the Proposed Offsetting Measures. **This pNHA is not within the Likely Zone of Influence and no further assessment is required.**	No
Ramsar Sites			
Castlemaine Harbour (Site Number: 470)	**Distance to the Site:** › Approx. 46.1km straight line distance › No hydrological connectivity	The Site and **Proposed Offsetting Lands** are located completely outside of the Ramsar Site, therefore, there is no potential for direct effect. The Site is located within a separate hydrological catchment and groundwater body to the Ramsar Site. Therefore, no source-pathway-receptor chain for likely significant effect exists between the Site and the Ramsar Site. The **Proposed Offsetting Lands** are located approximately 41.5km upstream of the Ramsar Site. While there exists hydrological connectivity between the **Proposed Offsetting Lands** and the Ramsar Site, due to the large separation distance, assimilative capacity of the intervening waters and nature of the Proposed Offsetting Measures comprised primarily of conifer deforestation, there is no potential for likely significant effect on the	No

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Designated Site	Distance from EIAR Site Boundary (km)	Assessment of designated sites in Zone of Influence	Yes/No
	Distance to the Proposed Offsetting Lands: › Approx. 32.7km straight line distance › Approx. 41.5km hydrological connectivity	Ramsar Site as a result of the Proposed Offsetting Measures. There is no potential for likely significant effects upon the coastal/marine **habitats/ species** of this Ramsar Site due to; the estuarine/ coastal nature of the habitats, and the significant intervening hydrological distance between the Proposed Offsetting Lands and the coastal/ estuarine habitats of the Ramsar Site. **This Ramsar site is not within the Likely Zone of Influence and no further assessment is required.**	

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6.5.1.2 NPWS Article 17 Reporting

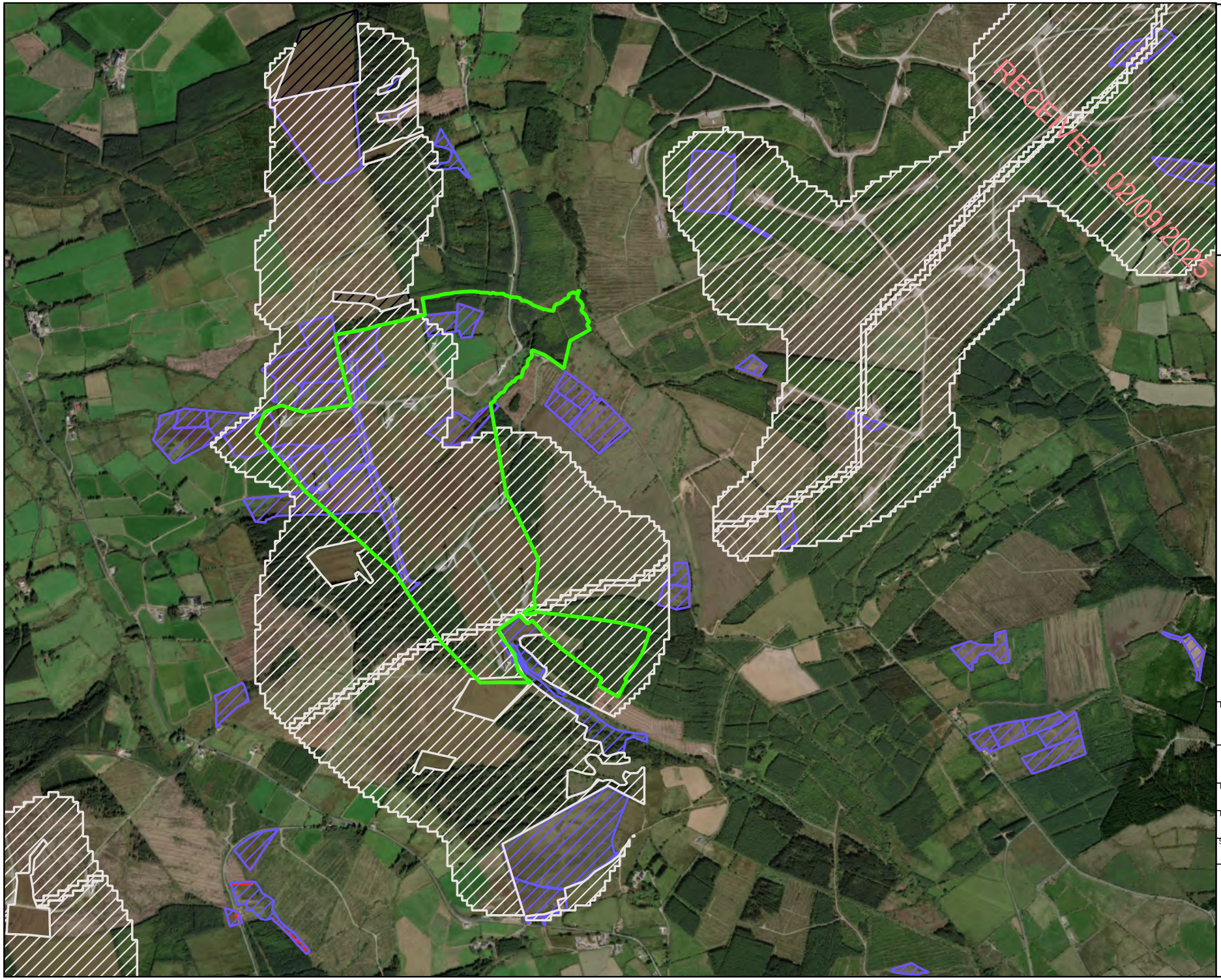
A review of the Irish Reports for Article 17 of the Habitats Directive (92/42/EEC), including the Heath, Bogs and Mires datasets, the National Juniper Survey, Irish Semi-Natural Grassland Survey, National Survey of Native Woodlands and Ancient and Long-Established Woodland datasets were conducted prior to undertaking the multi-disciplinary walkover survey.

A search of the NPWS Article 17 datasets was undertaken as part of the desk study. The most recent National Parks and Wildlife Service (NPWS, 2019) data on the recorded distribution of EU Habitats Directive Annex I listed habitats was reviewed in relation to the Site and Proposed Offsetting Lands. This data is available in the form of the NPWS (2019) Article 17 reporting, and associated GIS data, on '*The Status of EU Protected Habitats and Species in Ireland*' (NPWS, 2019).

According to NPWS Article 17 datasets, the majority of the area within the Site is mapped as Annex 1 Alpine and Subalpine Heath, with areas of Annex 1 Dry Heath and Annex 1 Wet Heath also present throughout. The area surrounding the Site also features small areas classified as Annex 1 Dry Heath and Annex 1 Wet Heath, in addition to an area of Annex 1 Active Blanket Bog located approx. 50m north of the Site. According to NPWS Article 17 datasets, areas within the Proposed Offsetting Lands are mapped as Annex I Alpine and Subalpine Heath, with smaller sections of Annex I Dry Heath, Wet Heath and Active Blanket Bog also present.

The nearest Ancient Long-established Woodland to the Site, Lisdangan (2192), is located approx. 7.2km to the southeast of the Site, while Dooneen Wood (2261) is located approx. 6.7km northwest of the Proposed Offsetting Lands. The nearest Native Woodlands according to the 2003-2008 surveys are also located 7.2km from the Site and 6.7km from the Proposed Offsetting Lands respectively. The nearest semi natural grasslands are located approx. 3.8km from the Site, and 3.7km from the Proposed Offsetting Lands.

Figure 6-3 details the mapped Article 17 habitats in relation to the Site and Figure 6-4 details the mapped Article 17 habitats in relation to the Proposed Offsetting Lands.



Map Legend

- Taurbeg EIAR Site Boundary

Cork Article 17 Habitats

- Active Blanket Bog
- Alpine and Subalpine Heath
- Dry Heath
- Wet Heath

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Drawing Title
Article 17 Habitats within the Site

Project Title
Taurbeg Wind Farm Extension of Operational Life

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Project No.	Drawing No.
231030	Figure 6-3
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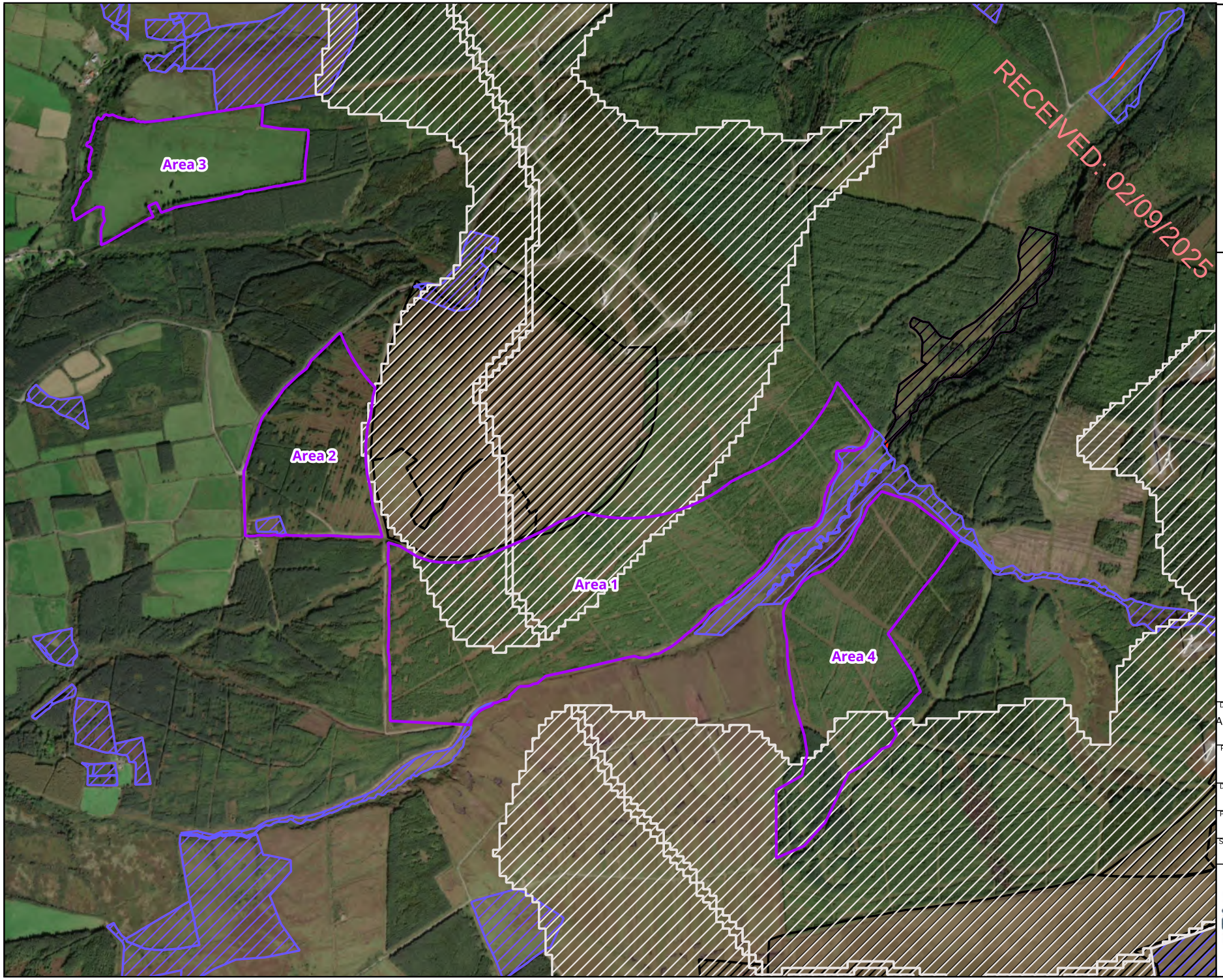

Map Legend

- Proposed Offsetting Lands

Kerry Article 17 Habitats

- Active Blanket Bog
- Alpine and Subalpine Heath
- Dry Heath
- Wet Heath

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Drawing Title
Article 17 Habitats within the Proposed Offsetting Lands

Project Title
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Project No.	Drawing No.
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6.5.1.3 Vascular plants

A search was made in the New Atlas of the British and Irish Flora (Preston *et al*, 2002) to investigate whether any rare or unusual plant species listed under Annex I of the EU Habitats Directive, The Irish Red Data Book, 1, Vascular Plants (Curtis, 1988) or the Flora (Protection) Order (FPO) 2022 (SI 235 of 2022)) had been recorded in the relevant 10km squares in which the Site and the Proposed Offsetting Lands are situated (R00, R01, R10, R11 and R21). Each hectad contains 100 whole 1km squares containing terrestrial habitats. Species of conservation concern are given in Table 6-4.

Table 6-4 Species listed designated under the Flora Protection Order or the Irish Red Data Book within Hectad R00, R01, R10, R11 & R21

Common Name	Scientific Name	Status	Hectads
Small Cudweed	*Filago minima*	FPO, Near Threatened (NT)	R00
Bog Orchid	*Hammarbya paludosa*	FPO, Vulnerable (VU)	R10
Brown Beaksedge	*Rhynchospora fusca*	Near Threatened (NT)	R00

6.5.1.4 Bryophytes

A search of the NPWS online database for bryophytes (non-vascular land plants comprising of mosses, hornworts and liverworts) was also undertaken. No protected bryophytes were shown to occur within or directly adjacent to the Site or Proposed Offsetting Lands based on desk-based review.

6.5.1.5 National Biodiversity Data Centre (NBDC) Records

A search of the NBDC records for the relevant hectads, R00, R01, R10, R11 and R21, provided records on a number of fauna species of conservation concern, excluding marine species and bird species. These are provided in the tables below. Records on bird species of conservational concern are described in Chapter 7: Ornithology.

Table 6-5 NBDC Records for Species of Conservation Interest in hectad R00, R01, R10, R11 & R21

Species	Scientific Name	Red List Status	Habitats Directive	Hectads
Badger	*Meles meles*	LC	WA	R00, R01, R10, R11, R21
Common Frog	*Rana temporaria*	LC	Annex V, WA	R00, R01, R10, R11, R21
Common Pipistrelle	*Pipistrellus pipistrellus sensu stricto*	LC	Annex IV, WA	R00, R01, R10, R11, R21
Daubenton's Bat	*Myotis daubentonii*	LC	Annex IV, WA	R00, R10, R11, R21
Fallow Deer	*Dama dama*	LC	WA	R00, R10
Hedgehog	*Erinaceus europaeus*	LC	WA	R00, R01, R10, R11, R21
Irish Hare	*Lepus timidus subsp. hibernicus*	LC	Annex V, WA	R00, R10, R11, R21

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Species	Scientific Name	Red List Status	Habitats Directive	Hectads
Leisler's Bat	*Nyctalus leisleri*	LC	Annex IV, WA	R00, R01, R10, R11
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	LC	Annex II, IV, WA	R00, R01, R10
Marsh Fritillary	*Euphydryas aurinia*	VU	Annex II	R00, R01, R10, R11
Otter	*Lutra lutra*	LC	Annex II, IV, WA	R00, R01, R10, R11, R21
Red Squirrel	*Sciurus vulgaris*	LC	WA	R00, R10, R11, R21
Sika Deer	*Cervus nippon*	NA	WA	R00, R01, R10, R11
Soprano Pipistrelle	*Pipistrellus pygmaeus*	LC	Annex IV, WA	R00, R01, R10, R11, R21
Brown Long-eared Bat	*Plecotus auritus*	LC	Annex IV, WA	R01, R10
Common Lizard	*Zootoca vivipara*	LC	WA	R01, R11
Common Newt	*Lissotriton vulgaris*	LC	WA	R01, R10, R11, R21
Nathusius' Pipistrelle	*Pipistrellus nathusii*	LC	Annex IV, WA	R01, R10, R11
Pine Marten	*Martes martes*	LC	Annex V, WA	R01, R10, R11, R21
Stoat	*Mustela erminea subsp. hibernica*	LC	WA	R01, R10, R11, R21
Natterer's Bat	*Myotis nattereri*	LC	Annex IV, WA	R10
Pygmy Shrew	*Sorex minutus*	LC	-	R11, R21

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA - Wildlife Acts – Irish Wildlife Acts 1976 (as amended), LC – Least concern, NT – Near threatened, VU - Vulnerable.

Table 6-6 NBDC records for Invasive Species in hectads R00, R01, R10, R11, R21

Common Name	Scientific Name	Hectads
Indian Balsam	*Impatiens glandulifera*	R00, R10, R11, R21
Japanese Knotweed	*Fallopia japonica*	R00, R01, R10, R11, R21
Salmonberry	*Rubus spectabilis*	R10, R21
American Mink	*Mustela vison*	R00, R10, R11, R21
Sika Deer	*Cervus nippon*	R00, R01, R10, R11

Common Name	Scientific Name	Hectads
Giant-rhubarb	*Gunnera tinctoria*	R00, R10
Fallow Deer	*Dama dama*	R00, R10
Rhododendron	*Rhododendron ponticum*	R00, R01, R10
Brown Rat	*Rattus norvegicus*	R01
Bohemian Knotweed	*Fallopia japonica x sachalinensis = F. x bohemica*	R21

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6.5.1.6 NPWS

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 R00, R01, R10, R11 and R21. An information request was also sent to the NPWS requesting records from the Rare and Protected Species Database. Table 6-7 lists rare and protected species records obtained from NPWS, as well as those recorded available through the online NPWS map viewer.

Table 6-7 National Parks and Wildlife Service Records

Common name	Scientific name	Designation	Hectad
Reindeer Lichen (Cream Cup Lichen)	*Cladonia portentosa*	Annex V	R00, R01, R10, R21
Cladonia ciliata var. tenuis	*Cladonia ciliata var. tenuis*	Annex V	R00
Bog Orchid	*Hammarbya paludosa*	FPO Species, Vulnerable	R10
Small Cudweed	*Filago minima*	FPO Species, Near Threatened	R00
Common frog	*Rana temporaria*	HD Annex V, WA	R00, R01, R10, R21
Eurasian badger	*Meles meles*	WA	R01, R10, R11, R21
European Otter	*Lutra lutra*	Annex II, IV, WA	R00, R01, R10, R11, R21
Irish Hare	*Lepus timidus subsp. Hibernicus*	Annex V, WA	R00, R10, R21
Smooth newt	*Lissotriton vulgaris*	WA	R01, R11
Fallow Deer	*Dama dama*	WA	R21
Sika Deer	Cervus nippon	WA	R10, R11, R21
European hedgehog	*Erinaceus europaeus*	WA	R10, R21
Sea Lamprey	*Petromyzon marinus*	Annex II, V	R10

Common name	Scientific name	Designation	Hectad
Common lizard	*Zootoca vivipara*	WA	R01, R11
Irish Stoat	*Mustela erminea subsp. hibernica*	WA	R10, R11, R21
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Annex II, Annex IV, WA	R00, R01
Barn Owl	*Tyto alba*	WA	R00, R01, R10, R11

FPO = Flora Protection Order; RL = Red List, VU = Vulnerable, WA = Protected Species: Wildlife Acts, Annex (No.) – Protected Species: EU Habitats Directive, BoCCI – RL = Red Listed, AL = Amber Listed, GL = Green Listed

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6.5.1.7 Bats

A full description of the desk study information used to inform the bat aspect of this biodiversity chapter is provided in Section 4.2 of the Bat Report available in Appendix 6-1.

6.5.1.8 Aquatic Ecology

The Site:

A full description of the aquatic ecology desk study conducted for the Proposed Lifetime Extension Site, is provided in Section 3 of the Aquatic Baseline Report available in Appendix 6-2.

The majority of the Site is located within the Feale 'Catchment of other extant populations' for Freshwater Pearl Mussel. A portion of the southern area of the Site is located within the Munster Blackwater – Allow 'Catchment of SAC populations listed in S.I. 296 of 2009' for Freshwater Pearl Mussel. Freshwater Pearl mussel is not known from any of the survey watercourses as seen in Figure 2.1 of Appendix 6-2. Otter records were common downstream of the Site though most online records were historical. Fisheries data for the survey watercourses was largely deficient. The downstream-connecting River Feale is a designated salmonid watercourse under the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293/1988). The Feale and wider catchment support fish species including brown trout (*Salmo trutta*), lamprey (*Lampetra sp.*), European eel (*Anguilla Anguilla*) and minnow. Tributaries of the downstream River Dalua is known to support salmonids as well as lamprey species (*Lampetra & Petromyzan*).

The Proposed Offsetting Lands:

The Proposed Offsetting Lands are not located within a *Margaritifera* SAC Catchment, however Area 4 and the majority of Area 1 of the Proposed Offsetting Lands are located within the Feale 'Catchment of other extant populations' for Freshwater Pearl Mussel.

There were no otter records within or adjacent to the Proposed Offsetting Lands. There are records of otter downstream of the Proposed Offsetting Lands within the River Maine and the River Feale.

Fisheries data downstream of the Proposed Offsetting Lands was also largely deficient. The downstream-connecting Shanowen River and its tributaries support fish species including salmon (*Salmo salar*), brown trout (*Salmo trutta*), lamprey (*Lampetra sp.*), European eel (*Anguilla Anguilla*), stone loach (*barbatula barbatula*) & three-spined stickleback (*Gasterostreus aculeatus*). Additionally, the unnamed water course which flows through Area 1 (refer to Figure 1-3, Chapter 1 of this EIAR) of the Proposed Offsetting Lands has downstream connectivity with the River Feale, which is a designated salmonid watercourse under the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293/1988). The River Feale supports salmon (*Salmo salar*), brown trout (*Salmo trutta*), lamprey (*Lampetra sp.*), European eel (*Anguilla Anguilla*) and minnow.

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6.5.1.9 Other Fauna

A search for Marsh Fritillary (*Euphydryas aurinia*) was carried out on the NBDC biodiversity map online viewer most recently on the 05.02.2025. No records of this species were recorded within or adjacent to the Site. Point data records for Marsh Fritillary are located approx. 175m southwest of the Proposed Offsetting Lands.

6.5.2 Conclusions of the Desk Study

The desktop study has provided information about the existing environment in the hectads, within which the Site and the Proposed Offsetting Lands are located. 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). Bat records within the 10km hectads that the Site and the Proposed Offsetting Lands are located in, revealed that the wider area has been studied for bats. This suggests that the area offers potential for foraging and commuting bat species.

As part of the desk study, NPWS Article 17 habitat records were consulted, and several Habitats Directive Annex I habitats have been recorded within, adjacent to or in the vicinity of the Site and the Proposed Offsetting Lands.

The majority of the Site along with Area 4 and the majority of Area 1 of the Proposed Offsetting Lands are located within a 'Catchment of other extant populations' for Freshwater Pearl Mussel (Feale catchment). A small portion of the Site is located within the Munster Blackwater – Allow 'Catchment of SAC populations listed in S.I. 296 of 2009' for Freshwater Pearl Mussel.

The River Feale, (a designated salmonid watercourse under the European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293/1988)), is located hydrologically downstream of the Site and the Proposed Offsetting Lands. Fish species records downstream of the Site and the Proposed Offsetting Lands typically consisted of salmonids (Salmon, brown trout), European eel, lamprey spp., and other common species of fish e.g. minnow.

The desk study identified that a variety of protected faunal species are known to occur within the vicinity of the Site and the Proposed Offsetting Lands, including bats, otter, common frog, marsh fritillary, Irish hare, badger and red squirrel. The mammal species recorded during the desk study informed the survey methodologies undertaken during the site visits. The desk study provided information to inform the ecological surveys undertaken on site as well as the identification of pathways for potential impact on sensitive ecological receptors.

The Site and the Proposed Offsetting Lands are both hydrologically connected to the Lower River Shannon SAC. The Site is also hydrologically connected to the Blackwater River (Cork/Waterford) SAC. Both the Site and the Proposed Offsetting Lands are located within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. This is further described and assessed below in Section 6.7.5 of this Chapter. Pathways for effect were identified for the following sites which are further considered in the NIS and associated volumes prepared for the Proposed Project:

- Lower River Shannon SAC [002165]
- Blackwater River (Cork/Waterford) SAC [002170]
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]

The Proposed Offsetting Lands are located adjacent to and minorly overlap with Mount Eagle Bogs NHA [002449]. Pathways for effect on the NHA were identified which are further considered in Section 6.7.5 of this Biodiversity Chapter.

6.6 Description of the Existing Environment

6.6.1 Description of Habitats within the Site

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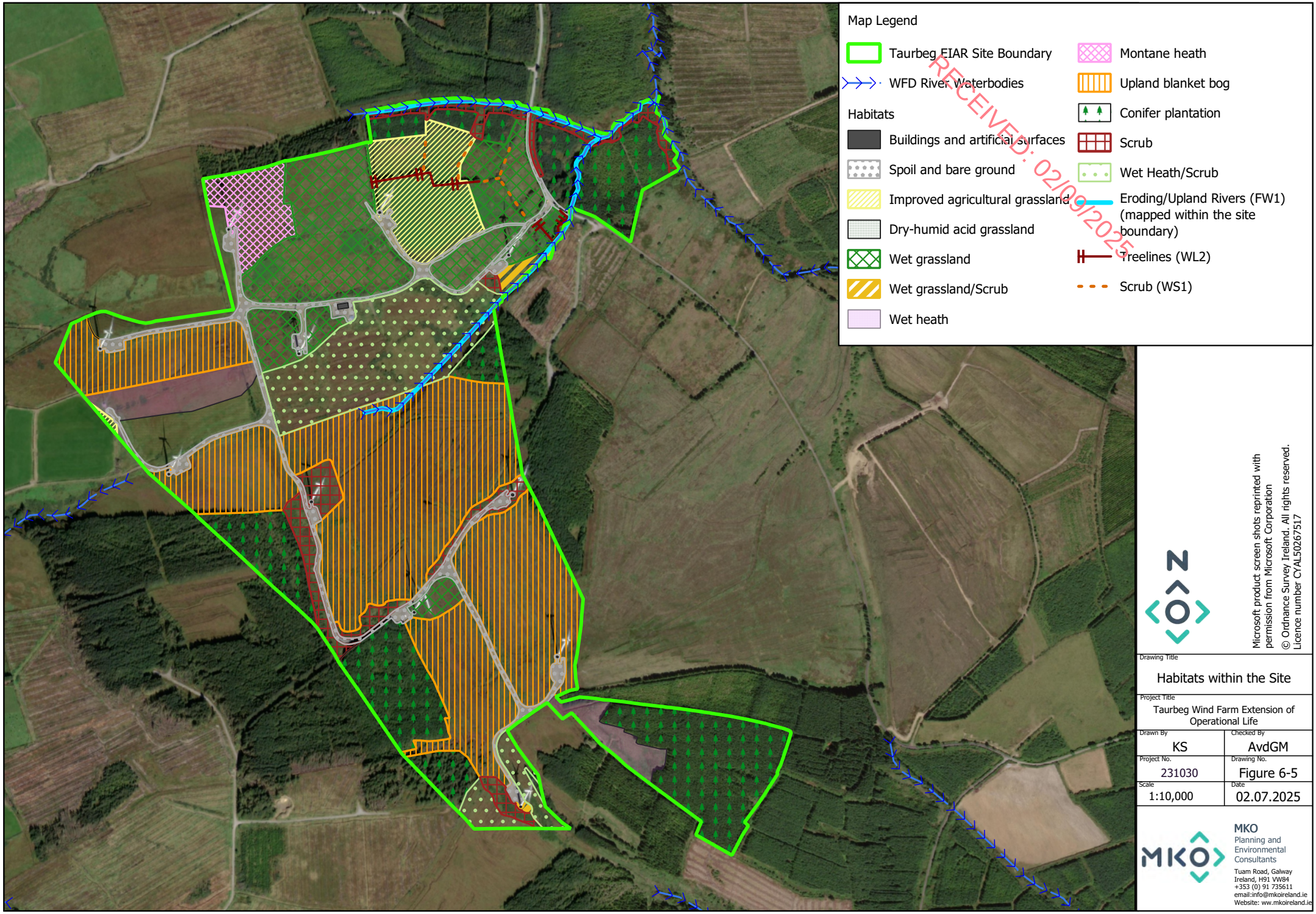
The habitat classifications and codes correspond to those described in '*A Guide to Habitats in Ireland*' (Fossitt 2000). A total of 15 habitats were recorded within the Site (Table 6-8). A habitat map of the Site is provided in Figure 6-5. The Site covers a total of approximately 112 hectares. Habitat mapping focused on areas in and around infrastructure within the Site.

Table 6-8 Habitats recorded within the Site

Habitat Name	Fossitt Code
Improved Agricultural Grassland	GA1
Wet grassland	GS4
Dry-humid Acid Grassland	GS3
Upland Blanket Bog	PB2
Wet Heath	HH3
Montane Heath	HH4
Conifer Plantation	WD4
Spoil and Bare Ground	ED2
Scrub*	WS1
Treeline	WL2
Wet Grassland/Scrub	GS4/WS1
Wet Heath/Scrub	HH3/WS1
Eroding/Upland rivers	FW1
Drainage Ditches*	FW4
Buildings and Artificial Surfaces	BL3
Improved Agricultural Grassland	GA1

** these habitats were not fully mapped as they are ubiquitous throughout the Site and frequently formed habitat mosaics.*


Map Legend
Taurbeg EIAR Site Boundary
WFD River Waterbodies
Habitats
Buildings and artificial surfaces
Spoil and bare ground
Improved agricultural grassland
Dry-humid acid grassland
Wet grassland
Wet grassland/Scrub
Wet heath
Montane heath
Upland blanket bog
Conifer plantation
Scrub
Wet Heath/Scrub
Eroding/Upland Rivers (FW1) (mapped within the site boundary)
Treelines (WL2)
Scrub (WS1)
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Drawing Title
Habitats within the Site
Project Title
Taurbeg Wind Farm Extension of Operational Life
Drawn By
KS
Checked By
AvdGM
Project No.
231030
Drawing No.
Figure 6-5
Scale
1:10,000
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02.07.2025
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6.6.1.1 Improved Agricultural grassland (GA1)

Areas of **Improved Agricultural grassland (GA1)** were recorded predominantly in the northern section of the Site, with a small area also present within the northwestern area of the Site. These improved agricultural grasslands are generally species poor consisting predominantly of perennial rye grass (*Lolium perenne*) and other commonly occurring species such as broad-leaved dock (*Rumex obtusifolius*), dandelion (*Taraxacum officinale agg*), creeping buttercup (*Ranunculus repens*), yorkshire fog (*Holcus lanatus*), and white clover (*Trifolium repens*). Plate 6-1 shows a representative image of this habitat throughout the Site.

Plate 6-1 Representative image of Improved Agricultural Grassland (GA1) within the Site.

6.6.1.2 Wet Grassland (GS4)

Wet Grassland (GS4) habitats were commonly present throughout the northern section of the site, being recorded in the areas adjacent to Turbine 2, 5, 6 & 7. Additionally, a small area of Wet grassland was present in the southern section of site, adjacent to Turbine 10. These areas tended to be dominated by the following plant species; soft rush (*Juncus effusus*), creeping buttercup (*Ranunculus repens*), broad-leaved dock (*Rumex obtusifolius*), yorkshire fog (*Holcus lanatus*), common sorrel (*Rumex acetosa*), creeping bent grass (*Agrostis stolonifera*), and perennial ryegrass (*Lolium perenne*). Other species also occurring within these grasslands include jointed rush (*Juncus articulatus*), white clover (*Trifolium repens),* marsh thistle (*Cirsium palustre*), tormentil (*Potentilla erecta*), sweet vernal grass (*Anthoxanthum odoratum*), common chickweed (*Stellaria media*), creeping thistle (*Cirsium arvense*), and spear thistle (*Cirsium vulgare*). The following sedges were also recorded within wet grassland habitats: star sedge (*Carex echinata*), oval sedge (*Carex leporina*), and carnation sedge (*Carex panicea*). Plate 6-2 shows a representative image of this habitat throughout the Site.

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Plate 6-2 Representative image of Wet Grassland (GS4) within the Site.

6.6.1.3 Dry-humid acid grassland (GS3)

The habitat **Dry-humid acid grassland (GS3)** was recorded in the northwestern section of the site, on the northern side of T8. This area was composed of species including sweet vernal grass (*Anthoxanthum odoratum*), wavy hair grass (*Deschampsia flexuosa*), yorkshire fog (*Holcus lanatus*), jointed rush (*Juncus articulatus*), tormentil (*Potentilla erecta*), common cotton grass (*Eriiophorum angustifolium*), common haircap moss (*Polytrichum commune*), heath rush (*Juncus squarrosus*), heath bedstraw (*Galium saxatile*), heath woodrush (*Luzula multiflora agg.*), great wood rush (*Luzula sylvatica*), red bog-moss (*Sphagnum cappillifoillium)*, soft rush (*Juncus effusus*), common sedge (*Carex nigra*), cats ear (*Hypochaeria radicata*), devil's bit (*Succisa pratensis*), lousewort (*Pedicularis sylvatica), Pleurozium schreberi*, common sorrel (*Rumex acetosa*), springy turf-moss (*Rhytidiadelphus squarrosus*), pointed spear-moss (*Calliergonella cuspidata*), star sedge (*Carex echinata*), flat-topped bog moss (*Sphagnum fallax*), carnation sedge (*Carex panacea*), red fescue (*Fectuca rubra*). Plate 6-3 shows a representative image of this habitat throughout the Site.

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Plate 6-3 Representative image of Dry-humid acid grassland (GS3) within the Site

6.6.1.4 Upland blanket bog (PB2)

Large sections of the central and southern areas of the Site have been classified as **Upland blanket bog (PB2)**. Site infrastructure adjacent to these habitats include T1, T8, T9, T10, T11, in addition to gravel roadways constructed within the site.

Common species recorded within the sites upland blanket bog habitats include tormentil (*Potentilla erecta*), ling heather (*Erica cinerea*), hares tail cottongrass (*Eriophorum vaginatum*), cross-leaved heath (*Erica tetralix*), bilberry (*Vaccinium myrtillus*), cladonia spp., wooly fringe-moss (*Racomitrium lanuginosum),* red bog-moss (*Sphagnum capillifolium*), heath rush (*Juncus squarrosus*), common cotton grass (*Eriophorum angustifolium*), wavy hair grass (*Deschampsia flexuosa*), springy turf-moss (*Rhytidiadelphus squarrosus*), red-stemmed feather-moss (*Pleurozium schreberi*), heath plait-moss (*Hypnum jutlandicum*), sweet vernal grass (*Anthoxanthum odoratum*), purple moor grass (*Molinia caerulea*), and western gorse (*Ulex galli*). Plate 6-4 shows a representative image of this habitat throughout the Site.

Additionally, in the bog habitat to the southeast of T8, sitka spruce (*Picea sitchensis*) had spread from the adjacent conifer plantation and saplings were abundant here.

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Plate 6-4 Representative image of Upland blanket bog (PB2) within the Site

6.6.1.5 Wet Heath (HH3)

Wet Heath (HH3) habitat was recorded in two locations within the site boundary: between T3 and T8 in the northwestern section of the site, and south of T11 in the southeastern section of the site. Plate 6-5 shows a representative image of this habitat throughout the Site.

Plant species commonly recorded within these habitats included purple moor grass (*Molinia caerulea*), hares tail cotton grass (*Eriophorum vaginatum*), tormentil (*Potentilla erecta*), heath milkwort (*Polygala serpyllifolia*), bilberry (*Vaccinium myrtillus*), common cotton grass (*Eriophorum angustifolium*), ling heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), sweet vernal grass (*Anthoxanthum odoratum*), soft rush (*Juncus effusus*), deergrass (*Trichophorum germanicum*), heath wood rush (*Luzula multiflora agg.*), heath rush (*Juncus squarrosus*). The following bryophytes were also abundant throughout the wet heath habitats on site; little shaggy-moss (*Rhytidiadelphus loreus*), bog groove-moss (*Aulacomnium palustre*), heath plait-moss (*Hypnum jutlandicum*), blunt-leaved bog-moss (*Sphagnum palustre*), red bog-moss (*Sphagnum capillifolium*), common haircap moss (*Polytrichum commune*).


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Plate 6-5 Representative image of Wet Heath (HH3) within the Site

6.6.1.6 Montane Heath (HH4)

An area of **Montane Heath (HH4)** was recorded in the northern section of the site to the north of T5. Plate 6-6 shows a representative image of this habitat throughout the Site.

This area of Montane Heath featured the following species: purple moor grass (Molinia caerulea), wavy hair grass (*Deschampsia flexuosa*), ling heather (*Erica cinerea*), tormentil (*Potentilla erecta*), sweet vernal grass (*Anthoxanthum odoratum*), bilberry (*Vaccinium myrtillus*), hares tail cotton grass (*Eriophorum vaginatum*), viviparous fescue (*Festuca vivipara*), heath wood rush (*Luzula multiflora agg.*), star sedge (*Carex echinita*), heath rush (*Juncus squarrosus*), common sedge (*Carex nigra*), great woodrush (*Luzula sylvatica*). The following bryophytes were also abundant throughout the montane heath habitats on site; red-stemmed feather-moss (*Pleurozium schreberi*), little shaggy-moss (*Rhytidiadelphus loreus*), and common haircap moss (*Polytrichum commune*).

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Plate 6-6 Representative image of Montane Heath (HH4) within the Site

6.6.1.7 Conifer Plantation (WD4)

Areas within the Site comprise different stages of **Coniferous Plantation (WD4)** forestry including recent clear-fell, second rotation, immature, semi-mature and mature forestry. These plantations are comprised of Sitka spruce (*Picea sitchensis).* Given the nature of such densely planted coniferous plantations, few other woody plant species occur. These plantations are found in the south, west and northeastern sections of the site. Plate 6-7 shows a representative image of this habitat throughout the Site.

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Plate 6-7 Representative image of Conifer Plantation (WD4) within the Site.

6.6.1.8 Eroding/upland river (FW1)

Three watercourses which were classified as **Eroding/upland rivers (FW1)** flow through/along the site boundary the northeast of the site. Watercourses within and downstream of the Site are also described within Appendix 6-2.

The Knockahorrea_East stream (EPA Code: 23K33) flows through the northeastern section site, before it merges with the Taurbeg (EPA Code: 23T26) and Glennaknockane (EPA Code: 23G62) streams which together form a tributary of the River Feale (EPA Code: 23F01).

The Knockahorrea_East stream is boulder-cobble dominated with gravel also present. The watercourse is 1.5m wide, with a left-hand bank (LHB) height of 6 metres high and a right-hand bank (RHB) height of 12m. The LHB features wet grassland habitat (GS4) and a mosaic of wet grassland (GS4)/scrub (WS1), while the RHB is dominated by an immature plantation of sitka spruce (*Picea sitchensis*). At the time of the surveys the watercourse the flow was fast, with high water clarity, and had an approx. depth of 10-30cm. Plate 6-8 shows the Knockahorrea_East stream flowing in an easterly direction near the entrance to the existing Taurbeg Windfarm.

The Glennaknockane stream (EPA Code: 23G62) is a small stream that flows east along the northern boundary of the site. The stream flows through conifer plantations, before crossing beneath a local roadway which leads to the entrance of the existing Taurbeg Windfarm. It then continues flowing east for approx. 160m where it merges with the The Knockahorrea_East stream.

The Taurbeg stream (EPA Code: 23T26) flows north along a short section of the northeastern site boundary before it merges with the aforementioned Knockahorrea_East and Glennaknockane streams in the northeastern section of the Site.

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Plate 6-8 Knockahorrea_East stream, an Eroding/ upland river (FW1), flowing through the Site in an easterly direction.

6.6.1.9 Drainage Ditches (FW4)

Historical drainage ditches were present along field boundaries and throughout areas of previously cut peatland within the site boundary. These were typically grown in with scrub, heath, and bogland vegetation. Additionally, drainage ditches were recorded along the edges of, and through forestry plantations located within the site boundary, as seen below in Plate 6-9.

Plate 6-9 Drainage Ditch (FW4) running through conifer forestry within the Site.

6.6.1.10 Treelines (WL2)

There are a small number of **Treelines (WL2)** present within the northeastern section of the site comprised of Horse chestnut (*Aesculus hippocastanum*), hawthorn (*Crataegus monogyna*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), grey willow (*Salix cinerea*), and cherry laurel (*Prunus laurocerasus*). A sitka spruce (*Picea sitchensis*) treeline is located to the north of T6, and forms part of a field boundary within the aforementioned **Improved agricultural grassland (GA1)** on the northern area of the site (Table 6-8).

Plate 6-10 Sitka spruce (Picea sitchensis) Treeline (WL2) located within the north of the Site.

6.6.1.11 Scrub (WS1)

Scrub (WS1) habitat was found throughout the site alongside the gravel roadways and adjacent to the T10 and T12. Additionally, scrub was recorded forming the boundaries between the fields in the northern section of the Site which were classified as **improved agricultural grassland (GA1)**. Common species within these areas of scrub included brambles (*Rubus fruticosus agg.*), gorse (*Ulex europaeus*), hawthorn (*Crataegus monogyna*), bracken (*Pteridium aquilinum*), and willow (*Salix spp.*). Scrub was also recorded as part of habitat mosaics which were present within the site boundary, and these are discussed below in Section 6.6.1.12 & Section 6.6.1.13. Plate 6-11 shows a representative image of this habitat throughout the Site.

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Plate 6-11 Representative image of Scrub (WS1) within the Site.

6.6.1.12 Wet Grassland (GS4)/Scrub (WS1)

Wet grassland (GS4)/Scrub (WS1) was recorded in two locations within the site boundary during the surveys. Sections of the LHB of the Knockahorrea_East River in the northeast of the site, in addition to the area to the east, west and south of T10, located to the south of the Site, were both classified as **Wet grassland (GS4)/Scrub (WS1)** habitat mosaics. Plate 6-12 represents wet grassland/ scrub habitat mosaic located at T10.

Species recorded within these habitat mosaics included sweet vernal grass (*Anthoxanthum odoratum*), yorkshire fog (*Holcus lanatus*), hares tail cottongrass (*Eriophorum vaginatum*), soft rush (*Juncus effusus*), glaucous sedge (*Carex flacca*), butterbur (*Petasites hybridus*), marsh thistle (*Cirsium palustre*), common sorrel (*Rumex acetosa*), meadow buttercup (*Ranunculus acris*), willowherb (*Epilobium sp.*), rough meadow grass (*Poa trivialis*), carnation sedge (*Carex panicea*), cow parsley (*Anthriscus sylvestris*), oval sedge (*Carex leporina*), bedstraw sp. (*Galium sp.*), fireweed (*Chamaenerion angustifolium*), and dense areas of grey willow (*Salix cinerea*).

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Plate 6-12 Representative image of Wet grassland (GS4)/ Scrub (WS1) mosaic within the Site

6.6.1.13 Wet Heath (HH3)/Scrub (WS1)

An area to the south/east of T2 has been classified as a mosaic of **Wet heath (HH3)/Scrub (WS1).** This habitat represents a degraded Annex I habitat with significant scrub encroachment. The common wet heath species recorded within this habitat mosaic included hares tail cotton grass (*Eriophorum vaginatum*), tormentil (*Potentilla erecta*), heath milkwort (*Polygala serpyllifolia*), bilberry (*Vaccinium myrtillus*), common cotton grass (*Eriophorum angustifolium*), ling heather (*Erica cinerea*), cross-leaved heath (*Erica tetralix*), sweet vernal grass (*Anthoxanthum odoratum*), soft rush (*Juncus effusus*), wavy hair grass (*Deschampsia flexuosa*). In addition to the above species, scrub species such as brambles (*Rubus fruticosus agg.*), grey willow (*Salix cinerea*), eared willow (*Salix aurita*), and gorse (*Ulex europaeus*) dominated areas creating a habitat mosaic.

6.6.1.14 Spoil and bare ground (ED2)

The roads running throughout the wind farm, in addition to the clearings adjacent to the wind turbines themselves are comprised of large gravels and are classified as **Spoil and bare ground (ED2)**. An example of this is seen in Plate 6-13 below.

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Plate 6-13 Representative image of Spoil and bare ground (ED2) within the Site.

6.6.1.15 Buildings and Artificial Surfaces (BL3)

There is a pre-existing building located within the Site, which is part of the previously constructed wind farm. This building, and the surrounding hardstand, are classified as buildings and artificial surfaces (BL3) (**Error! Reference source not found.**). Additionally, the turbines themselves are also classified as buildings and artificial surfaces (BL3).

Plate 6-14 Representative image of Buildings and artificial surfaces (BL3) within the Site.

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6.6.2 Description of Habitats within the Proposed Offsetting Lands.

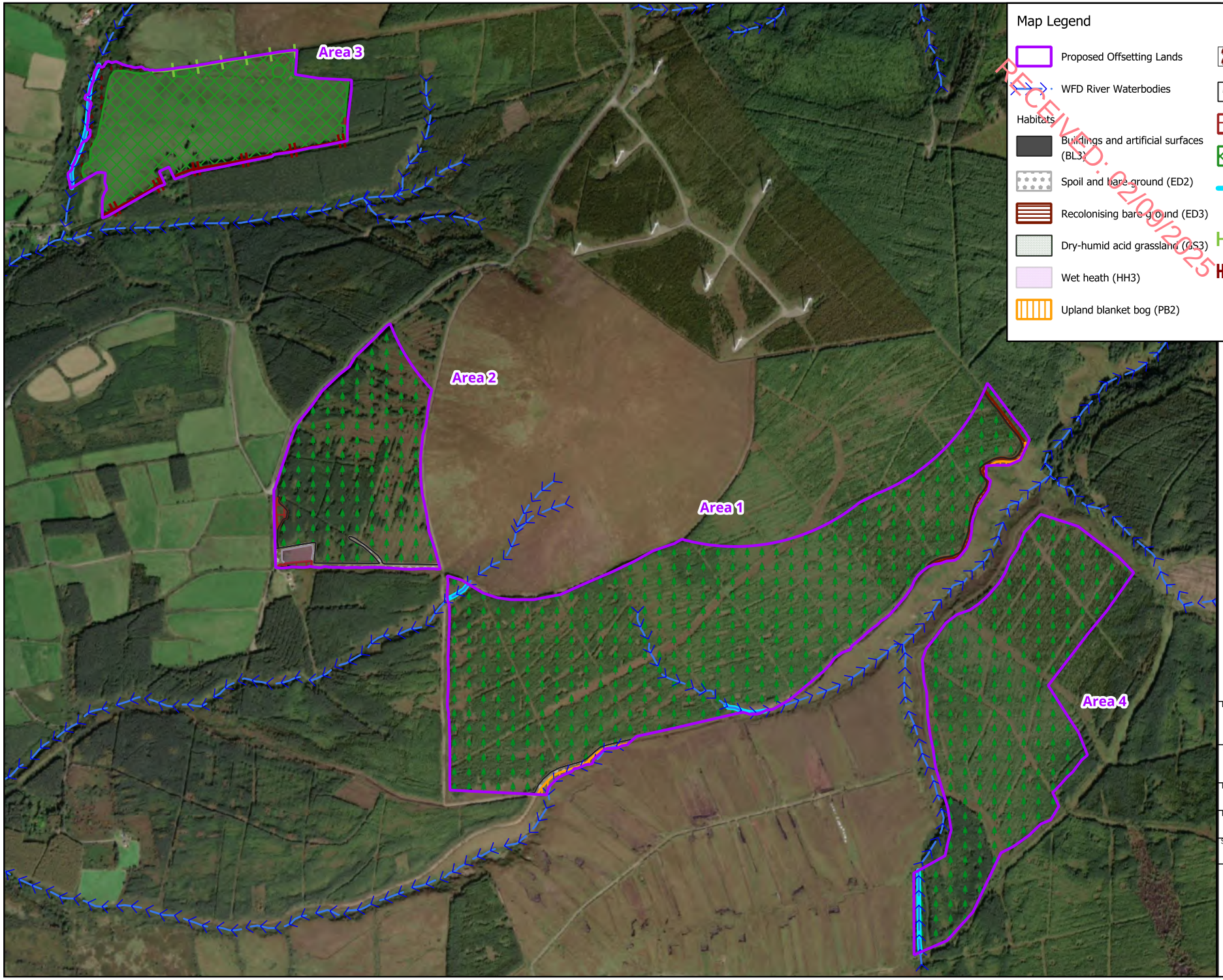
The habitat classifications and codes correspond to those described in '*A Guide to Habitats in Ireland*' (Fossitt, 2000). A total of 14 habitats were recorded within the Proposed Offsetting Lands (Table 6-9). A habitat map of the Proposed Offsetting Lands is provided in Figure 6-6. The Proposed Offsetting Lands cover a total of approximately 123.2 hectares.

As shown in Figure 6-6, the Proposed Offsetting Lands are divided into 4 areas, referred to as Area 1, Area 2, Area 3 and Area 4. Areas 1, 2 and 4 are dominated by Conifer Plantation (WD4) habitat. Other habitats such as Upland Blanket Bog and Wet Heath are located in small proportions and along the margins of Areas 1, 2 and 4. Area 3 is dominated by wet grassland (GS4) habitat with an area of (Mixed) broadleaved woodland (WD1) present within the western end. Other habitats such as hedgerows (WL1) and treelines (WL2) are present along the periphery of Area 3.

Table 6-9 Habitats recorded in the Proposed Offsetting Lands

Habitat Name	Fossitt Code
Conifer Plantation	WD4
Upland Blanket Bog	PB2
Wet Heath	HH3
Spoil and Bare Ground	ED2
Recolonising Bare Ground	ED3
Scrub*	WS1
Wet grassland	GS4
Dry-humid Acid Grassland	GS3
Buildings and Artificial Surfaces	BL3
Eroding/Upland rivers	FW1
Drainage Ditches*	FW4
(Mixed) Broadleaved Woodland	WD1
Hedgerow	WL1
Treeline	WL2

** these habitats were not fully mapped as they are ubiquitous throughout the Proposed Offsetting Lands and largely associated with forestry, forestry boundaries, farm tracks, field margins, road margins and field boundaries*



Drawing Title
Habitats within the Proposed Offsetting Lands

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
NR	AvdGM
Project No.	Drawing No.
231030	Figure 6-6
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6.6.2.1 Conifer Plantation (WD4)

A proportion of the Proposed Offsetting Lands, primarily in Area 2 and the southern section of Area 4, are comprised of dense conifer plantations, with sitka spruce (*Pichea sitchensis*) dominating these areas. There is little understory growth within the densely planted blocks of forestry within the site, as fallen pine needles form a thick blanket over continuous areas. Tamarisk moss (*Thuidium tamariscinum*) is one of the only species found growing in these locations.

Gaps in these dense plantations come in the form of access paths and fire breaks allowing light and in turn more plant growth in some sections. Species commonly recorded included hard fern (*Blechnum spicant*), herb robert (*Geranium robertianum*), brambles (*Rubus fruticosus agg.*), common haircap moss (*Polytrichum commune*), holly (*Ilex aquifolium*), and willow (*Salix spp.*). Plate 6-15 shows a representative image of this habitat throughout the Proposed Offsetting Lands.

Plate 6-15 Representative of Conifer Plantation (WD4) within the Proposed Offsetting Lands.

Throughout the Proposed Offsetting Lands there were also areas of conifer plantations which did not take well to the wet, peaty soils resulting in patchy areas of established conifer plantations and areas of failed forestry. The areas of failed forestry and the fire breaks present within Areas 1, 2 and 4 of the Proposed Offsetting Lands were composed of remnant vegetation typical of upland blanket bog and wet heath habitats (Plate 6-16, Plate 6-17).

These areas of failed forestry and firebreaks within the conifer plantation (WD4) with vegetation that resembled upland blanket bog were dominated by species including purple moor grass (*Molinia caerulea*), ling heather (*Calluna vulgaris*), with abundant bilberry (*Vaccinium myrtillus*), common haircap moss (*Polytrichum commune*), red bogmoss (*Sphagnum capillifolium*), little shaggy moss (*Rhytidiadelphus loreus*), red peat moss (*Sphagnum rubellum*), cross leaved heath (*Erica tetralix*), and deer grass (*Trichophorum cespitosum*). The following species were frequently recorded: mountain fern moss (*Hylocomium spendens*), hare's tail cottongrass (*Eriophorum vaginatum*), little shaggy moss (*Rhytidiadelphus loreus*), springy turf moss (*Rhytidiadelphus squarossus*), broom forkmoss (*Dicranum scoparium*), devils' bit scabious (*Succisa pratensis*), common cotton grass (*Eriophorum angustifolium*),

bog groove-moss (*Aulocomnium palustre*), *Cladonia* sp., big red stem moss (*Pleurozium schreberi*), *Saccogyna* sp. and heath star moss (*Campylopus introflexus*). Species including tormentil (*Potentilla erecta*), heath plait-moss (*Hypnum jutlandicum*), glaucous sedge (*Carex flacca*), carnation sedge (*Carex panicea*), fringed bogmoss (*Sphagnum fibriatum*), *Mylia* sp., Soft bog-moss (*Sphagnum tenellum*), cow-horn bog moss (*Sphagnum denticulatum*), and greater wood rush (*Lyzula sylvatica*) were occasionally recorded.

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Plate 6-16 Representative picture of conifer plantation firebreaks with remnant vegetation characteristic of Upland Blanket Bog.

These areas of failed forestry and firebreaks within the conifer plantation (WD4) with vegetation that best resembled wet heath were dominated by species including purple moor grass (*Molinia caerulea*), ling heather (*Calluna vulgaris*), with abundant bilberry (*Vaccinium myrtillus*), common haircap moss (*Polytrichum commune*), red bogmoss (*Sphagnum capillifolium*), red peat moss (*Sphagnum rubellum*) and papillose peatmoss (*Sphagnum papillosum*). The following species were frequently recorded: hare's tail cottongrass (*Eriophorum vaginatum*), common cotton grass (*Eriophorum angustifolium*), bilberry (*Vaccinium myrtillus*), cross leaved heath (*Erica tetralix*), deer grass (*Trichophorum cespitosum*) and heath star moss (*Campylopus introflexus*). Species including scaly male fern (*Dryopteris affinis*), tormentil (*Potentilla erecta*), heath rush (*Juncus squarrosus*), heath plait-moss (*Hypnum jutlandicum*), glaucous sedge (*Carex flacca*), carnation sedge (*Carex panicea*), little shaggy moss (*Rhytidiadelphus loreus*), fringed bogmoss (*Sphagnum fibriatum*), mountain fern moss (*Hylocomium spendens*), Soft bog-moss (*Sphagnum tenellum*), cow-horn bog moss (*Sphagnum denticulatum*), *Scapania gracilis* and *Diplophyllum albicans* were occasionally recorded.

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Plate 6-17 Representative picture of conifer plantation area of failed forestry with remnant vegetation characteristic of Wet Heath.

6.6.2.2 Upland Blanket Bog (PB2)

A small section (approx. 0.345ha) of upland blanket bog (PB2) is located just within the southern boundary of Area 1 of the Proposed Offsetting Lands. This habitat consisted of species consistent to those mentioned in relation to remnant upland blanket bog vegetation in Section 6.6.2.1.1 above. No works are proposed within this habitat.

Plate 6-18 Representative picture of Upland Blanket Bog (PB2) habitat located within the southern most point of Area 1 of the Proposed Offsetting Lands and separated from the conifer plantation habitat by a heavily vegetated forestry track.

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6.6.2.3 Wet Heath (HH3)

A small section (approx. 0.287ha) of isolated wet heath (HH3) is located within the southwest of Area 2 of the Proposed Offsetting Lands. This area was not planted and is isolated from the conifer plantation by a fence. Typical species include ling heather (*Calluna vulgaris*), cross-leaved heath (*Erica tetralix*), purple moor grass (*Molinia caerulea*), hard fern (*Blechnum spicant*), bramble (*Rubus fruticosus agg.*), *Hypnum jutlandicum*, tormentil (*Potentilla erecta*), broad buckler-fern (*Dryopteris dilitata*), heath bedstraw (*Galium saxatile*), common feather-moss (*Kindbergia* praelonga) and bilberry (*Vaccinium myrtillus*). European gorse (*Ulex europaeus*) was abundant on the southern border of this habitat adjoining scrub habitat.

Plate 6-19 Representative picture of Wet Heath (HH3) located within the southwest corner of Area 2 of the Proposed Offsetting Lands.

6.6.2.4 Spoil and bare ground (ED2)

Gravel forestry roads ran through the Proposed Offsetting Lands, often at the boundaries of the individual areas. Spoil heaps resulting from extraction were located within Area 2 and featured varying levels of plant growth. Areas which lacked substantial plant growth were classified as spoil and bare ground (ED2). Plate 6-20 shows a representative image of this habitat within the Proposed Offsetting Lands.

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Plate 6-20 Representative of Spoil and Bare Ground (ED2) within the Proposed Offsetting Lands.

6.6.2.5 Recolonising bare round (ED3)

Gravel forestry roads which ran along the perimeters of Areas 1, 2 and 4 of the Proposed Offsetting Lands featured varying levels of plant growth. Areas with substantial recolonisation were classified as recolonising bare ground (ED3) (Plate 6-21), with common species recorded including brambles (*Rubus fruticosus agg.*), ling heather (*Calluna vulgaris*), gorse (*Ulex europaeus*), lodgepole pine (*Pinus contorta*), common haircap moss (*Polytrichum commune*), foxgloves (*Digitalis purpurea*), common ragwort (*Jacobaea vulgaris*), bilberry (*Vaccinium myrtillus*), sitka spruce (*Picea sitchensis*), black bog rush (*Schoenus nigricans*), young willow saplings (*Salix sp.*), neat feather-moss (*Pseudoscleropodium purum*), springy turf-moss (*Rhytidiadelphus squarrosus*), and purple moor grass (*Moloinia caerulea*).

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Plate 6-21 Representative of Recolonising Bare Ground (ED3) within the Proposed Offsetting Lands.

6.6.2.6 Scrub (WS1)

Areas of scrub (WS1) are located on the southwest boundary of Area 2 of the Proposed Offsetting Lands. These areas were comprised of species including brambles (*Rubus fruticosus agg.*), gorse (*Ulex europaeus*), grey willow, and bracken (*Pteridium aquilinum*). Occasional areas dominated by brambles (*Rubus fruticosus agg.*), gorse (*Ulex europaeus*), and bracken (*Pteridium aquilinum*) which had species composition characteristic of scrub habitat were located within the conifer plantation. Plate 6-22 shows a representative image of this habitat on the southwest boundary of Area 2 of the Proposed Offsetting Lands.

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Plate 6-22 Representative of Scrub (WS1) on the southwest boundary of Area 2 of the Proposed Offsetting Lands.

6.6.2.7 Wet Grassland (GS4)

Area 3 of the Proposed Offsetting Lands is comprised primarily of an agricultural field classified as wet grassland (GS4), with common species including soft rush (*Juncus effusus*), creeping buttercup (*Ranunculus repens*), clover (*Trifolium sp.*), greater plantain (*Plantago major*), marsh thistle (*Cirsium palustre*), *Poa* sp., perennial rye (*Lolium perenne*), daisy (*Bellis perennis*), creeping bent (*Agrostis stolonifera*), yorkshire fog (*Holcus lanatus*), ragwort (*Jacobaea vulgaris*), creeping thistle (*Cirsium arvense*), rough-stalked feather-moss (*Brachythecium rutabulum*), and pointed spear-moss (*Calliergonella cuspidata*). The wet grassland was relatively species poor and displayed evidence of past improvement. Plate 6-23 shows a representative image of this habitat within the Proposed Offsetting Lands.

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Plate 6-23 Representative picture of Wet Grassland (GS4) within the Proposed Offsetting Lands.

6.6.2.8 Dry-humid Acid Grassland (GS3)

Small areas of Area 3 of the Proposed Offsetting Lands grade from wet grassland (described above) into dry-humid acid grassland (GS3). These areas are characterised by the presence of species including soft rush, common ragwort (*Jacobaea vulgaris*), common bent (*Agrostis capillaris*), sheep's fescue (*Festuca ovina*), green-ribbed sedge (*Carex binervis*), cat's-ear (*Hypochaeris radicata*), selfheal (*Prunella vulgaris*), glaucous sedge (*Carex flacca*), ribwort plantain (*Plantago lanceolata*), common smoothcap (*Atrichum undulatum*), common haircap moss (*Polytrichum commune*), common pocket moss (*Fisiden taxifolius*), springy turf moss (*Rhytidiadelphus squarossus*), common tamarisk-moss (*Thuidium tamariscinum*), and pointed spear-moss (*Calliergonella cuspidata*). Plate 6-24 shows a representative image of this habitat within the Proposed Offsetting Lands.

Plate 6-24 Representative picture of Dry-humid Acid Grassland (GS3) within the Proposed Offsetting Lands.

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6.6.2.9 (Mixed) broadleaved woodland (WD1)

An area of (Mixed) broadleaved woodland (WD1) is located to the western end of Area 3 of the Proposed Offsetting Lands, with species recorded including sycamore (*Acer pseudoplatanus*), hazel (*Corylus avellana*), ivy (*Hedera sp.*), willow (*Salix* sp,), creeping buttercup (*Ranunculus repens*), brambles (*Rubus fruticosus agg.*), hawthorn (*Crataegus monogyna*), male fern (*Dryopteris filx mas*), broad buckler-fern (*Dryopteris dilatata*), hard fern (*Blechnum spicant*), sedges (*Carex* sp.), common feather-moss (*Kindbergia* praelonga), herb robert (*Geranium robertum*), haircap mosses (*Polytrichum* sp.), Crisp pincushion moss (*Ulota crispa*), mountain fern moss (*Hylocomium spendens*), big shaggy-moss (*Rhytidiadelphus triquestrus*), *Pelia* sp., common pocket moss (*Fisiden taxifolius*), common tamarisk moss (*Thuiduim tamariscium*), flat-leaved scalewort (*Radula complanata*), common smoothcap (*Atrichum undulatum*), common striated feather-moss (*Eurhynchium striatum*), *Frulania* sp., and shining hookeria (*Hookeria lucens*). Sheep were able to gain access to this area of woodland from the adjacent field, and as a result the habitat was subject to grazing pressure.

Plate 6-25 Representative picture of (Mixed) broadleaved woodland (WD1) at the western boundary of Area 3 of the Proposed Offsetting Lands.

6.6.2.10 Hedgerows (WL1)

A hedgerow (WL1) comprised of bramble (*Rubus fruticosus agg.*), bracken (*Pteridium aquilinum*), gorse (*Ulex europaeus*) and willow (*Salix sp.*) was located along the northern boundary of Area 3 of the Proposed Offsetting Lands (Plate 6-26).


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Plate 6-26 Representative picture of the Hedgerow (WL1) located along the northern boundary of the Area 3 of the Proposed Offsetting Lands.

6.6.2.11 Treelines (WL2)

A treeline made up of alder, hazel and willow, with brambles (*Rubus fruticosus agg.*),, bracken (*Pteridium aquilinum*), gorse (*Ulex europaeus*), ivy (*Hedera sp.*) and dog rose (*Rosa canina*) was located along the south-western boundary of Area 3 of the Proposed Offsetting Lands (Plate 6-27). Additionally, there was one immature Lawson's cypress (*Chamaecyparis lawsoniana*) also present within the treeline. Along the southeastern boundary of Area 3 of the Proposed Offsetting Lands there was treeline comprised exclusively of sitka spruce (*Picea sitchensis*) (Plate 6-28).

Plate 6-27 Treeline (WL2) located along the south-western boundary of Area 3 of the Proposed Offsetting Lands.


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Plate 6-28 Sitka spruce treeline (WL2) located along the south-eastern boundary of Area 3 of the Proposed Offsetting Lands

6.6.2.12 Eroding/upland Rivers (FW1)

A number of watercourses passed through and adjacent to the boundaries of the Proposed Offsetting Lands, all of which were classified as eroding/upland rivers (FW1).

These watercourses include the Fulacht Fia Coom (EPA_Code: 22F41), two unnamed tributaries of the Tooreennascarty River (EPA_Code: 23T23), and the Knockatee_22 River (EPA_Code: 22K83).

The Fulacht Fia Coom is an eroding/upland (FW1) watercourse, the substrate of which is dominated by bedrock with areas of boulder-cobble substrate also common and gravels within pool sections. The watercourse is approx. 1m wide, with a left-hand bank (LHB) and right-hand bank (RHB) height of approx. 8 metres. Remnant wet heath vegetation dominates the riverbanks and surrounding area before grading into conifer plantation (WD4). Common species recorded growing on the banks of the Fulacht Fia Coom included ling heather (*Calluna vulgaris*), purple moor grass (*Molinia caerulea*), hard fern (*Blechnum spicant*), bracken (*Pteridium aquilinum*), common haircap moss, gorse (*Ulex europaeus*), and great woodrush (*Luzula sylvatica*). At the time of the surveys the watercourse the flow was slow, with high water clarity, and had an approx. depth of 5-8cm. Plate 6-29 shows the Fulacht Fia Coom stream flowing in a south-westerly direction.

The EPA mapped source of the northern of the two unnamed tributaries of the Tooreenascarty River was located within an area of conifer plantation (WD4) in Area 1 of the Proposed Offsetting Lands. However, this tributary rises further south than mapped on the EPA, likely due to it being altered historically. The ground truth extent of each watercourse's extent within the Proposed Offsetting Lands is presented within Figure 6-6. This the northern of the two unnamed tributaries of the Tooreenascarty River flowed in a south-easterly direction before leaving the boundary of the Proposed Offsetting Lands. Immediately downstream of the blocks of conifer plantation, the watercourse flowed across the surface of the peat in an area of upland blanket bog (PB2), with ling heather (*Calluna vulgaris*), purple moor grass (*Molinia caerulea*), grey willow (*Salix cinerea*), hard fern (*Blechnum spicant*), deer grass (*Trichophorum germanicum*), cross-leaved heath (*Erica tetralix*), red peat moss (*Sphagnum rubellum*),

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and *Cladonia* sp. within and surrounding the streamflow. Further downstream, outside the boundary of the Proposed Offsetting Lands, the watercourse was classified as an eroding/upland river (FW1). The substrate of this section of the watercourse was dominated by cobbles, with bedrock and gravels also making up significant portions of the channel bed. Flow types within the channel at the survey location consisted of a riffle-glide sequence, with small chutes also present in a section where boulders were present. The watercourse is approx. 1.5m wide, with a left-hand bank (LHB) and right-hand bank (RHB) height both ranging from approx. 1-1.5 metres. Both banks of the river were dominated by upland blanket bog (PB2), with small areas of scrub (WS1) and wet heath (HH3) also present. At the time of the surveys the flow was moderate, with high water clarity, no siltation, and had an approx. depth of 15cm. The southern of the two unnamed tributaries of the Tooreenascarty River (Plate 6-31) flowed through the western boundary of Area 4, continuing to flow alongside Area 4 before converging with the northern of the two tributaries.

The Knockatee River is an eroding/upland river (FW1) which flows along the western boundary of Area 1 of the Proposed Offsetting Lands. The left-hand bank is dominated by an area of (Mixed) broadleaved woodland (WD1) as described above. The right-hand bank also featured (Mixed) broadleaved woodland (WD1), in addition to wet grassland (GS4).

In addition to the above watercourse, the Cloone (Shanowen), watercourse is mapped by the EPA as rising directly adjacent to the southern boundary of Area 1 of the Proposed Offsetting Lands. However, this watercourse was not present along this area of the Proposed Offsetting Lands and likely rises further west along it's EPA mapped route.

Plate 6-29 Representative picture of the Fulacht Fia Coom (Eroding/Upland Rivers (FW1)) within and looking downstream of the Proposed Offsetting Lands.

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Plate 6-30 Representative picture of the unnamed tributary of the Tooreenascarty River (Eroding/Upland Rivers (FW1)) downstream of the Proposed Offsetting Lands.

Plate 6-31 Representative picture of the southern unnamed tributary of the Tooreenascarty River (Eroding/Upland Rivers (FW1)) flowing north along the boundary of Area 4 of the Proposed Offsetting Lands.

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6.6.2.13 Drainage Ditches (FW4)

Drainage ditches (FW4) were ubiquitous throughout the site and were commonly associated with forestry plantations, field boundaries and roadways. Plate 6-32 shows a representative image of this habitat throughout the Proposed Offsetting Lands.

Plate 6-32 Representative picture of Drainage Ditches (FW4) within the Proposed Offsetting Lands

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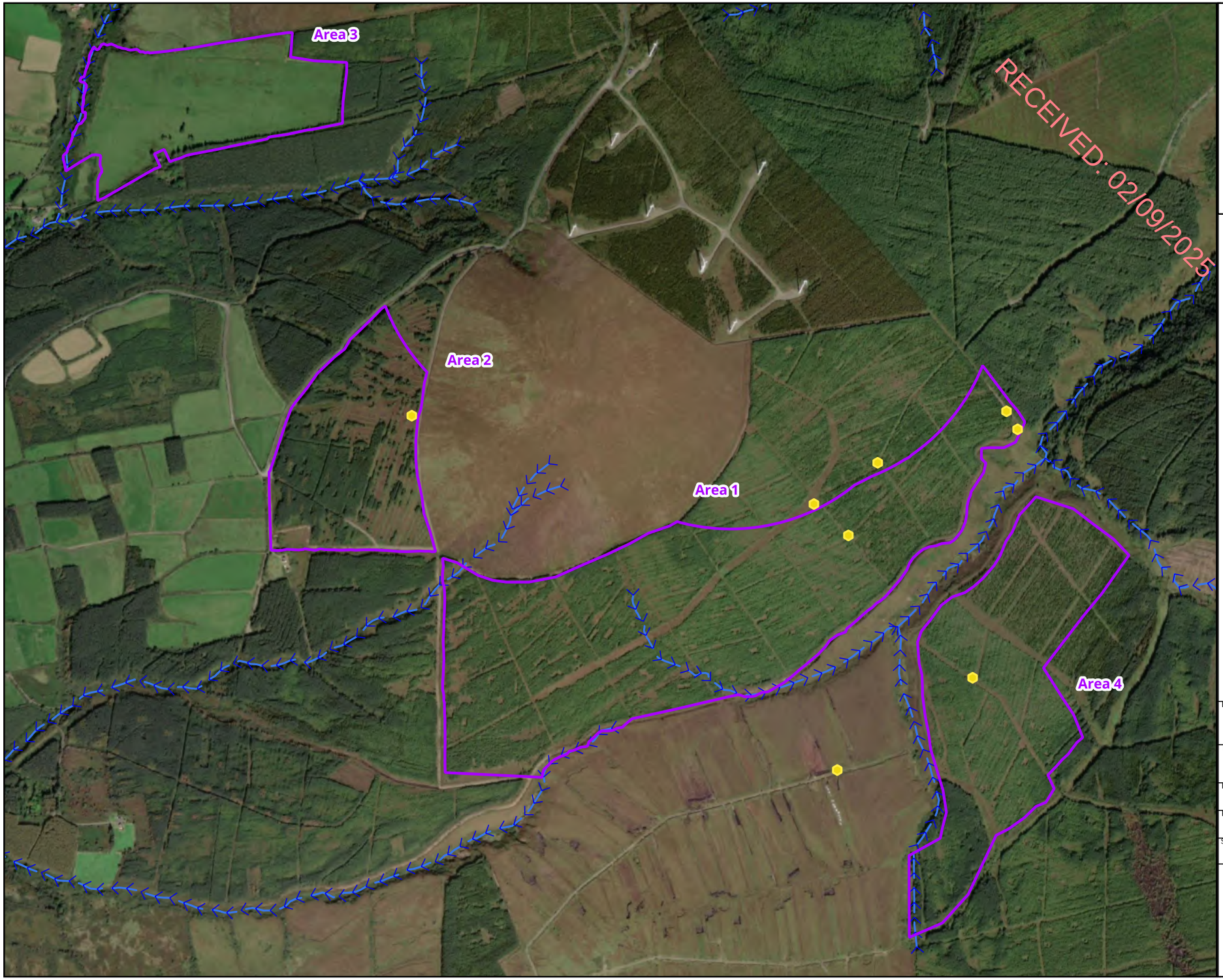
6.6.3 Invasive species

During field surveys, a search was conducted for Invasive Alien Species (IAS) listed on the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024) and Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). No First Schedule or Third Schedule Invasive Alien species were recorded within the Site during the survey conducted. The First Schedule and Third Schedule listed Invasive Alien plant species, *Rhododendron ponticum* was recorded within Areas 1, 2 and 4 of the Proposed Offsetting Lands (Plate 6-33). Recorded locations of *Rhododendron ponticum* within the Proposed Offsetting Lands are provided in Figure 6-7.

Plate 6-33 View of Rhododendron ponticum recorded within the Proposed Offsetting Lands.



Map Legend

- Proposed Offsetting Lands
- Rhododendron Records

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Drawing Title
Invasive species within the Proposed Offsetting Lands

Project Title
Taurbeg Wind Farm Extension of Operational Life

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6.6.4 Protected Flora

No botanical species listed under the Flora (Protection) Order 2022 (SI 235 of 2022), listed in the EU Habitats Directive (92/43/EEC) or listed in the Irish Red Data Books were recorded within the Site or the Proposed Offsetting Lands. All species recorded are common in the Irish landscape.

6.6.5 Fauna in the Existing Environment

The following subsections provide the results of the faunal surveys undertaken within the Site and the Proposed Offsetting Lands.

6.6.5.1 Bats

The results of the bat surveys are fully described in Section 4.3 of the Bat Survey Report included as Appendix 6-1 and are not repeated in full here. Surveys were carried out in 2024 in accordance with NatureScot, 2021. The bat survey results are summarized below.

6.6.5.1.1 *Bat Habitat Suitability Appraisal*

Existing Taurbeg Wind Farm (The Site)

Foraging and commuting habitat throughout the site ranged from Moderate Suitability (along mature treelines, mature forestry edges and scrub) to Low suitability (Areas of bogs, heaths, open habitats and isolated treeline may be used by a small number of bats and are not very well connected to the wider landscape).

A mature tree in close proximity to Turbine 7 presented a potential roost feature (PRF) suitable for a potential maternity roost (PRF-M). Aside from this roosting habitat ranged from Low roosting potential (i.e. the existing substation) to Negligible roosting potential (i.e. conifer plantation).

Proposed Offsetting Lands

Foraging and commuting habitat throughout the Proposed Offsetting Lands varied across the individual areas. Areas 1, 2 and 4 had moderate to high suitability commuting habitat and moderate foraging suitability due to the forestry boundary habitat and firebreaks throughout these areas. Foraging and commuting habitat within Area 3 of the Proposed Offsetting Lands ranged from low suitability (i.e. grassland habitats) to moderate-high suitability (i.e. broadleaved woodland and river on the western boundary).

Areas 1, 2 and 4 are assessed as proving negligible roosting suitability due to being comprised predominantly of conifer planation lacking appropriate roost features. No significant PRFs were identified within Area 3. A derelict building, outside the Proposed Offsetting Lands, located in close proximity to Area 3 was inspected during multidisciplinary walkover surveys of the Proposed Offsetting Lands, however, no signs of roosting bats were identified.

6.6.5.1.2 *Roost Surveys*

Existing Taurbeg Wind Farm (The Site)

Full details of Roost surveys undertaken in 2024 can be found in Section 4.3.2 of Appendix 6-1. A horse chestnut tree near Turbine 7 on the Site, the Substation of the Site and a derelict house within close proximity of Area 3 of the Proposed Offsetting Lands were inspected during roost surveys. The horse

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chestnut tree while containing PRF-M features did not show any signs of roosting activity. The derelict house was assessed as having low roosting potential and had no visible signs of roosting. While bat droppings were identified within cobwebs in the attic of the substation, no activity was recorded during an emergence survey of the building.

Proposed Offsetting Lands

No Roost survey was conducted within the Proposed Offsetting Lands as no potential roost features were identified within the Proposed Offsetting Lands.

6.6.5.1.3 *Manual Activity Surveys*

Full details of Manual activity surveys undertaken in 2024 can be found in section 4.3.3 of Appendix 6.1. Bat activity was recorded on all surveys, which included a dusk roost emergence and walked transect surveys. In general, common pipistrelle (n=50) was recorded most frequently, followed by soprano pipistrelle (n=13) and Leisler's bat (n=11). Three instances of *Myotis spp.* and one of brown long-eared bat were recorded. Overall activity levels were low across the manual activity surveys.

6.6.5.1.4 *Static Detector Surveys*

Full details of Static Detector Surveys undertaken in 2024 can be found in section 4.3.4 of Appendix 6.1

In total, 16,921 bat passes were recorded in 2024. Common pipistrelle (n=9,126) were the dominant species, followed by Leisler's bat (n=4,198) and *Myotis* spp. (n=1,255). Nathusius' pipistrelle (n=932), soprano pipistrelle (n=881) and brown long-eared bat (n=529) were less recorded. These Nathusius' pipistrelle records are outside of the species current known range (Article 17).

Bat activity was calculated as total Bat Passes Per Hour (bpph) of total recordings per season to account for any bias in survey effort, resulting from varying night lengths between seasons. Autumn presented the highest bat activity, followed by Spring and Summer. Species recorded at Site tended to differ in proportion and composition across the seasons. Nathusius' pipistrelles were recorded almost exclusively in Spring. The proportion of common pipistrelle and Leisler's bat activity tended to double in Autumn. *Myotis* spp. and soprano pipistrelles were recorded across all seasons in various proportions and brown long-eared bats passes were mostly observed in Autumn.

In 2024, survey at height took place on the met mast located west of the Site, in an open habitat approx. 250 away from the nearest forestry. In total, 149 nights of bat monitoring at ground level and 128 nights at height was achieved. A total of 349 bat passes were recorded by the SM3 and 2,553 by the SM4 bat detector. The bat activity was overall higher at ground level compared to activity at height. Species diversity was higher at ground level with 6 bats species (including *Myotis* spp.) recorded against 3 bat species at height. Leisler's bats passes (n=276) were predominantly recorded at height with small numbers of common pipistrelle (n=19) also present and rare soprano pipistrelle (n=3).

6.6.5.1.5 *Dog-led Collision Monitoring Surveys*

Monthly carcass searches for bats and birds were conducted within the Site between January 2024 and December 2024. No bat corpses were discovered over the survey period.

6.6.5.2 Badger

No signs of badger were recorded within the Site.

Signs of badger were recorded along the north-eastern boundary of Area 1 of the Proposed Offsetting Lands in the form of prints on a forestry track (Plate 6-34).

No other signs of badger were recorded within the Site or the Proposed Offsetting Lands.

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Plate 6-34 Badger prints located along the northern boundary of Area 1 of the Proposed Offsetting Lands.

6.6.5.3 Otter

Otter surveys were conducted on watercourses within the Site by MKO and at locations in the vicinity and downstream of the Site by Triturus. No signs of Otter (e.g. couches, slides, spraint, holts etc.) were recorded within or in the vicinity of the Site. Spraints were recorded downstream of the Site at survey points A4, C2 and D4 (Appendix 6-2). No breeding or resting areas were identified in the vicinity of any survey site during the surveys. It is likely that watercourses within the Site provide limited suitability to Otter due to their gradient, high energy and elevations above sea level. Please see Section 4, Appendix 6-2 for full details on each survey site and section 5.2, Appendix 6-2 for a discussion on otter findings.

Otter surveys were undertaken on the watercourses within and in the vicinity of the Proposed Offsetting Lands. No otter signs were recorded during surveys within and in the vicinity of the Proposed Offsetting Lands. Watercourses in the vicinity of the Proposed Offsetting lands may provide commuting and foraging potential, but provide limited holting opportunity due to their gradient, high energy and elevations above sea level.

6.6.5.4 Amphibians & Reptiles

No amphibians or reptiles were identified during the surveys conducted. However, frog spawn was frequently recorded within the drainage ditches at the edges of conifer plantations, as well as depressions within areas of the upland blanket bog and wet heath located within the boundary of the Site. No other evidence of amphibians or reptiles were recorded within the Site or the Proposed

Offsetting Lands. Wet areas including drains provide good habitat for amphibians throughout the Site and Proposed Offsetting Lands.

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6.6.5.5 Fisheries and Aquatic Fauna

The Site:

A detailed Aquatic Baseline Report has been prepared for the Site and detailed results of Fisheries and Aquatic Faunal surveys for the Site are provided in Section 4 of Appendix 6-2 of the EIAR.

A total of 4 fish species were recorded at the 14no. survey locations for electro-fishing, within and downstream of the Site. These species were Atlantic Salon, Brown Trout, Stone Loach and European Eel. Five of the 14no. survey locations did not support resident fish populations at the time of survey. These survey locations with no fish present at the time of survey were located in the upper reaches of the respective watercourses. Salmonids were recorded at 9 of the 14no. survey locations with Brown trout located at all 9 of these locations and Atlantic salmon located at 6 of these locations. European Eel was only recorded at survey location C2 (See Appendix 6-2 for survey locations) with the likely lack of European Eel records within and downstream of the Site being the spate/ high energy nature of the watercourses and distance to the sea.

All macroinvertebrates recorded during biological water quality monitoring surveys were of Least Concern, with no nationally red-listed species present at any survey location. Survey sites A2 (located on the northern boundary of the Site), and A3 (located downstream of the Site), both achieved a Q-value of Q4 (Good Status). All other survey locations (See Appendix 6-2 for survey locations) failed to achieve Q4 Good status.

eDNA surveys were undertaken at four locations downstream of the Site, with freshwater pearl mussel, white-clawed crayfish and crayfish plague all tested for. No eDNA for any of these three species was detected at any of the survey locations.

Proposed Offsetting Lands

Fisheries habitat assessment was carried out along watercourses within and adjacent to the Proposed Offsetting Lands. Overall low fisheries value was assigned to the Fulacht Fia Coom stream, due to it's highly steep nature, narrow channel and bedrock substrate.

The unnamed tributary of the Tooreennascarty River was surveyed downstream of the Proposed Offsetting Lands, north of Area 4 and South of Area 1. The tributary in this area had semi compacted cobble and gravels and bedrock substrate. Overall spawning habitat for salmonids was considered to be moderate-low due to the overall high proportions of bedrock and cobble but otherwise clean gravels. Nursery habitat for salmonids was considered to be moderate due to the abundant presence of riffle to glide habitat transition, deeper pool areas for refuge and some shaded sections. Holding habitat for salmonids was negligible-low due to the shallow and upland nature of the stream. Spawning habitat for lamprey was negligible due to the predominantly course and semi-compacted nature of the channel substrate, and high-altitude nature of the channel. Lamprey nursery habitat was considered negligible due to the very low percentage of finer sediments, high energy of the watercourse and lack of upstream lamprey spawning habitat. European eel habitat was negligible-low due to the lack of significant refugia and overall high flow velocity.

Kick sampling was carried out at each fisheries habitat assessment location. No macroinvertebrates were recorded during the kick sample of the Fulacht Fia Coom stream. This is likely due to the largely unsuitable channel conditions at this watercourse. Macroinvertebrate density and diversity was low at the unnamed tributary of the Tooreennascarty River with two very pollution sensitive species present (2no. Brachyptera sp., 2no. Perla sp.), and one pollution tolerant species present (1no. Chironomid). This survey location was assigned a Q-Value of Q4 (Good Status).

6.6.5.6 Other Fauna

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Mammal scat likely to be fox (*Vulpes vulpes*) was recorded within the Site and Proposed Offsetting Lands (Plate 6-35). No signs of red squirrel were identified during the surveys conducted. No signs of pine marten were identified during the surveys conducted. Numerous mammal trails were recorded throughout the Site, as well as the surrounding habitats. An example of one of these mammal trails can be seen below in Plate 6-36. Additionally, a potential rabbit burrow was recorded to the east of a section of the Proposed Offsetting Lands, located approximately 10m from the boundary (Plate 6-37).

Devils bit scabious was recorded across the Site and within Areas 1 and 2 of the Proposed Offsetting Lands and could potentially support marsh fritillary.

No significant area of suitable habitat for other taxa, species listed in Annex II or IV of the EU Habitats Directive, or other species of conservation concern was identified within the Site or Proposed Offsetting Lands.

Plate 6-35 Fox scat recorded adjacent to the Proposed Offsetting Lands

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Plate 6-36 Example of a mammal trail recorded within the Site.

Plate 6-37 Mammal burrow recorded outside of the boundary of the Proposed Offsetting Lands.

6.6.6 Importance of Ecological Receptors

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Table 6-10 lists all identified receptors and assigns them an ecological importance in accordance with the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009a). This table also provides the rationale for this determination and identifies the habitats that are KERs. These ecological receptors are considered in Section 6.7 of this report and mitigation/measures will be incorporated into the Proposed Project where required, to avoid potential significant impacts on the features.

Table 6-10 Key Ecological Receptors identified during the assessment

Ecological feature or species	Rationale	KER
Designated Sites		
European Designated Sites	The Site is hydrologically linked to downstream European sites: › Lower River Shannon SAC [002165] (2.2km hydrological distance) › Blackwater River (Cork/Waterford) SAC [002170] (6.5km hydrological distance) The Proposed Offsetting Lands are hydrologically linked to the downstream European site: › Lower River Shannon SAC [002165] (1.9km hydrological distance) Potential for Likely Significant Effects on these European sites was identified within the AA screening for the Proposed Project. Potential impacts on these European sites are assessed fully in the NIS and associated volumes for the Proposed Project. In the context of this Biodiversity Chapter these sites have been assigned International Importance and included as a KER as there is potential for indirect effects on these European sites via water pollution. The Site and the Proposed Offsetting Lands are both located within the: › Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]. Due to the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161] being of Ornithological interest, within this EIAR, further consideration of effects on this SPA are contained within Chapter 7 Ornithology and are not included further in Chapter 6 Biodiversity.	**Yes**
Nationally Designated Sites	The Proposed Offsetting Lands overlap slightly with and are located adjacent to a portion of Mount Eagle Bog NHA. Taking a precautionary approach, during and following the Proposed Offsetting Measures, there exists the potential for significant effect on the peatland habitats of this NHA via the spread of the third schedule invasive species *Rhododendron ponticum*.	**Yes**

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	In the context of this Biodiversity Chapter this site has been assigned National Importance and included as a KER as there is potential for indirect effects on this nationally designated site via spread of invasive species.	
Terrestrial habitats		
Local Importance (lower value) › Improved agricultural grassland (GA1) › Dry-humid Acid Grassland (GS3) (*Within the Proposed Offsetting Lands*) › Wet Grassland (GS4) (*Within the Proposed Offsetting Lands*) › Conifer Plantation (WD4) › Spoil and Bare Ground (ED2) › Recolonising Bare Ground (ED3) › Buildings and artificial Surfaces (BL3)	With the exception of Conifer Plantation (WD4) habitat within the Proposed Offsetting Lands, there will be no loss of any of these habitats as a result of the Proposed Project. The proposed loss of 105.5ha of Conifer Plantation at the Proposed Offsetting Lands represents the loss of a highly managed and homogenous habitat, of local importance (lower value), which is common throughout the wider landscape. This loss is not considered significant at any geographical scale. For these reasons, these habitats have not been identified as a KERs.	No
Local Importance (higher value) › Dry-humid Acid Grassland (GS3) (*Within the Site*) › Wet Grassland (GS4) (*Within the Site*) › Wet Grassland/ Scrub (GS4/WS1) › Scrub (WS1) › Wet Heath/ Scrub (HH3/WS1) › Hedgerow (WL1) › Treeline (WL2) › Mixed Broadleaved woodland (WD1)	These habitats are classified as habitats of Local Importance (higher value) as they provide suitable supporting habitat for a variety of faunal species at a local level. Wet Heath/ Scrub (HH3/WS1) mosaic habitat has been assigned Local Importance (Higher Value) due to it representing a degraded Annex I habitat with significant scrub encroachment. Given that there will be no loss of these habitats as result of the Proposed Project, no impacts on these habitats are anticipated at any scale during any phase of the Proposed Project. Therefore, these habitats are not included as KERs.	No
County Importance (Proposed Offsetting Lands) › Upland Blanket Bog (PB2) (*Within the Proposed Offsetting Lands*) › Wet Heath (HH3) (*Within the Proposed Offsetting Lands*)	Areas of Upland Blanket Bog (PB2) found at the margins of the Proposed Offsetting Lands, while degraded, are considered to represent the associated Annex I habitat: 'blanket bogs (*if active bog) (7130)'. Therefore, this habitat is considered to be of County Importance where it occurs. Areas of Wet Heath (HH3) found within a small extent of remnant Wet Heath (HH3) within Area 2 of the Proposed Offsetting Lands, while degraded, are considered to represent the associated Annex I habitat: 'northern Atlantic wet heaths with	**Yes**

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	Erica tetralix (4010)'. Therefore, this habitat is considered to be of County Importance where it occurs. There are no works proposed in any area of Upland Blanket Bog or Wet Heath habitat within the Proposed Offsetting Lands. However, taking a precautionary approach, during and following the Proposed Offsetting Measures, there exists the potential for significant effect on these habitats via the spread of the third schedule invasive species *Rhododendron ponticum*. Upland blanket bog and wet heath habitats within the Proposed Offsetting Lands have the potential to be affected by invasive species. Any potential effects on these habitats caused by invasive species are dealt with in section 6.7.6. 'Treatment of Invasive Species'.	
County Importance (Site) › Upland Blanket Bog (PB2) (*Within the Site*) › Wet Heath (HH3) (*Within the Site)* › Montane Heath (HH4)	Areas of these habitats found within the Site, while degraded, are considered to represent their associated Annex I habitats: › Upland Blanket Bog: 'blanket bogs (*if active bog) (7130)'. Therefore, this habitat is considered to be of County Importance where it occurs. › Wet Heath: 'northern Atlantic wet heaths with Erica tetralix (4010)' › Monatne Heath: 'Alpine and Boreal heaths (4060)' Therefore, these habitats are considered to be of County Importance where they occur. There are no works proposed in any area of Upland Blanket Bog, Wet Heath or Montane Heath habitat within the Site. Given that there will be no loss of this habitats as result of the Proposed Project, no impacts on these habitats are anticipated at any scale during any phase of the Proposed Project. Therefore, these habitats within the Site are not included as KERs.	No
Aquatic Habitats		
Local Importance (higher value) › Eroding/upland rivers (FW1)	3 no. EPA mapped watercourses occur within and on the boundary of the Site and 3 no. EPA mapped watercourses occur within and on the boundary of the Proposed Offsetting Lands (as in Figure 6-6). All of these streams are considered Eroding/ upland Rivers (FW1). These Streams have been assigned Local importance (Higher Value) as they connect to various downstream waterbodies, which provide supporting habitat for aquatic species of local importance and provide connectivity with European Designated Sites such as the Lower River Shannon SAC [002165] and the Blackwater River (Cork/Waterford) SAC [002170]. These European Sites are of international importance.	**Yes**
Local Importance (Lower Value) › Drainage ditches (FW4)	Within the Site, historical drainage ditches were present along field boundaries and throughout areas of previously cut peatland within the site boundary. These were typically grown in with scrub, heath, and bogland vegetation. Additionally, drainage ditches were recorded along the edges of, and through forestry plantations located within the site boundary.	**Yes**

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	Within the Proposed Offsetting Lands, drainage ditches (FW4) were ubiquitous throughout the site and were commonly associated with forestry plantations, field boundaries and trackways. Drainage ditches are highly modified and generally species poor where they occur but provide some connectivity with watercourses within the Site and Proposed Offsetting Lands. As such they are assessed as being local importance (lower value) but are considered further as a KER due to potential for conductivity with higher value watercourses.	
Fauna		
Otter	No Otter signs, in the form of print, slides, spraint, or holts, were recorded within the Site or the Proposed Offsetting Lands. It is likely that watercourses within the Site and Proposed Offsetting Lands provide limited suitability to Otter due to their gradient, high energy and elevations above sea level. However, watercourses downstream of the Site and the Proposed Offsetting Lands have the potential to support populations of Otter. Otter are protected under the Wildlife Act 1976 (as amended). Taking a precautionary approach, the potential for effect on otter was identified in the form of downstream surface water deterioration. Therefore, the Proposed Project has the potential to result in indirect effects on the receptor (as a result of deterioration of water quality) and otter is therefore included as a KER and requires further assessment.	**Yes**
Bats	The habitats within and surrounding the Site and Proposed Offsetting Lands are likely to be utilised by a bat population of Local Importance (higher value). Bats are likely to forage and commute within the vicinity of the Site and Proposed Offsetting Lands. While dog lead carcass surveys of the operating turbines did not reveal any impact on bats (0 carcass records), taking a precautionary approach, based on collision risk data carried out for the Existing Taurbeg Wind Farm (Appendix 6-1), potential for collision was identified for high collision risk species. Taking a precautionary approach, during the deforestation period of the Proposed Offsetting Measures there will be temporary losses of linear features for bats to utilise for commuting and forging within Areas 1, 2 and 4. The potential effect on bats as a result of the Proposed Offsetting Measures is limited to the temporary works phase loss or damage to commuting and foraging habitat. All bat species in Ireland are protected under both national legislation – (Wildlife Act, 1976, as amended) and European legislation – (Habitats Directive (92/43/EEC). During the Proposed Offsetting Measures and the continued operation of the Existing Taurbeg Wind Farm, the Proposed Project has the potential to result in negative effects on bats (as outlined above). Therefore, bats are included as a KER for further assessment.	**Yes**
Reptiles and Amphibians	The Proposed Project will not result in loss of suitable habitat for reptiles and amphibians. No habitat loss is associated with the extension of life of the existing Taurbeg Wind Farm and the	No

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	removal of conifer plantation forestry will not result in the loss of any habitat for amphibians or reptiles. In addition, suitable habitat exists for amphibians and reptiles within the wider area of both the existing Taurbeg Wind Farm and the Proposed Offsetting Lands. Frog spawn was recorded within the Site. No evidence of amphibians or reptiles were recorded within the Proposed Offsetting Lands. The recorded evidence suggests that the Site and the Proposed Offsetting Lands are not utilised by populations of higher than local significance and no potential for significant effects have been identified at the population level. No habitat loss in relation to amphibians or reptiles will occur a result of the Proposed Project. Due to the nature of the Proposed Project, amphibians and reptiles are unlikely to be significantly affected. For this reason, amphibians and reptiles are not considered further in this EIAR. Significant effects are not anticipated.	
Additional protected fauna (e.g. Pine Marten, Red Squirrel, Badger, Irish Hare, etc.).	The recorded evidence suggests that the Site and the Proposed Offsetting Lands are not utilised by populations of protected fauna of higher than local significance and no potential for significant effects have been identified at the population level. Due to the nature of the Proposed Project, additional protected fauna are unlikely to be significantly affected. For this reason, other faunal species are not considered further in this EIAR. Significant effects are not anticipated.	No
Aquatic and Fisheries Species		
Aquatic and Fisheries Species	Watercourses within the Site and Proposed Offsetting Lands are hydrologically linked to downstream watercourses (and aquatic fauna within them) which have been assigned International Importance due to their designation as an SAC or as QI's of the SAC (e.g. otter, white-clawed crayfish). Known populations of salmon, brown trout and eel downstream would also be considered of Local Importance (Higher Value). There is potential for indirect effect on these features as a result of impacts on water quality. Fish and other aquatic species are therefore included as a KER for further assessment.	**Yes**

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6.7 Ecological Impact Assessment

6.7.1 Do-Nothing Effect

If the Proposed Project were not to proceed, the existing Taurbeg Wind Farm would be decommissioned (as described in Chapter 4 of this EIAR). All above ground infrastructure would be removed from the Site (excluding access tracks, the onsite substation and associated hardstands). Semi-natural habitats within the Site would remain under their current management regime subject to natural vegetation succession and variation. Commercial forestry would go through cycles of felling and replanting.

The Proposed Offsetting Lands would continue to be subject to commercial forestry practices and agricultural grazing. *Rhododendron ponticum* stands within the commercial forestry areas of the Proposed Offsetting Lands would likely continue to proliferate. Areas of semi-natural habitats within the Proposed Offsetting Lands would remain under their current management regime subject to natural vegetation succession and variation.

Faunal utilisation of the Site and the Proposed Offsetting Lands would remain consistent with current levels subject to natural variation. The Bat Survey Report (Appendix 6-1) has identified that while bat activity levels on the site are currently in line with the nature of the habitats on the site, and dog lead carcass surveys did not record any bat carcasses, taking a precautionary approach the existing Taurbeg Wind Farm has the potential to have a negative effect on bats in the form of collision with active turbine blades and associated mortality. This potential negative effect on bats would not be present if the existing Taurbeg Wind Farm were decommissioned.

The habitat utilisation of the site for avian fauna in a 'do-nothing' scenario is considered in Chapter 7 of the EIAR.

6.7.2 Likely Significant Effects During Proposed Offsetting Measures

There is no construction phase associated with the Proposed Project. The existing Taurbeg Wind Farm is fully constructed with no infrastructure alterations proposed as part of this project. The Proposed Offsetting Measures consist entirely of deforestation, vegetation planting, grassland management and monitoring.

6.7.2.1 Effects on Habitats During Proposed Offsetting Measures

The effects on habitats **that are identified as KERs** are described in the below tables. Any effects on habitats caused by spread of invasive species is dealt with in section 6.7.6 'Treatment of Invasive Species'.

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6.7.2.1.1 Assessment of Potential Effects on Groundwater, Surface Watercourses and Sensitive Aquatic Faunal Species during the Proposed Offsetting Measures

Table 6-11 Proposed Offsetting Measures assessment for rivers, streams and sensitive aquatic species

Description of Effect	The effects on water quality are fully described in Chapter 9 'Hydrology and Hydrogeology' of this EIAR and are described here in relation to ecology. This section assesses the potential for likely significant effects on groundwater/surface watercourses and associated aquatic faunal species, including, European eel, lamprey species, salmonids, coarse fish, and other aquatic species identified during the desk study and dedicated aquatic surveys and likely to occur within or downstream of the Proposed Offsetting Lands. Deforestation of conifer plantation related to the Proposed Offsetting Measures has the potential to give rise to likely significant negative effects on surface watercourses, groundwater and aquatic species. Pathways for negative effect include: › Release of sediments to drainage and surface water discharge routes during deforestation operations, › Release of nutrients to drainage and surface water discharge routes during deforestation operations, › Release of hydrocarbons to drainage and surface water discharge routes during deforestation operations.
Assessment of Significance prior to mitigation	In the absence of mitigation and following the precautionary principle, there is potential for Proposed Offsetting Measures to result in a significant indirect effect on the identified aquatic habitats and species at a local geographic scale in the form of water pollution during the Proposed Offsetting Measures. This effect will be temporary in duration. This would also result in impacts on aquatic receptors ranging from Local Importance (Higher Value) to a receptor of International Importance (i.e. the Lower River Shannon SAC and associated QI species).
Mitigation	Detailed mitigation measures in relation to the protection of surface water during the Proposed Offsetting Measures are detailed in Section 9.5.2 of Chapter 9 (Hydrology and Hydrogeology) of this EIAR. Mitigation by avoidance, design and monitoring will be employed to prevent any likely significant effects to surface waters, associated aquatic species or groundwater. Forestry operations will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte and DAFM guidance documents, including the specific guidelines listed in Section 9.5.2.1 of Chapter 9, to ensure that deforestation, planting and other forestry operations result in minimal potential negative effects to the receiving environment. These mitigation measures are tried and tested, best practice mitigation measures which are implemented at forestry sites across the country. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document "Forestry and Water Quality Guidelines" will be implemented during the deforestation activities. This will include a buffer of no ground disturbance within 5m of any relevant watercourse (i.e. drainage ditches) and 10-20m of any aquatic zone (i.e. rivers and streams). Minimum buffers will also be the primary mitigation measure in relation to phosphorous release to receiving waterbodies. Drain inspection and maintenance as well as surface water quality monitoring mitigation measures are outlined within Section 9.5.2.1 of Chapter 9. Sections 9.5.2.2 and 9.5.2.3 of Chapter 9 outline further mitigations to address the potential release of phosphorous and hydrocarbons during deforestation operations.

	No new forestry roads or tracks are proposed, and no new aquatic zone crossings are proposed. This will help to minimise the impact of deforestation operations on the receiving environment.
Residual Effect following Mitigation	Following the implementation of mitigation, there will be no significant residual negative effect on aquatic habitats, groundwater or aquatic species during the Proposed Offsetting Measures.

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6.7.2.2 Effects on Protected Fauna during the Proposed Offsetting Measures

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

- Otter
- Bats

The potential for significant effects on aquatic species during the Proposed Offsetting Measures is restricted to indirect effects on their habitat resulting from water pollution. This has been assessed in Section 6.7.2.1.1 above and is not repeated below.

6.7.2.2.1 *Assessment of Potential Effects on Otter during the Proposed Offsetting Measures*

Table 6-12 Impact assessment for otter during the Proposed Offsetting Measures

Description of Effect	Taking a precautionary approach, there is potential for watercourses within the vicinity and within the Proposed Offsetting Lands to provide suitable habitat for otter, albeit limited in value due to the above outlined rationale and likely only to be sporadically utilised. Therefore, in the absence of mitigation and taking a precautionary approach, there is the potential for works associated with the Proposed Offsetting Lands to result in an indirect effect on otter in the form of habitat loss and disturbance during the Proposed Offsetting Measures. This effect will be temporary in duration. During deforestation operations, the main threats to otters are identified to be: - Destruction or degradation of riverbank habitat, - Disturbance/ displacement, - Water pollution which could impact on prey availability (addressed in section 6.7.2.1.1).
Assessment of Significance prior to mitigation	**Degradation of riverbank habitat, Disturbance** Given the limited suitability of the Proposed Offsetting Lands for otter and the lack of any recorded otter signs, the effect is considered to be a non-significant an effect on a receptor of local importance (higher value). **Habitat Degradation (impacts on water quality)** Habitat degradation effects on aquatic species (including otter) via surface water and groundwater deterioration have been assessed fully in Section 6.7.2.1.1. This assessment is not repeated in this section.

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Mitigation	**Degradation of riverbank habitat, Disturbance** While no significant effect on otter is anticipated, on a precautionary basis, the below measures will be put in place to minimise the potential disturbance effects to otter. › During deforestation and extraction (in areas where this applies), a minimum 10 m exclusion zone will be applied along the edge of any 'aquatic zone' (rivers/ streams) on or adjoining the Proposed Offsetting Lands . Machine traffic and timber stacking will not be permitted within this zone. Trees within the reach of the harvester arm will be felled by harvester and stacked outside the exclusion zone. Trees outside machine reach will be felled manually. Felled trees will be winched out of the exclusion zone where appropriate and safe to do so, or removed by extended harvester arm, for subsequent processing outside the exclusion zone avoiding mobilisation of soils. All other requirements relating to water exclusion zones, as set out in Section 6.1 of the Standards for Felling & Reforestation (DAFM, 2019) and Section 9.5.2 of Chapter 9 of this report will be adhered to. › Regarding any existing 'relevant watercourses' (drainage ditches), there will be no cleaning of any section of such watercourses within 50 m of an aquatic zone. › There will be no woody scrub/ shrub removal as part of the Proposed Offsetting Measures. While no otter signs were identified within the Proposed Offsetting Lands, it is noted that otter is a mobile species and could potentially utilise the Proposed Offsetting Lands sporadically. As such, prior to the commencement of deforestation works associated with the Proposed Offsetting Measures, a pre-deforestation Otter survey will be carried out by a qualified Ecologist to determine the likely presence of Otters on site in line with TII, 2008b guidance. **Habitat Degradation (impacts on water quality)** Habitat degradation mitigations have been outlined fully in Chapter 9 of this EIAR and are discussed in Section 6.7.2.1.1.
Residual Effect following Mitigation	Following the implementation of mitigation, there will be no significant residual effect on otter as a result of the Proposed Project.

6.7.2.2.2 *Assessment of Potential Effects on Bats during the Proposed Offsetting Measures*

Table 6-13 Impact assessment on bats during the Proposed Offsetting Measures

Description of Effect	The potential effect on bats during the Proposed Offsetting Measures is limited to the temporary works phase loss or damage to commuting and foraging habitat. Areas 1, 2 and 4 of the Proposed Offsetting Lands that will undergo deforestation will be placed into windrows, after which areas of scrub will be planted throughout the deforestation areas. There will be no significant loss of foraging or commuting habitat post completion of the deforestation operations within Areas 1, 2 and 4 of the Proposed Offsetting Lands. However, taking a precautionary approach, during the deforestation period there will be temporary losses of linear features to utilise for commuting and forging. Area 3 of the Proposed Offsetting Lands will not lose any commuting or foraging habitat over any time period. No significant loss of connectivity is anticipated as windrows will be established at the time of deforestation. There will be no significant effect on roosting habitat as a result of the Proposed Offsetting Measures as all habitat within Areas 1, 2 and 4 of the Proposed Offsetting Lands is considered to have negligible suitability of roosting bats.

Assessment of Significance prior to mitigation	The temporary losses in commuting and foraging features are not considered to be significant at any geographical scale and is instead considered to be a temporary non-significant effect on a receptor of local importance higher value.
Mitigation	No significant effects with regard to loss of commuting and foraging habitat are anticipated and as such no mitigation is required in this regard. There will be no significant loss of foraging or commuting habitat post deforestation activities. Commuting and foraging habitat will remain present within the deforested areas through windrows and scrub planting. A full description of Areas 1, 2 and 4 of the Proposed Offsetting Lands after the Offsetting Measures are implemented is within Appendix 7-7 of the EIAR. Linear features within Area 3 of the Proposed Offsetting Lands will be bolstered and grasslands will be managed for biodiversity. These measures will increase the value of Area 3 for foraging and commuting bats.
Residual Effect following Mitigation	There is no potential for the Proposed Offsetting Measures to result in significant effects on the local bat population at any geographic scale. There will be no significant effect on the conservation status of any bat species as defined in '*The Status of Protected Habitats and Species in Ireland*' (NPWS, 2019).

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6.7.3 Likely Significant Effects During Extended Operational Phase

6.7.3.1 Effects on Habitats during Extended Operational Phase

The Proposed Lifetime Extension will not result in any additional land take or loss of habitats and as such there is no potential for any significant effects in this regard. The Proposed Offsetting Measures aspect of the Proposed Project has the potential to result in the creation of habitats within the Proposed Offsetting Lands through natural habitat maturation and development within Areas 1, 2 and 4 of the Proposed Offsetting Lands and active farming for biodiversity in Area 3 of the Proposed Offsetting Lands. Details of the management that will be undertaken are provided in Appendix 7-7 Hen Harrier Offsetting Plan.

Treatment of invasive species as part of Proposed Offsetting Measures has been provided in Section 6.7.6 below.

As described above, the Proposed Offsetting Measures will consist of natural habitat development and maturation in areas 1, 2 and 4 of the Proposed Offsetting Lands and active farming for biodiversity in area 3 of the Proposed Offsetting Lands. These activities/ land uses do not have the potential to give rise to significant effects on rivers, streams, and sensitive aquatic faunal species at any geographical scale.

Continued operation of the existing Taurbeg Wind Farm has the potential to give rise to likely negative effects on surface watercourses, groundwater and aquatic species. Therefore, rivers, streams and sensitive aquatic species remain as KERs during the operational phase and are assessed in detail in the following subsections.

6.7.3.1.1 *Effects on Rivers, Streams, and sensitive aquatic faunal species during the Extended Operational Phase*

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Table 6-14 Extended operational phase impact assessment for rivers, streams, open waterbodies and sensitive aquatic faunal species

Description of Effect	The effects on water quality are fully described in Chapter 9 'Hydrology and Hydrogeology' of this EIAR and are described here in relation to ecology. This section assesses the potential for likely significant effects on groundwater/ surface watercourses and associated aquatic faunal species, including, otter, European eel, lamprey species, salmonids, coarse fish, and other aquatic species identified during the desk study and dedicated aquatic surveys and likely to occur within or downstream of the Proposed Project. Taking a precautionary approach, continued operation of the existing Taurbeg Wind Farm has the potential to give rise to likely negative effects on surface watercourses, groundwater and aquatic species. Pathways for negative effect include: › Potential Hydromorphological and flood risk effects due to increased site runoff potential; › Release of sediments and suspended solids to drainage and surface water discharge routes due to minor maintenance works e.g. maintenance of site entrance, internal roads and hardstand areas; › Release of hydrocarbons to drainage and surface water discharge routes due to small volumes of oils and fuels that will be present on-site during the proposed extended operational phase.
Assessment of Significance prior to mitigation	Taking a precautionary approach, impact on water quality during the extended operational phase of the existing Taurbeg Wind Farm has been assessed as a negative, indirect, non-significant effect in the absence of mitigation.
Mitigation	Detailed mitigation measures in relation to the protection of surface water during the extended operational phase of the existing Taurbeg Wind Farm are detailed in Section 9.5.3 and its sub-sections of Chapter 9 (Hydrology and Hydrogeology) of this EIAR. Mitigation measures will be employed to prevent any likely significant effects to surface waters, associated aquatic species or groundwater. The drainage mitigations in place for the existing Taurbeg Wind Farm will continue to be utilised to prevent significant hydromorphological or flood risk effects. No additional measures are proposed as the measures outlined in 9.5.3.1 of Chapter 9 of this EIAR are considered sufficient to prevent any significant effects in this regard. The existing Taurbeg Wind Farm drainage measures have been effective in removing any silt generated during routine maintenance works. This has been reflected in the surface water sampling conducted at the site. In addition to the currently effective drainage measures, temporary check dams and silt fencing arrangements will be placed along sections of access roads where maintenance works are being undertaken. Check dams will be constructed from a 4/40mm non-friable crushed rock. In addition, temporary blocking of drains downstream of works area can also be undertaken if roadside swales are absent. These measures will prevent the potential for release of sediments and suspended solids to drainage and surface water discharge routes during the extended operation of the existing Taurbeg Wind Farm. Any plant and equipment used during the extended operational phase will require refuelling during works within the Site. Appropriate management of fuels will be required to ensure that incidents relating to refuelling are avoided. Mitigation measures to avoid release of hydrocarbons at the Site, during the extended operation phase, are outlined in section 9.5.3.3 of Chapter 9 of this EIAR.
Residual Effect following Mitigation	Following the implementation of the mitigation measures outlined above, and the continued use of existing onsite drainage measures, no potential for significant effect has been identified at any geographic scale as a result of the Proposed Lifetime Extension.

6.7.3.2 Effects on Fauna during Operation Phase

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The operation of the Proposed Project will not result in any additional habitat loss or deterioration, nor will it result in a significant increase in anthropogenic activity. There is no potential for significant negative effects in terms of disturbance on otter (identified as a KER), during the operational phase of the Proposed Project. The potential for significant effects on otter during the operational phase is restricted to indirect effects on their habitat resulting from water pollution, which has been discussed above in Section 6.7.3.1.1 and is not repeated below.

The Proposed Offsetting Lands, while designed for Hen Harrier, will have positive effects on a wider scope of biodiversity. Within Areas 1, 2 and 4 of the Proposed Offsetting Lands there will be an increase in habitat diversity allowing a wider selection of birds, mammals, insects (including pollinators), and other faunal groups to inhabit and utilise the area. Within Area 3 of the Proposed Offsetting Lands, the proposed grazing regime will also create habitat for birds, mammals, insects (including pollinators), and other faunal groups. Areas of taller and mixed sward vegetation will increase prey availability for a range of predators other than Hen Harrier and will create more optimal foraging areas for prey species.

Potential for significant effects on bat species resulting from the operation of the Proposed Project were identified and therefore, these are identified as KERs during the operational phase.

6.7.3.2.1 *Assessment of Potential Effects on Bats during the Extended Operational Phase*

Table 6-15 Extended operational phase impact assessment on bats

Description of Effect	Taurbeg Wind Farm has been operational since March 2006 and the operational life would be extended to 2036 as part of the Proposed Lifetime Extension. No changes in the surrounding habitat will occur by extending the lifespan of the wind farm. Given the extensive area of habitat that will remain undisturbed throughout the site, no effects with regard to loss of commuting, foraging or roosting habitat for bats are anticipated. In addition, there will be no loss of connectivity within the wider area as a result of the Proposed Lifetime Extension. Taking a precautionary approach, based on the findings of the Bat Survey Report (Appendix 6-1), a potential effect on high collision risk bats was identified in the form of collision risk with turbines during the Proposed Lifetime Extension. No other effects on bats were identified as a result of the continued operation of the existing Taurbeg Wind Farm.
Assessment of Significance prior to mitigation	Based on the results of the bat surveys and dog lead carcass searches of the existing Taurbeg Wind Fram (Appendix 6-1), collision risk with high collision risk bat species during the Proposed Lifetime Extension is considered to be a non-significant effect. No significant effects have been recorded over the survey period for the existing Taurbeg Wind Farm (Appendix 6-1) or are anticipated at any geographic scale.
Mitigation	A full description of the mitigation measures proposed during the Proposed Lifetime Extension are described in Section 6 of the Bat Report. While no significant effect on bats was identified, standard best practice measures will be applied to the Proposed Lifetime Extension. These include blade feathering on a precautionary basis and include an adaptive mitigation plan as detailed in Section 6 of Appendix 6-1. Blade feathering will be implemented as a standard across all existing turbines when wind speeds are below the cut-in speed of the turbine. This means that the turbine blades are pitched at 90 degrees or parallel to the wind to reduce their rotation speed to below two revolutions per minute while idling. This measure has been shown to significantly reduce bat fatalities (by up to 50%) in some studies (NIEA, 2021).

	Full details of the adaptive mitigation measures can be found in Section 6 of Appendix 6-1.
Residual Effect following Mitigation	Following the implementation of the monitoring and mitigation described above, there is no potential for significant residual effects on bat species.

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6.7.4 Likely Significant Effects During Decommissioning Phase

6.7.4.1 Taurbeg Wind Farm

The decommissioning of the existing Taurbeg Wind Farm is described in Chapter 4, Section 4.7 and Appendix 4-3 of this EIAR.

In order to minimise the effects on the environment during the decommissioning phase, turbine hardstands will be backfilled with soil and allowed to revegetate instead of excavating the areas of reinforced concrete. Other than the revegetating of turbine hardstands, there will be no habitat loss associated with the decommissioning phase of the existing Taurbeg Wind Farm and therefore, there will be no significant effects in this regard. No large-scale excavations or earthworks will be required as the development footprint (roads, turbine hardstands and foundations etc.) will be left in situ. There would be no additional or ancillary impacts associated with the decommissioning phase. Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. All above-ground turbine components will be separated and removed off-site for reuse or recycling. The on-site substation will remain in place as it will become a permanent part of the national electricity network.

Any soil material that will be imported to site as part of the foundation backfilling will be free of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The site manager will take steps to ensure this sourcing suitably clean material and verify the quality of the material by having it inspected prior to bringing it to site by a suitably qualified ecologist. Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey.

Regarding biodiversity at the site, the decommissioning phase will involve the following best practice mitigation measures:

- All measures to mitigate the risks of contamination of watercourses as highlighted within this chapter (Chapter 6) and as outlined in Chapter 9, will be fully implemented.
- The areas within 50m of the hard-stand and turbine foundations will be subject to a pre-works terrestrial ecology walkover to highlight any constraints that may be present (e.g. breeding or resting places of protected species, presence of Invasive Plant Species).
- If any significant constraints are identified appropriate controls will be developed and integrated into the live decommissioning plan ahead of the commencement of the work.
- If any Third Schedule Invasive species are present in or adjacent to the works footprint, an Invasive Species Management Plan (ISMP) will be developed, and all recommendations implemented in accordance with the contemporary best practice measures.
- Speed limits will be enforced on internal roads.
- All edible wastes will be stored in covered segregated containers and disposed of at licensed facilities.
- No refuelling or other hydrocarbon related usage will be undertaken within 50m of any watercourse in relation to maintenance vehicles, plant or machinery.
- Any import of soil or fill necessary in the decommissioning process shall be from approved sources and appropriately tested or inspected to minimise the risk of import of invasive

species. Only soil appropriate to the site (pH, soil type) will be used. The re-seeding or natural revegetation of reinstated areas will proceed on the advice of a suitably qualified ecologist. Any seed mix used will be on the approval of the ecologist.

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Following the above and the detailed procedure outlined within Appendix 4-3 of the EIAR, there are no anticipated significant effects on biodiversity as a result of the decommissioning phase of the existing Taurbeg Wind Farm.

6.7.4.2 The Proposed Offsetting Lands

There is no decommissioning phase associated with the Proposed Offsetting Lands, as all Proposed Offsetting Measures will be permanent. A monitoring plan has been developed for the Proposed Offsetting Lands, the full detail of which can be seen in Appendix 7-7 and Appendix 7-8 of this EIAR.

No potential for significant effects on biodiversity have been identified. The Proposed Offsetting Lands will continue to be monitored, all Proposed Offsetting Measures will be permanent, and any uplift in biodiversity value as a result of the Proposed Offsetting Measures will be retained.

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6.7.5 Effects on Designated Sites

6.7.5.1 European Designated Sites

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:

'Following an examination, analysis and evaluation of the relevant data and information set out within this Appropriate Assessment Screening Report, it is concluded 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 Lifetime Extension, individually or in combination with other plans and projects, is likely to have significant effects on the following sites::

- *Lower River Shannon SAC [002165]*
- *Blackwater River (Cork/Waterford) SAC [002170]*
- *Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]*

As a result, an Appropriate Assessment is required, and a Natura Impact Statement has been prepared.'

The NIS concluded as follows:

'This NIS has provided an assessment of all potential adverse effects on European Sites. The potential for adverse effects was identified for the following European Sites: Lower River Shannon SAC, Blackwater River (Cork/Waterford) SAC, and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. No potential for adverse effect was identified for any other European Site.

Where the potential for any adverse effect on the Lower River Shannon SAC and the Blackwater River (Cork/Waterford) SAC 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. Therefore, it can be objectively concluded that the Proposed Lifetime Extension, individually or in combination with other plans or projects, will not adversely affect the integrity of the Lower River Shannon SAC or Blackwater River (Cork/Waterford) SAC.

The potential for adverse effect on Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA cannot be robustly blocked by avoidance, appropriate design, or mitigation measures.

Therefore, it is concluded that the Proposed Lifetime Extension will adversely affect the integrity of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, in view of the site's conservation objectives.

It is recommended that the Article 6(4) (of Council Directive 92/43/EEC (The EU Habitats Directive)) process be engaged. Volume 2 includes the Assessment of Alternative Solutions and Imperative Reasons of Overriding Public Interest.'

Due to the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161] being of Ornithological interest, within this EIAR, further consideration of effects on this SPA are contained within Chapter 7 Ornithology and are not included in Chapter 6 Biodiversity.

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Mitigation measures for the protection of aquatic habitats, aquatic species, surface water quality and groundwater quality have been outlined within the NIS and within Sections 6.7.2 and 6.7,3, and Section 9.5 of Chapter 9. These mitigation measures have robustly blocked the potential for effect on the below EU Designated sites:

- Lower River Shannon SAC [002165]
- Blackwater River (Cork/Waterford) SAC [002170]

6.7.5.2 Nationally designated Sites

The following NHA was identified to be within the Likely Zone of Influence of the Proposed Project:

- Mount Eagle Bogs NHA [002449]

As outlined in Table 6-4 of this chapter, the Site is located entirely outside the NHA boundary and there is no potential pathway for likely significant effect on the NHA as a result of the proposed continued operation of the existing Taurbeg Wind Farm.

The NHA boundary slightly overlaps with the Proposed Offsetting Lands and is located adjacent to it. As described in section 6.6.3 of this Biodiversity Chapter, the third schedule invasive alien plant species *Rhododendron ponticum* was identified growing within Areas 1, 2 and 4 of the Proposed Offsetting Lands. Deforestation activities without proper cognisance of the presence of rhododendron have the potential to create habitat suitable for the accelerated proliferation of the invasive species which could increase the potential for colonisation of the NHA habitats by rhododendron.

The Mount Eagle Bogs NHA, by its status as a Natural Heritage Area has been afforded National Importance.

Any potential for impacts on the above listed nationally designated site (as outlined above), has been robustly blocked through the implementation of the mitigation measures outlined in Section 6.7.6 (immediately below this section). Following the implementation of these outlined mitigation measures, there is no potential for significant effect on Nationally Designated Sites.

6.7.6 Treatment of Invasive Species

The third schedule invasive species *Rhododendron Ponticum* was recorded at a number of locations throughout the Proposed Offsetting Lands. The Proposed Offsetting Measures have the potential to increase the spread of the third schedule invasive species *Rhododendron ponticum*. The spread of Rhododendron throughout the Proposed Offsetting Lands would have a negative effect on local biodiversity and after deforestation works, the Proposed Offsetting Lands would be susceptible to the spread of Rhododendron. In the absence of mitigation and following the precautionary principle, there is potential for works associated with the Proposed Offsetting Lands to result in a significant effect to receptors of both local importance (habitats present within the Proposed Offsetting Lands), county importance (Upland Blanket Bog habitat and Wet Heath habitat) and receptors of national importance in the adjacent Mount Eagle Bogs NHA. This effect has the potential to be permanent in duration.

An invasive species management plan has been developed and is outlined below:

- A pre-commencement survey for Rhododendron will be carried out within Areas 1, 2 and 4 of the Proposed Offsetting Lands to determine the extent and locations of Rhododendron prior to the Proposed Offsetting Measures taking place.
- All Rhododendron plants will be geolocated.
- A cut will be made at the base of each stem of each Rhododendron plant, after which a herbicide (glyphosate) will be applied to cut.

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- Plants will be left in place and revisited for repeat treatment after 6 months.
- Rhododendron plants will not be interfered with during the deforestation operations in Areas 1, 2 and 4.
- After 1 year all, Rhododendron plants will be revisited to assess the effectiveness of treatment.
- If Rhododendron plants are dead, they will be cut at the base and left on site to decompose.
- If Rhododendron plants are alive then another treatment cycle as outlined above will be undertaken.
- An invasive species survey of Areas 1, 2 and 4 of the Proposed Offsetting Lands will be carried out each year following the Proposed Offsetting Measures for 10 years (2026-2036). This survey will be carried out by a competent ecologist. Any new areas of Rhododendron will be geolocated and subject to treatment.
- If seedling Rhododendron are identified during the yearly invasive species surveys, hand removal of emerging seedlings can be conducted in order to deal with any residual rhododendron.
- After 2036, the Applicant will commission an ecologist with the relevant experience to undertake invasive species surveys at 5-year intervals with a key focus on identifying Rhododendron seedlings or plants for removal.

Treating any Rhododendron which may self-seed in the adjacent NHA or peatland habitats is outside the scope of this project. However, this situation will be monitored during the yearly invasive species surveys as outlined above. If Rhododendron seedlings or plants are noted within the adjacent NHA, local NPWS will be contacted, and co-operation will be offered to assist with Rhododendron removal on these lands. Consequently, within the Proposed Offsetting Lands, Rhododendron will need to be continuously managed.

Following the implementation of mitigation, there will be no significant residual negative effect related to the spread of Rhododendron during or following the Proposed Offsetting Measures.

6.8 Cumulative Impact on Biodiversity

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The Proposed Project was considered in combination with other plans and projects in the area that could result in cumulative impacts on biodiversity, including European Sites and Nationally designated sites. This included a review of online Planning Registers and served to identify past, present and future plans and projects, their activities and their predicted environmental effects. The projects considered are listed in Chapter 2: Background of the Proposed Project and provided in full in Appendix 2-3 of this EIAR.

In relation to terrestrial habitats and species, a cumulative study area of 1km within the vicinity of the Site and the Proposed Offsetting Lands was considered. All projects within this 1km buffer of the Site and Proposed Offsetting Lands were considered when completing the cumulative assessment for terrestrial biodiversity. The geographical boundaries were chosen because of the common nature of the habitats recorded within the Site, which mostly comprises upland blanket bog, wet grassland, conifer plantations and heath habitats, and the Proposed Offsetting Lands, which mostly comprises managed agricultural grassland and commercial forestry.

The cumulative study area considered in relation to aquatic habitats and species follows the rationale that is set out in Section 9.5.7 of Chapter 9: Hydrology and Hydrogeology and is summarized below:

Separate hydrological cumulative study areas have been delineated for the Site and for the Proposed Offsetting lands. These cumulative study areas are shown in Figure 9-10 of Chapter 9: Hydrology and Hydrogeology. There will be no potential for cumulative effects beyond these cumulative study areas due to increases in flow volumes (as the catchment area increases) and increasing distance from the Site and the Proposed Offsetting lands.

The cumulative hydrological study area for the Site has a total area of 234km^2 and has been delineated as follows:

- The north of the Site is located in the Tralee Bay Feale Catchment. A quantitative analysis using flow volumes derived from the EPA Hydrotool database shows that there is no potential for effects on the Feale River downstream of EPA Hydrotool Node: 23_1771 (Total Upstream Catchment Area of ~95km2); and,
- The south of the Site is located in the Blackwater (Munster) Catchment. A quantitative analysis using flow volumes derived from the EPA Hydrotool database shows that there is no potential for effects downstream of EPA Hydrotool Node: 18_2469 on the Glenlara River. This Node is located ~2km upstream of the confluence of the Glenlara and Allow Rivers. In order to be conservative and for completeness, the cumulative study area extends downstream as far as Node 18_1756 which includes the entire catchment of the Glenlara River (Total Upstream Catchment Area of ~139km2)

Given, the nature of the Proposed Lifetime Extension and the lack of any significant groundworks, the delineated cumulative hydrological study area associated with the Site is considered to be very conservative.

The cumulative hydrological study area for the Proposed Offsetting lands has a total area of 74km^2 and has been delineated as follows:

- The Shanowen (Maine)_010 and the Clydagh (Feale)_010 WFD river sub-basins are included in the cumulative study areas as these are the river sub-basins within which the Proposed Offsetting lands are located. For the purposes of a conservative assessment the Maine_010 and Clydagh (Feale)_020 WFD river sub-basins further downstream are also included in the cumulative study area.

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The assessment focused on the potential for cumulative impacts on biodiversity, including the KERs identified in Section 6.6.6. The surrounding land use is dominated by commercial forestry, agricultural grassland and bog habitat. Pressures exerted by Commercial forestry and agricultural practises (if intensive) can include surface water deterioration and habitat deterioration. The Proposed Project will not cumulatively add to these potential pressures exerted by commercial forestry or agricultural practices.

Following the detailed surveys undertaken and impact assessment provided in Section 6.7, it is concluded that there will be no significant residual negative effects on non-avian biodiversity associated with the Proposed Project. In addition, following an assessment of the potential for significant effects when considered in combination with other plans and project, no potential for significant cumulative effects on non-avian biodiversity were identified.

6.9 Alignment with Plans and Policy

The following development plans have been reviewed and taken into consideration as part of this assessment. The plans were chosen due to the geographical location of the Proposed Project area and the policies and objectives related to biodiversity that are contained within them.

- Cork County Development Plan 2022–2028
- Cork County Biodiversity Action Plan 2009-2014
- Kerry County Development Plan 2022-2028
- Kerry County Councils Biodiversity Action Plan 2022 – 2028
- National Biodiversity Action Plan 2023-2030
- Southern Regional Assembly Regional Spatial and Economic 2020-2040 Strategy (RSES)

The review focused on policies and objectives within the plans listed above that relate to designated sites for nature conservation, biodiversity and protected species. Policies and objectives relating sustainable land use were also reviewed, particularly where the policies relate to the preservation of surface water quality.

Table 6-16 below provides an assessment of the alignment between the Proposed Project and the above listed Plans.

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Table 6-16 Assessment of Alignment with Plans

Plans	Key Policies and Objectives directly related to Biodiversity in the Zone of Influence	Assessment of Alignment between the Proposed Project and Plans
Cork County Development Plan 2022 – 2028	**Wind Energy Strategy:** **ET 13-5: Wind Energy Projects** a) Support a plan led approach to wind energy development in County Cork through the identification of areas for wind energy development. The aim in identifying these areas is to ensure that there are minimal environmental constraints, which could be foreseen to arise in advance of the planning process. b) On-shore wind energy projects should focus on areas considered 'Acceptable in Principle' and 'Areas Open to Consideration' and generally avoid "Normally Discouraged" areas as well as sites and locations of ecological sensitivity. **ET 13-6: Acceptable in Principle** Commercial wind energy development is normally encouraged in these areas subject to protection of residential amenity particularly in respect of noise, shadow flicker, visual impact and the requirements of the Habitats, Birds, Water Framework, Floods and EIA Directives and taking account of protected species of conservation concern. **ET 13-7: Open to Consideration** Commercial wind energy development is open to consideration in these areas where proposals can avoid adverse impacts on: • Natura 2000 Sites (SPA's and SAC's), Natural Heritage Areas (NHA's), proposed Natural Heritage Areas and other sites and locations of significant ecological value. **ET 13-8: Normally Discouraged** Commercial wind energy developments will be discouraged in these areas which are considered to be sensitive to adverse impacts associated with this form of development (either individually or in combination with other	Cork County Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the biodiversity, protected species and designated sites. The Proposed Project has been subject to a full environmental assessment i.e. EIAR and Appropriate Assessment (Stage 1, 2, 3 and 4). The Proposed Project is in line with the biodiversity objectives of Cork County Development Plan.

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Plans	Key Policies and Objectives directly related to Biodiversity in the Zone of Influence	Assessment of Alignment between the Proposed Project and Plans
	developments). Only in exceptional circumstances where it is clear that adverse impacts do not arise will proposals be considered. **<u>Biodiversity:</u>** **BE 15-1: Support and comply with national biodiversity protection policies** a) Support and comply with the objectives of the National Biodiversity Plan 2017-2021 (and any future National Biodiversity Plan which may be adopted during the period of this Plan) as appropriate, b) Implement the current County Biodiversity Action Plan and any future updated Plan; c) Support and comply with biodiversity policy set out in other national and regional policy documents as appropriate. **BE 15-2: Protect sites, habitats and species** 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. 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. 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. d) Recognise the value of protecting geological heritage sites of local and national interest, as they become notified to the local authority, and protect them from inappropriate development. 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. **BE 15-3: Local Authority plan making**	

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Plans	Key Policies and Objectives directly related to Biodiversity in the Zone of Influence	Assessment of Alignment between the Proposed Project and Plans
	a) Ensure that biodiversity issues are considered at the earliest possible stages of plan making; b) Ensure that plans and strategies comply with nature conservation legislation and policy as required (fulfil Strategic Environmental Assessment and Appropriate Assessment requirements); and c) Carry out ecological impact assessment of plans and strategies as appropriate. **BE 15-4: Local Authority development and projects** a) Ensure that biodiversity protection is considered at design stage for works and development planned and progressed by Cork County Council and that all such projects comply with nature conservation legislation and policy as required; b) Fulfil Appropriate Assessment and Environmental Impact Assessment requirements and carry out Ecological Impact Assessment in relation to Local Authority plans and projects as appropriate. **BE 15-5: Biodiversity on Council owned and managed land and property** a) Protect biodiversity and support the principle of biodiversity net gain on land and property owned and managed by Cork County Council. b) Support the implementation of positive conservation management on lands and property which are owned or managed by Cork County Council; c) Support and implement best practice in the management of roadside boundaries including tree lines and hedgerows managed by Council; d) Support national policy to create new woodlands on public land and participate in the Creation of Woodlands on Public Lands Scheme and any successor schemes; e) Where possible, develop and implement Pollinator Plans and/or Biodiversity Action Plans for lands managed by Cork County Council in accordance with the National Biodiversity Action Plan (and any future National Biodiversity Plan which may be adopted during the lifetime of this Plan) and the All-Ireland Pollinator Plan; f) Support the use of natural approaches to flood management and control on lands owned or managed by or on behalf of Cork County Council. g) The Council will incorporate primarily native planting into new landscaping schemes within its own developments **BE 15-6: Biodiversity and New Development** Provide for the protection and enhancement of biodiversity in the development management process and when licensing or permitting other activities by: a) Providing ongoing support and guidance to developers on incorporating biodiversity considerations into new development through preplanning communications and the Council's guidance document 'Biodiversity and the Planning Process – guidance for developments on the management of biodiversity	

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Plans	Key Policies and Objectives directly related to Biodiversity in the Zone of Influence	Assessment of Alignment between the Proposed Project and Plans
	issues during the planning process' and any updated versions of this advice; b) Encouraging the retention and integration of existing trees, hedgerows and other features of high natural value within new developments; c) Requiring the incorporation of primarily native tree and other plant species, particularly pollinator friendly species in the landscaping of new developments; d) Fulfilling Appropriate Assessment and Environmental Impact Assessment obligations and carrying out Ecological Impact Assessment in relation to development and activities, as appropriate; e) Ensuring that an appropriate level of assessment is completed in relation to wetland habitats subject to proposals which would involve drainage or reclamation. This includes lakes and ponds, watercourses, springs and swamps, marshes, heath, peatlands, some woodlands as well as some coastal and marine habitats; f) Ensuring that the implementation of appropriate mitigation (including habitat enhancement, new planting or other habitat creation initiatives) is incorporated into new development, where the implementation of such development would result in unavoidable impacts on biodiversity - supporting the principle of biodiversity net gain. **BE 15-7: Control of Invasive Alien Species** Implement best practice to minimise the risk of spread of invasive alien species, on Council owned or managed land, and require the development and implementation of Invasive Alien Species Management Plans for new developments where required **BE 15-8: Trees and Woodlands** a) Protect trees the subject of Tree Preservation Orders. b) Make use of Tree Preservation Orders to protect important trees or groups of trees which may be at risk or any tree(s) that warrants an order given its important amenity or historic value. c) Encourage the provision of trees for urban shading and cooling in developments in urban environments and as an integral part of the public realm. d) Preserve and enhance the general level of tree cover in both town and country. Ensure that development proposals do not compromise important trees and include an appropriate level of new tree planting. e) Where appropriate, to protect mature trees/groups of mature trees and mature hedgerows that are not formally protected under Tree Preservation Orders **BE 15-9: Support for Communities and Other Stakeholders** Support community organisations and other stakeholders as follows: a. Implement the County Biodiversity Action Plan and any future updated Plan;	

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	b. Support the implementation of the All-Ireland Pollinator Plan. c. Where possible, support community led initiatives to protect biodiversity including the development of community led Biodiversity Action Plans and Pollinator Plans. d. Work with statutory agencies, educational institutes and other organisations to address the issues relating to the protection of biodiversity in the County where possible and as appropriate **BE 15-10: Soils** a) Ensure the protection and conservation of the soils in County Cork by encouraging sustainable management practices and the reuse of brownfield lands. b) Identify areas of poorer soil in the County acknowledge their potential value for wildlife, and respect their limitations, particularly in terms of their assimilative properties to prevent pollution. **BE 15-11: Contaminated Land** a) Require that prior to permitting development on contaminated sites, developers will carry out a full contaminated land risk assessment to demonstrate: - How the proposed land uses will be compatible with the protection of health and safety (including the durability of structures and services) during both construction and occupation; and - How any contaminated soil or water encountered will be appropriately dealt with. b) In the case of development which requires the removal of soil, stones and invasive species, any removal requires the appropriate permits and disposal to authorised sites. **BE 15-12: Air Quality** a) Monitor air quality and air quality trends in accordance with EU policy directives, preserve good air quality where it exists, and take appropriate action, where required, including the provision of additional air quality monitoring infrastructure in urban areas and along major roads. b) Radon barriers should be provided in all new developments in compliance with best practice and relevant Building Regulations. c) Air emissions associated with all new development are to be in line with Environmental Quality Standards as set out in the Air Quality Standards Regulations 2011, or any updated/superseding documents.	

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	BE 15-13: Noise and Light Emissions a) Seek the minimisation and control of noise pollution associated with activities or development, having regard to relevant standards, published guidance and the receiving environment. b) Ensure noise-sensitive developments are adequately protected from potential sources of noise (e.g. national roads). New developments should take account of, and mitigate against, any existing noise sources. c) Support the implementation of Noise Action Plans prepared for the Cork County area. d) Seek the minimisation and control of light pollution associated with activities of development, having regard to relevant standards, published guidance and the receiving environment and Dark Sky principles. e) Review and update Cork County Council Policy Guidelines for Public Lighting to take account of impacts of public lighting on wildlife and night skies. **Objective BE 15-14: Waste Prevention and Management** a) Support the policy measures and actions outlined in - 'A Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025', and - Southern Region Waste Management Plan 2015 – 2021, or any successor plans b) Support circular and climate resilient economy principles and associated strategic infrastructure, prioritising prevention, reuse, recycling and recovery, and to sustainably manage all types of waste by ensuring the provision of adequate waste recovery, recycling and disposal facilities for the county **BE 15-15: Waste Prevention and Management of Waste Facilities** a) The expansion of existing waste facilities and the creation of new waste facilities shall comply with the criteria of the Southern Region Waste Management Plan set out above and be assessed through the development management process. b) Support the sustainable development of the Bottlehill facility for specialised and appropriate uses primarily associated with achieving the aims of the circular waste economy **BE 15-16: Waste Prevention and Management: Drinking Water Treatment and/or Wastewater Treatment** Ensure that sludge from drinking water treatment and/or wastewater treatment is appropriately managed, optimising potential for circular economy gains. **BE 15-17: Waste Prevention and Management**	

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	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. b) Support will be provided for locating suitable sites within the county for the safe disposal of construction and demolition waste in conjunction with the Southern Waste Region. c) Construction and Environmental Management Plans (CEMPs)/ Construction and Demolition Management Plans shall be prepared for larger scale projects as set out in paragraph 15.12.24 and this requirement shall be assessed on a case-by-case basis as part of the development management process. d) Support the implementation of the recommendations and policies of the National Hazardous Waste Management Plan 2014-2020 **Strategic Objective SO5 – Green and Blue Infrastructure, Open Space and Biodiversity** Manage and enhance green and blue infrastructure, to protect and promote biodiversity, ecology and habitat connectivity, protect natural areas, enhance landscape character and maritime heritage, and manage access to green and blue spaces that provide recreation, amenity and natural areas	
Cork County Biodiversity Action Plan 2009 - 2014	Key Objectives: **Objective 1:** To review biodiversity information for County Cork and to prioritise habitats and species for conservation action. **Objective 2:** To collect data and use it to inform conservation action and decision making **Objective 3:** To incorporate positive action for biodiversity into local authority actions and policy **Objective 4:** To promote best practice in biodiversity management and protection. **Objective 5**: To facilitate the dissemination of biodiversity information. **Objective 6:** To raise awareness of county cork's biodiversity and encourage people to become involved in its conservation.	Cork County Biodiversity Action Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. The Proposed Project will not prevent Cork County Council from achieving the objectives of the Biodiversity Action Plan.

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Kerry County Development Plan 2022 - 2028	The Objectives and Policies relating to Biodiversity are listed below: **KCDP 11-1** Ensure that the requirements of relevant EU and national legislation, are complied with by the Council in undertaking its functions, including the requirements of the EU Birds and Habitats Directives. **KCDP 11-2** Maintain the nature conservation value and integrity of Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs). This shall include any other sites that may be designated at national level during the lifetime of the plan in co-operation with relevant state agencies. **KCDP 11-3** Work with all stakeholders in order to conserve, manage and where possible enhance the County's natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the County. **KCDP 11-4** Promote nature-based solutions to meet national objectives towards achieving a carbon neutral economy by 2050. **KCDP 11-5** Support and facilitate the actions in the National Biodiversity Action Plan and Kerry County Councils Biodiversity Action Plan 2022 – 2028. **KCDP 11-6** Support community groups undertaking biodiversity projects and any opportunities that may arise from biodiversity funding/grants. **KCDP 11-7** Support the sustainable provision of access and information at natural heritage sites around the county, at appropriate locations. **KCDP 11-8** Support the recording of biodiversity data in the county and its referral to National Biodiversity Data Centre.	Kerry County Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. The Proposed Project has been subject to a full environmental assessment i.e. EIAR and Appropriate Assessment (Stage 1, 2, 3 and 4). The Proposed Project is in line with the biodiversity objectives of Kerry County Development Plan. Works within the Proposed Offsetting Lands are in line with and support the biodiversity objectives of Kerry County Development Plan e.g. Objectives 3, 5, 16, 19, 21, 22, 27 and 28.

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	KCDP 11-9 Support Agri-environment schemes; the MacGillycuddy Reeks Mountain Access Reeks Forum, the Magharees Conservation Association; EIPs; EU LIFE projects and other existing or proposed biodiversity programmes being undertaken in the county. **KCDP 11-10** Support the NPWS in the ongoing management of Killarney National Park. **KCDP 11-11** Work with NPWS and other partners to support the Kerry UNESCO Biosphere Reserve and the implementation of initiatives contained in the Periodic Review 2017. **KCDP 11-12** Support the protection of the biodiversity and tourism-value of Killarney National Park by proactively engaging with all stakeholders to tackle Rhododendron infestation and combating illegal fires. **KCDP 11-13** Support the sustainable use of wetlands, including our Ramsar sites, for educational, recreational and or tourism uses where appropriate and compatible with environmental protection designations. **KCDP 11-14** Support actions identified in Ag Climatise including on-farm measures to sequester carbon by the establishment of wetlands at appropriate locations. **KCDP 11-15** Facilitate and support the protection and enhancement of wetlands as nature-based solutions to flood management, climate change, and the biodiversity crisis. **KCDP 11-16** Ensure invasive species are managed in compliance with the provisions of the EC (Birds and Habitats) Regulations (SI 477 of 2011), as amended, particularly Sections 49, 50 and the Third Schedule. Best practices, as produced and updated by relevant authorities, are to be adhered to in the management of invasive species particularly on sites proposed for development. **KCDP 11-17** Facilitate, in collaboration with relevant stakeholders increased awareness and the implementation of biosecurity measures to prevent the spread of invasive species, particularly along watercourses. **KCDP 11-18** Facilitate the provision of an appropriate site in the County for the disposal and management of invasive species and contaminated soil, further to best practice guidelines and the provisions of the EC (Birds and Habitats) Regulations (SI 477 of 2011), as amended.	

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	KCDP 11-19 Support actions from the All-Ireland Pollinator Plan including the plan's recommendations for grassland management and pollinator friendly species. **KCDP 11-20** Support the management of appropriate green areas to become natural biodiversity areas to encourage natural wildflowers to recolonise and support enhanced bee and insect populations. **KCDP 11-21** Require, where necessary, proposals to be accompanied by a habitat map prepared in accordance with the Heritage Councils Best Practice Guidance for Habitat Survey and Mapping, 2011. **KCDP 11-22** Encourage and facilitate the retention and creation of features of local biodiversity value, ecological corridors and networks that connect areas of high conservation value such as watercourses, woodlands, hedgerows, earth banks and wetlands. **KCDP 11-23** Identify key areas in the County, in collaboration with other relevant bodies, where habitat mapping would be of particular benefit to record existing features of local biodiversity and where applicable to integrate this information in the development management and plan preparation process. **KCDP 11-24** Promote the integration and improvement of natural watercourses in development proposals having regard to the IFI's guidance Planning for Watercourses in the Urban Environment. **KCDP 11-25** Support projects such as the swift nesting project (that are compatible with protection of our architectural heritage); pollinator friendly initiatives, tree planting, nature based sustainable urban drainage systems and other actions that seek to enhance urban wildlife. **KCDP 11-26** Facilitate and support the actions of the tree management strategy for the respective municipal districts. **KCDP 11-27** Support the preservation and enhancement of the general level of broadleaf tree cover throughout the County in both urban and rural areas and ensure that development proposals satisfactorily retain existing trees and/or provide additional native planting. A Tree Survey Report shall inform applications where appropriate. **KCDP 11-28** Encourage the provision of locally provenanced native tree species including those recommended by the All-Ireland Pollinator Plan as part of development landscaping schemes.	

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	KCDP 11-29 Work with stakeholders to protect and sustainably enhance the biodiversity and where appropriate the landscape and recreational interests of woodlands in the County. **KCDP 11-30** Support the Department of Agriculture, Food and the Marine's Creation of Woodland on Public Lands Scheme, on public authority owned lands in the county at appropriate locations.	
Kerry County Councils Biodiversity Action Plan 2022 – 2028	Key Objectives: **Objective 1** Mainstreaming biodiversity into decision making within the Local Authority **Objective 2** To conserve, protect and enhance biodiversity and ecosystem services in the county **Objective 3** That biodiversity underpins KCC's responses to the challenges of climate change **Objective 4** Work with a range of stakeholders to ensure protection and enhancement of biodiversity in the county **Objective 5** Increase awareness and appreciation of biodiversity within KCC and the community **Objective 6** Support the strengthening of the knowledge base, information and data on biodiversity in the county	Kerry County Councils Biodiversity Action Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. The Proposed Project is in line with the Kerry County Councils Biodiversity Action Plan. Works within the Proposed Offsetting Lands are in line with and support the Objectives of Kerry County Councils Biodiversity Action Plan e.g. Objectives 2 and 4.
National Biodiversity Action Plan 2023-2030	**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.	The National Biodiversity Action Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. The Proposed Project is in line with the National Biodiversity Action Plan 2023-2030.

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	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.	Works within the Proposed Offsetting Lands are in line with and support the Objectives of the National Biodiversity Action Plan e.g. Objectives 2 and 4.
Southern Regional Assembly Regional Spatial and Economic 2020-2040 Strategy (RSES)	**RPO 1 – Environmental Assessment** a. Any reference to support for all plans, projects, activities and development in the RSES should be considered to refer to 'environmentally sustainable development' that has no adverse effects on the integrity of European sites and no net loss of biodiversity, that shall be subject to appropriate feasibility studies, best practice site/route selection (to consider environmental constraints such as landscape, cultural heritage, the protection of water quality, flood risks and biodiversity as a minimum), environmental assessment including EcIA to support development management and where required, the completion of statutory SEA, EIA and AA processes as appropriate b. The RSES seeks to protect, manage and through enhanced ecological connectivity, to improve the coherence of the Natura 2000 Network in the Southern Region. 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. d. Development Plans shall include an objective for the protection of European sites and Natural Heritage Areas (designated and notified proposed NHAs). **RPO 117 - Flood Risk Management and Biodiversity**	The RSES was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity, protected species and designated sites. The Proposed Project has been subject to a full environmental assessment i.e. EIAR and Appropriate Assessment (Stage 1, 2, 3 and 4). The Proposed Project is in line with the biodiversity objectives of the Southern Regional Assembly Regional Spatial and Economic 2020-2040 Strategy (RSES) e.g. RPO 126.

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	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. **RPO 124 - Green Infrastructure** a. It is an objective to promote the concept of connecting corridors for the movement of wildlife and encourage the retention and creation of features of biodiversity value, ecological corridors and networks that connect areas of high conservation value such as woodlands, hedgerows, earth banks, watercourses and wetlands. The RSES recognises the necessity of protecting such corridors and the necessity to encourage the management of features of the landscape that support the Natura 2000 network; b. Green infrastructure will be integrated into the preparation of statutory land-use plans in the Region, which will include identifying Green infrastructure and strengthening this network; c. All Development Plans and Local Area Plans shall protect, enhance, provide and manage Green infrastructure in an integrated and coherent manner addressing the themes of biodiversity protection, water management and climate action; and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species; d. Any future development of greenways, blueways, peatways, cycleways or walkways will include an assessment by the relevant authorities of any impacts that may arise from increased visitor pressures, in particular, on sensitive European sites and the design of the network will consider the provision of protective measures on sites sensitive to disturbance/visitor pressure. **RPO 126 – Biodiversity** a. Promote biodiversity protection and habitat connectivity both within protected areas and in the landscape through promoting the integration of green infrastructure and ecosystem services, including landscape, heritage, biodiversity and management of invasive and alien species in the preparation of statutory and non-statutory land-use plans. The RSES recognises the role of the National Biodiversity Data Centre through its Citizen Science initiatives; b. Support local authorities acting together with relevant stakeholders in implementing measures designed to identify, conserve and enhance the biodiversity of the Region; seek and support the implementation of the	

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	All-Ireland Pollinator Plan, National Biodiversity Action Plan and National Raised Bog SAC Management Plan; c. Local Authorities are required to carry out required screening of proposed projects and any draft land-use plan or amendment/ variation to any such plan for any potential ecological impact on areas designated or proposed for inclusion as Natura 2000/ European Sites and shall decide if an Appropriate Assessment is necessary, of the potential impacts of the project or plan on the conservation objectives of any Natura 2000/European Site; d. Support local authorities to carry out, monitor and review biodiversity plans throughout the Region. Planning authorities should set objectives in their land use plans to implement and monitor the actions as set out in the National and County Biodiversity Plans, as the conservation of biodiversity is an essential component of sustainable development. Local authorities should address the issue of fisheries protection and invasive introduced species and encourage the use of native species for landscape planting in rural areas, in the review of their biodiversity plans; e. Support local authorities to work with all stakeholders to conserve, manage and where possible enhance the Regions natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the Region. **RPO 151 – Integration of Land Use and Transport** j. The protection of the Natura 2000 networks and the ecological linkages connected to the Natura 2000 network. **RPO 202 - Natural Heritage, Biodiversity and Built Heritage assets** It is an objective to support initiatives that enhance and protect our Region's unique natural heritage, biodiversity and built heritage assets, recognising the contribution which education and outreach can play in developing understanding of biodiversity and heritage in our communities. Such initiatives should secure funding to support projects in the Region in line with the National Biodiversity Action Plan.	

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6.10 Conclusion

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

Following the implementation of mitigation, no potential for significant effects on Nationally designated sites were identified.

The mitigation described in this chapter will be implemented in full and it is therefore predicted that there will be no significant individual or cumulative effects on non-avian biodiversity at the international, national, county or local scales or on any of the identified KERs.

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