

6. BIODIVERSITY

6.1 Introduction

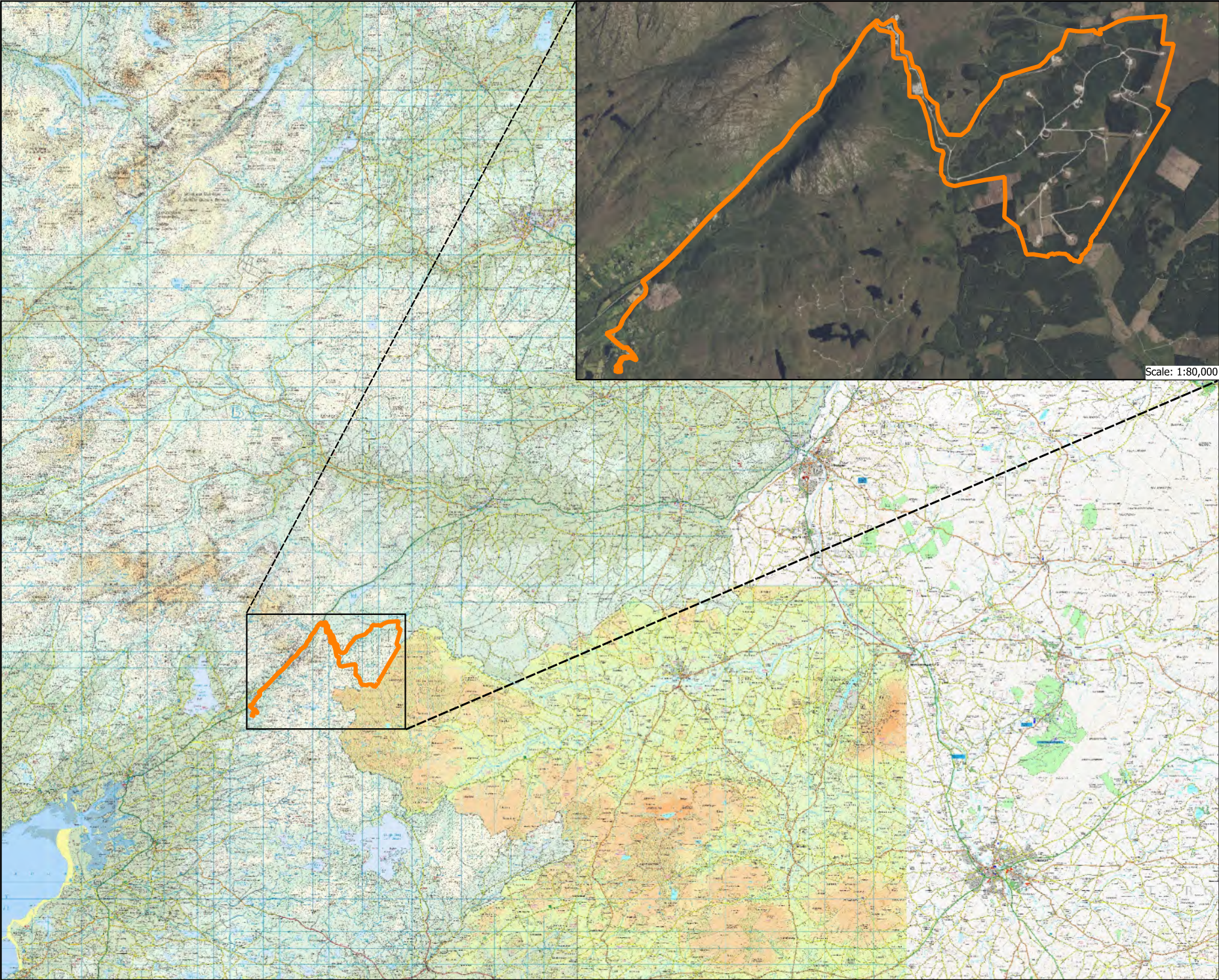
This chapter of the rEIAR assesses the effects on Biodiversity, Flora, and Fauna (excluding birds, which are addressed in Chapter 7) of all works completed to date at the Wind Farm Site and Grid Connection Site. Particular attention has been paid to species and habitats of ecological importance. These include species and habitats with national and international protection under the Wildlife Act, 1976 (as amended) and the EU Habitats Directive 92/43/EEC. Impacts on avian receptors are considered in **Chapter 7** of this rEIAR.

This rEIAR chapter informs the application for substitute consent for the Existing Development. A separate EIAR chapter has been prepared to inform the application for the Prospective Development as part of the same substitute consent planning application.

The chapter is structured as follows:

- Firstly, the Introduction provides a brief description of the Existing Development.
- 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 existing ecological conditions is then provided. This includes results of the comprehensive desk and field surveys that were undertaken.
- The Key Ecological Receptors (KERs) are then identified and evaluated.
- Following this a comprehensive assessment of the effects of the Existing Development on biodiversity is provided. This includes an assessment of the effects, both individually and cumulatively with other projects and assesses the residual effects on biodiversity. Transboundary effects are also considered.
- The conclusion provides a summary statement on the overall significance of the effects on Biodiversity.

As detailed in Section 1.1.1 in Chapter 1 of this rEIAR, the various development components are described and assessed using the following references: 'Subject Development', 'Existing Development', 'Prospective Development', 'Permitted Development', 'Site', 'Wind Farm Site', 'Grid Connection Site', 'BMEP Site', 'Grid Connection', 'November 2020 Peat Slide', '2017 EIAR' and 'proposed turbines' or 'proposed turbine locations'.



Map Legend

 Wind Farm Site and
Grid Connection Site



Drawing Title

Site Location

Project Title

Substitute for Consent Application
for Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.1
Scale	Date
1:300,000	10.06.2026

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6.1.1 Statement of Authority

This report and associated assessment have been prepared by Pat Roberts (B.Sc. (Env) MCIEEM), and Matthew Kieran (B.Sc. Env, Eco). Pat is a full member of the Chartered Institute of Ecology and Environmental Management. Pat is a highly experienced in the undertaking of Biodiversity Chapters for Ecological Impact Assessment Reports and has over 20 years' post graduate experience in ecological consultancy. Matthew is a qualified ecologist with 2 years post graduate experience.

The pre-works ecological baseline was first described in the 2017 EIAR and the surveyors are listed therein. Subsequently, ecological surveys were undertaken on numerous occasions by Rachel Minogue (B.Sc., Env.), Matthew Kieran (B.Sc. Env, Eco), Colin Murphy (B. Sc (Ecology), M.Sc.), Tom Peters (B.Sc., M.Sc.) Kieran Sugrue (B.Sc. Env & Eco), Caiti Farren (B.Sc.), Aran von der Geest Moroney (B.Sc.) and Pat Roberts. All surveyors had the appropriate skills, experience and qualifications to undertake the surveys and assessments that they were undertaking. Dedicated, bat, peatland and aquatic assessments were undertaken by MKO and Triturus Ltd. across multiple dates in 2021, 2022, 2023, 2024 and 2025. Details of the surveyors that undertook these surveys and assessments are provided in the survey reports that are provided in the relevant appendices.

6.1.2 Relevant Guidance

The assessment methodology is based primarily upon Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine Version 1.2 (CIEEM, 2022) and the Transport Infrastructure Ireland (TII)'s *Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2* (TII, 2009a) (referred to hereafter as the TII Ecological Impact Assessment Guidelines). The survey methodology is based primarily on the TII guidelines on *Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes* (TII, 2009b). Although these survey methodologies relate to road schemes, these standard guidelines are recognised survey methodologies that ensure good practice regardless of the development type.

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

- Bats and onshore wind turbines: survey, Assessment, and mitigation (NatureScot August 2021)
- NIEA, Natural Environment Division - Guidance on Bat Surveys, Assessment and Mitigation for Onshore Wind Turbine Developments in Northern Ireland (May 2022).
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA), 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. (Department of the Environment, Community and Local Government (DoEHLG), 2013).
- Environmental Impact Assessment of National Road Schemes – A Practical Guide (TII, 2008a).
- Guidance on the preparation of the Environmental Impact Assessment Report (European Commission (EC), 2017)

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

This assessment has taken into account the various planning policies and strategy guidance documents listed below:

- Donegal County Development Plan 2024-2030
- Derry & Strabane District Council – Local Development Plan (LDP 2032)
- 4th National Biodiversity Action Plan 2023-2030
- Northern and Western Regional Spatial and Economic Strategy 2020 - 2032

6.2

Brief Description of Existing Development

A full description of the Existing Development is provided in Chapter 4 of this rEIAR and associated appendices. A summary is provided below. This rEIAR assesses the Existing Development, encompassing all works carried out at the Site since November 2019 to date.

Key definitions used herein are described in Chapter 1: Introduction of this rEIAR.

The Wind Farm Site is located within a rural, agricultural setting in County Donegal approximately 8 km southwest of the twin towns of Ballybofey and Stranorlar and approximately 12 km northeast of Donegal Town at its nearest point. The Grid Connection Site extends southwest from the Wind Farm Site for approximately 6 km along the N15 National Road towards Donegal Town before exiting the N15 to the southeast and following Local Roads, adjacent agricultural land and private access track to the Clogher 110kV substation.

A detailed description of the Existing Development is provided in Chapter 4 of the rEIAR.

6.3

Methodology

The following sections describe the methodologies followed to establish the ecological condition of the Wind Farm Site and Grid Connection Site and surrounding area. Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological Baseline conditions are those existing in the absence of proposed activities (CIEEM, 2018). This section also describes the methodology followed to identify and characterise the KERs and to undertake the impact assessment.

6.3.1

Scoping and Consultation

MKO undertook a scoping exercise during preparation of this rEIAR, as described in **Chapter 2, Section 2.9**. Copies of all scoping responses are included in **Appendix 2-2** to this rEIAR. Details of the recommendations of the consultees are provided in Chapter Two, together with information about where in the EIAR they have been addressed. The feedback from the consultees has informed the rEIAR preparation process and the contents of this chapter. **Table 6-1** below provides a list of the organisations consulted with regard to biodiversity during the scoping process, and notes where scoping responses were received. Any scoping responses received on birds are addressed in Chapter 7 Ornithology.

Table 6-1 Organisations consulted with regard to biodiversity

Consultee	Date of Response	Referenced in
An Taisce	No response received	N/A
Bat Conservation Ireland	No response received	N/A
Birdwatch Ireland	No response received	N/A
Department of Agriculture, Food and Marine	Response 29/09/2025 The Department made comments in relation general aspects to be considered in felling or removal of any trees as part of the Subject Development. No further comments in the follow up response.	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting

Department of Housing, Local Government and Heritage (DHLGH)	Meeting held with NPWS on 8th January 2026. The main points as they relate to Biodiversity (Excluding Birds are provided below) Bog Restoration It was noted that the preferred methodology for bog restoration is tree stump removal/flipping in flatter areas of deeper peat, and stump grinding/ pairing preferred on shallow sloped peat (Sourcing the necessary equipment for this may prove challenging). Reprofilling the bog surface in line with NatureScot Guidance can assist in reducing establishment of birch and similar dominant species. Drain blocking alone is unlikely to have the desired effect above a certain gradient. Aquatic Impacts The impact of the November 2020 peat slide on the downstream watercourses was discussed and the nature of the impacts and recovery of the river was explained. The emergency response measures undertaken by the applicant and stream restoration undertaken was also discussed. These actions limited impacts on the river and aided the recovery of the Shruhangarve River.. Appropriate Assessment The approach proposed in respect of the Appropriate Assessment reporting (AASR and NIS) was discussed and informed the nature of the assessment of effects on European Sites that is presented in the NIS that accompanies the application.	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting
Inland Fisheries Ireland	Response 24/10/2025 The Department provided observations on the Grid Connection in relation to water quality, valuable ecological habitats, aquatic environment, watercourses, watercourse crossings, drains, and site transport routes. A full description of comments raised by Inland Fisheries Ireland can be found in Appendix 2-1 Scoping Responses. No further comments in follow up response.	Section 6.4.1
Irish Peatland Conservation Council (IPCC)	Response 17/09/2025 IPCC raised various concerns in relation to Meenbog Wind Farm.	Sections 6.4.1 and 6.6.2
Irish Wildlife Trust	No capacity for consultation	N/A
Department of Agriculture, Environment and Rural Affairs (DAERA) – Regional Office	Response 03/10/2025 Water Management Unit (Provided data sources and guidance documents to be used, recommended that the application provides clear details on effects to waterways and surface water disposal etc., and mitigation measures for the protection of the water environment and surrounding water bodies, recommends that the applications is compliant with the DAERA Standing Advice Pollution Prevention Guidance document). Natural Environment Division (Observations regarding salmon within the development site, and potential risks to surrounding hydrologically connected sites. Recommends various plans for the	Informed approach taken in Chapter 6 and Appropriate Assessment Reporting

	application (CEMP, Pollution Prevention Plan, Site Drainage Plan etc.). Full descriptions of points raised can be found in Appendix 2-1 Scoping Responses. No further comments in the follow up response.	
Loughs Agency	Meeting held on 16th January 2026 The findings of the aquatic surveys undertaken by the applicant were presented and it was noted that the findings aligned well with the findings of the Lough Agency's surveys and monitoring of the river. It was noted by the Loughs Agency that salmon had been recorded spawning throughout the catchment in good numbers in the years since the peat slide. It was also noted that salmon had been recorded in the Bunadaowen during electro-fishing surveys It was noted that the Loughs Agency had undertaken gravel cleaning throughout the spawning habitat within the Mourne Beg and had seen the benefit of this with an increase in the distribution of salmonid spawning following these interventions. It was noted that this is standard practice for the Loughs Agency but additional works had been undertaken on the Mourne Beg following the peat slide He noted that distribution had contracted again to some degree and suggested that gravel cleaning may be needed again. The Loughs Agency noted that due to salmon lifecycle, the effects of an impact in 2020 would be seen again four years later when the fish from that time return to spawn. If there was a drop in salmon recruitment in 2020, there would likely be an equivalent drop in spawning fish, four years later. The applicant noted that no drop in salmon numbers had been recorded during the surveys undertaken immediately after the peat slide by Loughs Agency and Triturus and that, there was no drop in numbers during the 2024 or 2025 electro-fishing surveys carried out by Triturus. Loughs Agency concluded that they did not disagree with the information presented to him during the meeting and agreed to further consultation if necessary.	Section 6.5.2.4
Environmental Protection Agency	No response received	N/A

6.3.1.1 Establishment of Zones of Influence

“Zone of Influence” (ZOI) refers to the zone within which potential effects are anticipated. ZOIs differ depending on the sensitivities of particular habitats and species and were assigned individually for each in accordance with best available guidance and through adoption of a precautionary approach.

In many instances, the scale of the works is such that the ZOI extends no further than the Wind Farm Site and Grid Connection Site. In other cases, such as where there is the potential for disturbance or where there is a watercourse to provide downstream connectivity, the ZOI may extend outside the Wind Farm Site and Grid Connection Site.

6.3.2 Desk Study

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

- Review of online web-mappers: National Parks and Wildlife Service (NPWS), EPA (Envision), Water Framework Directive (WFD), Geological Survey of Ireland (GSI) & Inland Fisheries Ireland (IFI).
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.
- Data on potential occurrence of protected bryophytes – as per NPWS online map viewer; Flora Protection Order Map Viewer – Bryophytes.
- Inland Fisheries Ireland (IFI) Reports.
- Review of specially requested records from the NPWS Rare and Protected Species Database for the hectad H08 in which the Wind Farm Site and Grid Connection Site is located.
- Review of NPWS Article 17 Metadata and GIS Database Files.
- Review of Biotic Index of Water Quality (BIWQ) developed by the (EPA).
- Review of Northern Ireland Environment Agency water quality monitoring data.
- Review of the 2017 EIAR.

All online data sources listed above were most recently accessed on the 1st April 2026.

6.3.3 Ecological Field Surveys

The Site has been subject to extensive ecological field surveys carried out as part of the 2017 EIAR and during the construction of the Existing Development such as pre-commencement mammal surveys. These surveys informed the pre-development baseline and are provided in the 2017 EIAR and formed part of the construction supervision procedures that were followed.

Additionally, comprehensive surveys of the biodiversity of the Wind Farm Site and Grid Connection Site were subsequently undertaken and inform this rEIAR and the accompanying EIAR. The following sections fully describe the surveys that have been undertaken between 2021 and 2026 provide details of the methodologies and guidance followed. Details are summarised in **Table 6-2** below.

Table 6-2: Details of Ecology Surveys undertaken

Survey Type	Dates	Appendix
Multi-disciplinary walkover (incl. habitats and species)	› 03/06/2021 › 20/01/2022 › 23/08/2023 › 24/08/2023 › 11/09/2023 › 18/12/2023 › 19/12/2023 › 28/08/2024 › 29/08/2024 › 11/09/2025	N/A
Otter Survey	› 20/01/2022 › 24/08/2023 › 11/09/2025	N/A
Bat Surveys	Full details of dates of surveys for manual activity surveys and emergence surveys, static detector surveys, and daytime bat habitat appraisal surveys, are presented in Appendix 6-1 .	Appendix 6-1
Aquatic surveys (including otter)	Full details of dates of aquatic surveys including Electrofishing, fisheries habitat appraisal, white-clawed crayfish survey, macrophyte and bryophyte sampling, Q-sampling and macroinvertebrate kick and sweep sampling Appendix 6-2. › Redd Count 07/01/2026	Appendix 6-2
Terrestrial Surveys of Grid Connection Site	› 03/06/2021 › 11/09/2025	N/A

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

Multidisciplinary walkover surveys were undertaken within the Wind Farm Site and Grid Connection Site on the dates outlined in **Table 6-2 above**. Surveys were undertaken following guidelines that are set out in the relevant guidance (NRA, 2009) throughout the year, including within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011)¹. All habitats recorded on the Wind Farm Site and Grid Connection Site and described in this Biodiversity chapter have been mapped and classified in accordance with Fossitt (2000)². A comprehensive walkover of the entire Wind Farm Site and Grid Connection Site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys. During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011) was conducted.

The walkover surveys were also designed to detect the presence, or likely presence, of a range of protected species. The survey included a search for mammal signs (bats, badger, red squirrel etc.) and areas of suitable habitat to support these species, 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 Wind Farm Site and Grid Connection Site (e.g. otter etc.). Bird species observed during the multi-disciplinary surveys were also recorded.

Based on the survey findings, further detailed targeted surveys were carried out for features and locations of ecological significance. Other targeted surveys undertaken within the Wind Farm Site and Grid Connection Site are described in the following subsections.

6.3.3.2 Terrestrial Faunal Surveys

The results of the desk study, scoping replies, previous surveys associated with the Wind Farm Site and Grid Connection Site and incidental records of protected species during ecological survey work were used to inform the scope of the multidisciplinary walkover surveys. Dedicated surveys for bats were undertaken across the Wind Farm Site and Grid Connection Site and are detailed in the Bat Report in **Appendix 6-1**. Dedicated otter surveys were carried out by MKO within the Proposed Wind Farm Site and along the Grid Connection Site and are detailed in the Aquatic Reports in **Appendix 6-2**. During the multidisciplinary walkover surveys, where observed incidental records of birds, mammals, reptiles, amphibians, and invertebrates including butterflies, dragonflies, etc. were recorded.

6.3.3.2.1 Badger Surveys

Badger surveys were conducted during the ecological multidisciplinary walkover surveys on the dates set out in **Table 6-2** above in order to determine the presence or absence of badger signs within the Wind Farm Site and Grid Connection Site. This involved a search for all potential badger signs as per NRA (2009)³ (latrines, badger paths and setts).

The badger survey was conducted adhering to best practice guidance (NRA, 2009) and followed the 'Guidelines for the Treatment of Badger Prior to the Construction of National Roads Schemes' (NRA, 2006a) and CIEEM best practice competencies for species surveys (CIEEM, 2013⁴).

6.3.3.2.2 Otter Survey

¹ (Smith et al 2011)- Best Practice Guidance for Habitat Survey and Mapping. Available at https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf

² (Fossitt 2000)- A Guide to Habitats in Ireland. Available at <https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf>

³ NRA (2009) Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes. Dublin: National Roads Authority.

⁴ CIEEM, 2013, Technical Guidance Series – Competencies for Species Survey, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/> Accessed: 20.03.2021

The otter surveys were conducted as per NRA (2009⁵) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes). This involved a search for all otter signs e.g. spraints, scat, prints, slides, trails, couches and holts. In addition to the width of the rivers/watercourses, a 10m riparian buffer (both banks) was considered to comprise part of the otter habitat (NPWS 2009). The dedicated otter survey also followed the guidance as set out in NRA (2008) ‘*Guidelines for the Treatment of Otters Prior to the Construction of National Roads Schemes*’ and following CIEEM best practice competencies for species surveys (CIEEM, 2013⁶).

6.3.3.2.3 Bat Surveys

Detailed description of the survey methodologies undertaken at the Wind Farm Site and Grid Connection Site throughout 2024/ 2025 in relation to bats is provided in the Bat Report included in **Appendix 6.1** of this EIAR, together with full details of the survey times and the surveyors who carried out the bat survey and assessment work.

Survey design and effort was created in accordance with the best practice guidelines, ‘*Bat Surveys: Good Practice Guidelines*’ prepared by the Bat Conservation Trust (Collins 2023)⁷ and were undertaken in strict accordance with those prescribed in NatureScot (2021)⁸ ‘*Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*’. This is in line with standard best practice industry guidelines.

In addition, ecological evaluation of bat populations has been undertaken with reference to *Guidelines for the Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority (NRA), 2009), which provides a recognised framework for assigning ecological importance at different geographic scales (e.g. local, county, national and international). Consideration has also been given to species valuation principles outlined in Wray et al. (2010), *Valuing bats in ecological impact assessment*, together with the most recent conservation status assessments presented in *The Status of EU Protected Habitats and Species in Ireland: Article 17 Report* (NPWS, 2025). These sources have informed the evaluation of species importance within an Irish context and have been used to support the interpretation of species-specific sensitivity and risk within the assessment.

6.3.3.3 Aquatic Surveys

The baseline aquatic environment was described and characterised in the 2017 EIAR. The Fisheries Habitat Assessment and Aquatic Macrophyte Sampling Report from the 2017 EIAR are provided in **Appendix 6-2**.

Additional surveys and assessments have been undertaken in the subsequent years for the Existing Development. Details of these surveys and associated reporting are also provided in **Appendix 6-2** and full details of the methodologies followed are included therein. **Appendix 6-2** includes the following reports:

- Meenbog Wind Farm – Fisheries Assessment. Paul Johnson Associates (2017)
- Aquatic macroinvertebrate survey. MKO (2017)
- Aquatic and Fisheries Assessment of November 2020 Peat Slide impacts on the Mourne Beg River Catchment draining Meenbog Wind Farm, Co. Donegal. Triturus (2022)
 - Electro-fishing
 - Salmonid Habitat Quality
 - Salmonid fry abundance

⁵ NRA (2009) *Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes*. Dublin: National Roads Authority.

⁶ CIEEM, 2013, *Technical Guidance Series – Competencies for Species Survey*, Online, Available at: <https://cieem.net/resource/competencies-for-species-survey-css/> Accessed: 20.03.2021

⁷ (Collins 2023)- *Bat Surveys for Professional Ecologists- Good Practice Guidelines*. Available at <https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-4th-edition-AMENDED-27.03.24.pdf?v=1711530492>

⁸ (NatureScot, 2021) *Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*. Available at https://www.nature.scot/sites/default/files/2021-08/Bats%20and%20onshore%20wind%20turbines%20-%20survey%20and%20assessment%20and%20mitigation_0.pdf

- Riverbed Condition Assessment
- River Hydromorphology
- Biological Water quality (Q-Sampling)
- Aquatic baseline report for Meenbog wind farm, Co. Donegal. Triturus (April 2025)
 - Aquatic site surveys
 - Fisheries assessment and habitat appraisal
 - White clawed crayfish survey
 - Biological water quality (Q-Sampling)
 - Lacustrine Macro-invertebrate communities
 - Macrophytes and aquatic bryophytes
 - Otter surveys
- Aquatic baseline report for Meenbog wind farm, Co. Donegal (October 2025)
 - As per previous report – updated.

In addition, a visual survey for salmonid redds was undertaken on the 7th January 2026. During these surveys, the Mourne Beg River was walked at the locations listed below and any redds observed were counted. The objective of the survey was to confirm spawning at traditional spawning areas – as previously identified by the Loughs Agency and Triturus (See **Appendix 6-2**). Despite a period of dry weather, water levels were still high, and the water was highly coloured, limiting visibility and likely leading to an under recording of redds present. Areas surveyed included:

1. From Croagh Bridge at Grid Ref H 12543 85759, downstream for approximately 1.3km – traditional salmonid spawning area
2. From bridge at Grid Ref: H 352 85183, downstream for approximately 120m – traditional salmonid spawning area.
3. From confluence of Bunadowen with Mourne Beg at Grid Ref H 08236 87800 for a distance of approximately 500m – recent salmonid spawning area.

6.3.4 Methodology for Assessment of Impacts and Effects

6.3.4.1 Identification of Target Receptors and Key Ecological Receptors

The methodology for assessment followed a precautionary screening approach with regard to the identification of Key Ecological Receptors (KERs). Following comprehensive desk and field surveys, “Target receptors” likely to occur in the zone of influence of the development were identified. The target receptors included habitats and species that were protected under the following legislation:

- Annexes of the EU Habitats Directive
- Qualifying Interests (QIs) of NHAs and pNHAs within the likely zone of influence
- Species protected under the Wildlife Act.
- Species protected under the Flora (Protection) Order 2022 S.I. No. 235

6.3.4.2 Determining Importance of Ecological Receptors

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

- International
- National
- County
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The TII guidelines clearly set out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significance and of any importance only in the local area. Internationally Important Sites are either designated for conservation as part of the Natura 2000 Network (SACs or SPAs) 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.

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

6.3.4.3 Characterisation of Impacts and Effects

Potential ecological effects of the potential impacts are characterised as per the CIEEM ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ (2018). These guidelines are the industry standard for the completion of Ecological Impact Assessment in the UK and Ireland. This chapter has also been prepared in accordance with the corresponding EPA guidance (EPA, 2022). 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 Existing Development has resulted 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.

6.3.4.4 Determining the Significance of Effects

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

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

When determining significance, consideration is given to whether:

- Any processes or key characteristics of KERs 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.

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

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

6.3.4.4.1 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, 2009). Impacts resulting in adverse changes to the nature, extent, structure and function of component habitats and effects on the average population size and viability of component species, would affect the integrity of a Site, if it changes the condition of the ecosystem to unfavourable.

6.3.4.4.2 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 Habitats Directive the conservation of a habitat is favourable when:

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

The conservation of a species is favourable when:

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

According to the NRA (2009) and CIEEM (2018) Guidelines, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international).

6.3.4.5 Limitations

The information provided in this chapter accurately and comprehensively describes the ecological environment following the construction of the Existing Development and no significant limitations were identified. The assessment is based on baseline information that was provided in the 2017 EIAR and additional pre and post construction surveys that were undertaken on numerous dates during all seasons between 2019 and 2026. It provides the baseline upon which to assess the Existing Development. The specialist studies, analysis and reporting have been undertaken in accordance with the appropriate guidelines. The habitats and species on the Wind Farm Site and Grid Connection Site were readily identifiable and comprehensive information was gathered during the field visits. The desk and field surveys provide the necessary information to inform the impact assessment that was undertaken.

6.4 Establishing the Ecological Baseline

6.4.1 Desk Study

The following sections describe the results of a survey of published material that was consulted. It provides baseline information relating to the ecology of environment in which the Existing Development is situated and informs the nature and scope of the field surveys undertaken and the impact assessment.

6.4.1.1 Designated Sites

6.4.1.1.1 Identification of the Designated Sites within the Likely Zone of Influence of the Existing Development

European Sites (Special Areas of Conservation and Special Protection Areas)

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 (including sites within the UK) is fully assessed in the Remedial Natura Impact Statement that accompanies this application.

As per 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". As such the detailed assessment that is provided in the remedial Natura Impact Statement (rNIS) is not repeated here. However, the rNIS that accompanies this application identifies the potential for likely significant effects to occur or have occurred on the following European Sites:

- › Croaghonagh Bog SAC [000129]
- › River Finn SAC [002301]
- › River Foyle and Tributaries SAC [UK0030320]
- › Lough Eske and Ardnamona Wood SAC [000163]

Figure 6.2 shows all European Sites surrounding the Wind Farm Site and Grid Connection Site.

Nationally Designated Sites (Natural Heritage Areas and proposed Natural Heritage Areas)

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 rEIAR.

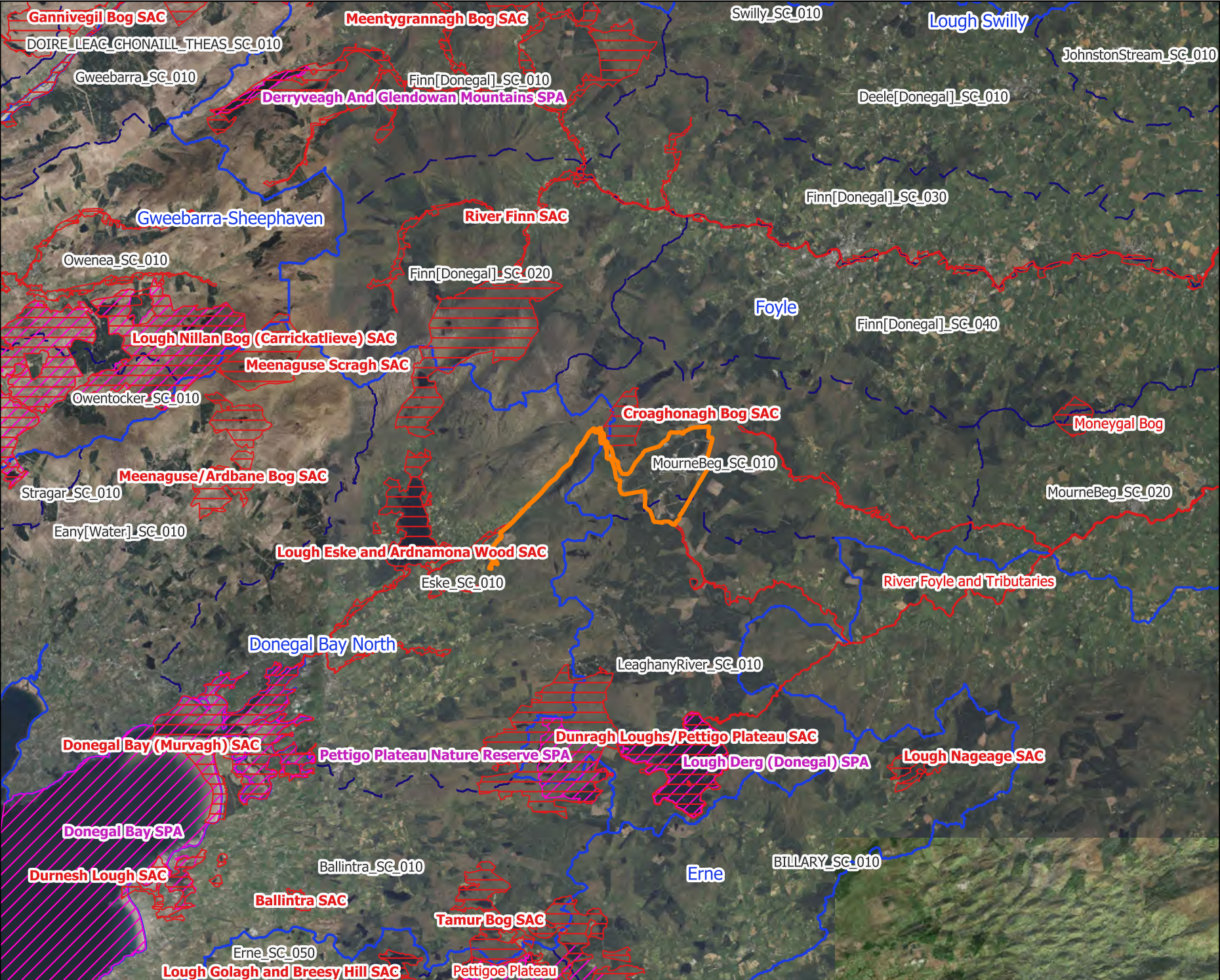
Areas of Special Scientific Interest (ASSIs) in Northern Ireland are Protected Sites recognized for important wildlife (flora, fauna) or geology/landforms, managed by the Northern Ireland Environment Agency, with legal protection under the Environment Order (NI) 2002 to prevent damage and ensure conservation, covering terrestrial, freshwater, and intertidal zones.

The following methodology was used to establish which sites that are designated for nature conservation have the potential to have been or be impacted by the Existing Development.

- › Initially the most up to date GIS spatial datasets for Nationally Designated Sites and water catchments were downloaded.
- › All Nationally Designated Sites that could potentially be or have been affected were identified using a source-pathway-receptor model. To provide context for the

assessment, Nationally Designated Sites surrounding the Existing Development are shown on **Figure 6-3**. Information on these sites and an assessment of the potential pathways for effect is provided in Table 6-3. Sites that were further away from the Existing Development were also considered and no complete source-pathway-receptor chain for significant effect was identified for any other Nationally Designated Site.

- The EPA catchment mapping was used to establish or discount potential hydrological connectivity between the Wind Farm Site and Grid Connection Site and any Nationally Designated Sites. The hydrological catchments are also shown in **Figure 6-3**. The designation features of these sites (where available), as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for Likely Significant Effects are identified, the site is included within the Likely ZOI and further assessment is required.



Map Legend

- Wind Farm and Grid Connection Site
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- NI Special Areas of Conservation (SACs)
- NI Special Protection Areas (SPAs)
- WFD Hydrological Catchments
- WFD Hydrological Subcatchments



Drawing Title
Wind Farm Site and Grid Connection Site
in relation to European and Northern
Ireland Designated Sites

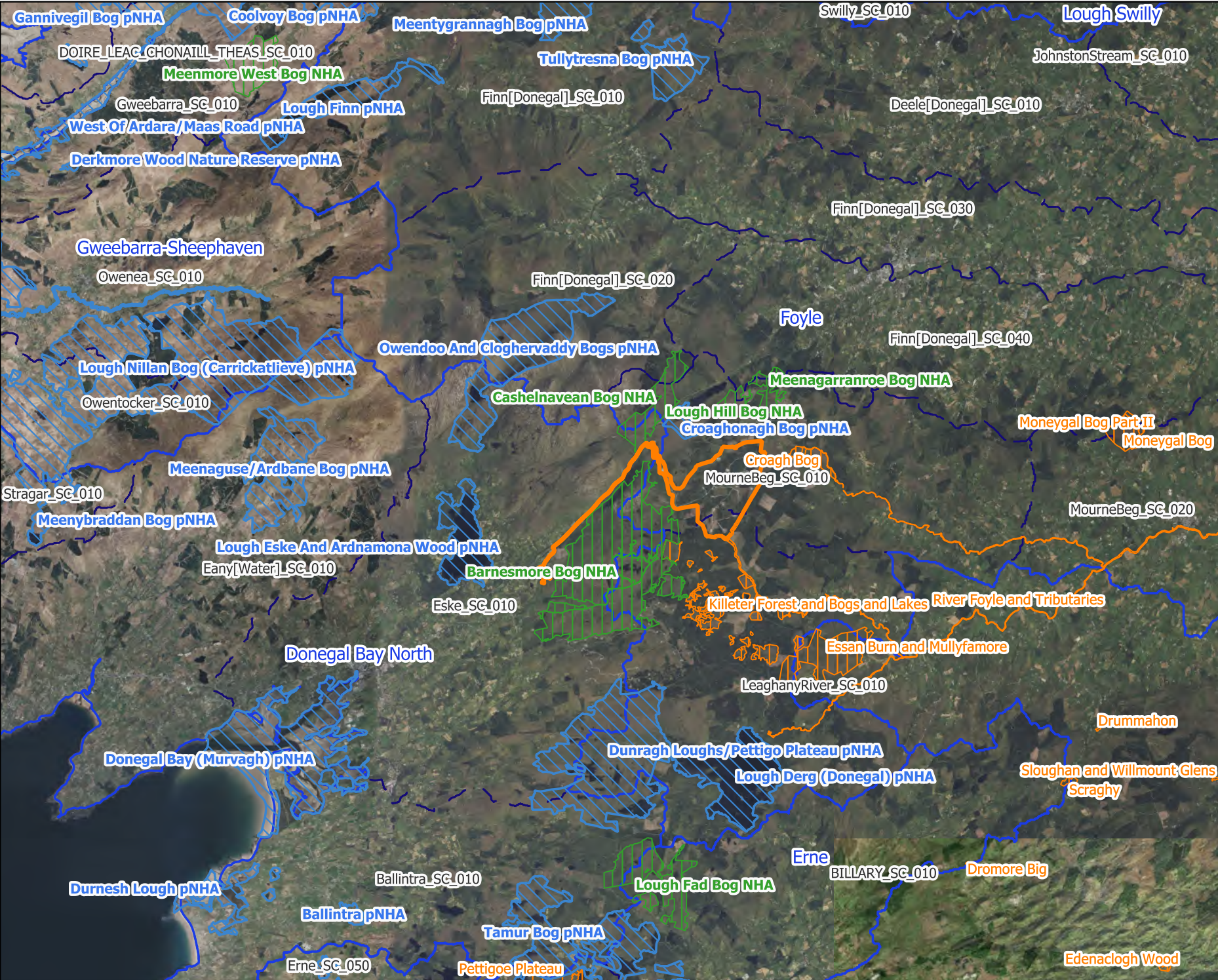
Project Title
Substitute for Consent Application for
Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No. 240505-a	Drawing No. Figure 6.2
Scale 1:200,000	Date 10.06.2026



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Map Legend

- Wind Farm Site and Grid Connection Site
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (pNHA)
- Areas of Special Scientific Interest (ASSI)
- WFD Hydrological Catchments
- WFD Hydrological Subcatchments

Drawing Title
Wind Farm Site and Grid Connection Site
in relation to Nationally and Northern
Ireland Designated Sites

Project Title
Substitute for Consent Application for
Meenbog Wind Farm

Drawn By MK	Checked By PR
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Table 6-3 Identification of Nationally Designated Sites within the Likely Zone of Influence

Nationally Designated Sites and distance from the Existing Development	Distance from Wind Farm Site and Grid Connection Site (km)	Likely Zone of Influence Determination
Natural Heritage Areas (NHA)		
Cashelnavean Bog NHA (000122)	0km from the Wind Farm Site and Grid Connection Site	The Grid Connection Site overlaps with this Nationally Designated Site. The NHA covers the N15 road at the location where the Grid Connection exits the Wind Farm Site and follows the public road. The Grid Connection is located within the NHA for a distance of approximately 500m. It is located entirely within the existing National Road throughout this entire distance, with no loss of any natural habitat. Given the nature, scale and location of the works undertaken in the vicinity of the NHA, there was no potential for significant direct or indirect effects on the NHA to occur or have occurred. Therefore, no further assessment is required.
Barnesmore Bog NHA (002875)	15m from the Wind Farm Site 8.5m from Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this NHA and is separated from the Wind Farm Site by a distance of 15m at closest. The actual footprint of the Existing Development is located over 100m from the NHA. There is no potential for the Existing Development to result or have resulted in any direct effect on this NHA. Given the nature and scale of the works undertaken in the vicinity of the NHA and its terrestrial nature, there is no potential for significant indirect effects on the NHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Hill Bog NHA (002452)	1.2km from the Wind Farm Site 3.2km from Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 1.2km. There is no potential for the Existing Development to result or have resulted in any direct effect on this NHA. The Wind Farm Site and Grid Connection Site are separated from the NHA by a distance of over 1km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenagarranroe Bog NHA (002437)	1.1km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 1.1km. There is no potential for the Existing Development to result or have resulted in any direct effect on this NHA.

	4.7km from Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the NHA by a distance of over 1km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Fad Bog Complex NHA (001159)	11.1km from the Wind Farm Site 10.9km from Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of 10.9km. There is no potential for the Existing Development to result or have resulted in any direct effect on this NHA. The Wind Farm Site and Grid Connection Site are separated from the NHA by a distance of over 10km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the NHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Proposed Natural Heritage Areas (pNHA)		
Croaghonagh Bog pNHA (000129)	0.8km from the Wind Farm Site 0.9km from Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 800m. There is no potential for the Existing Development to result or have resulted in any direct effect on this pNHA. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 800m with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Eske and Ardnamona Wood pNHA (000163)	7.8km from the Wind Farm Site 1.7km from Grid Connection Site (2.3km hydrological distance)	This pNHA overlaps with Lough Eske and Ardnamona Wood SAC and is located approximately 1.7km away from the Grid Connection Site. Downstream hydrological connection between the Existing Development and the pNHA was identified via the Lowerymore River. There is no potential for direct effects to occur or have occurred on this pNHA as a result of the Existing Development. A complete source-pathway-receptor chain for significant indirect effect was identified in the form of the Lowerymore River, though no evidence of effects having occurred were identified during the surveys undertaken. Due to the presence of a source-pathway- receptor chain in the form of surface water connection, the potential for significant effects on this pNHA as a result of the Existing Development cannot be excluded and it is assessed further in this EIA.

Dunragh Loughs/Pettigo Plateau pNHA (001125)	6.2km from the Wind Farm Site 4.8km from the Grid Connection Site	This pNHA overlaps with Lough Dunragh Loughs/Pettigo Plateau SAC and Partially with the SPA of the same name. It is located 4.8km from the Wind Farm Site and Grid Connection Site and there is no potential for direct effects on this Designated Site to occur or have occurred as a result of the Existing Development. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 4.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Owendoo and Cloghervaddy Bogs pNHA (002046)	4.9km from the Wind Farm Site and Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 4.9km. There is no potential for the Existing Development to result or have resulted in any direct effect on this pNHA. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 4.9km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Derg (Donegal) pNHA (001992)	7.7km from the Wind Farm Site 8.5km from Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 7.7km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Nationally Designated Site. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 7.7km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Donegal Bay (Murvagh) pNHA (004151)	14.3km from the Wind Farm Site 8.3km from the Grid Connection Site (Over 10km hydrological distance)	This pNHA overlaps with Donegal Bay (Murvagh) SAC and Donegal Bay SPA and is located approximately 8.3km from the Wind Farm Site and Grid Connection Site at closest and is connected hydrologically via the Lowerymore and Eske Rivers. There is no potential for direct effects on this Designated Site to occur or have occurred as a result of the Existing Development. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 8.3km. Whilst there is downstream hydrological connection between the Existing Development and the pNHA, the extent of the Existing Development within the Donegal Bay North catchment is minor (grid connection cable that was laid primarily in the existing road carriageway). Due to the nature of Qualifying Interests (coastal/marine habitats and species), the small scale nature of the works in the Donegal Bay North catchment, the hydrological distance from the

		existing development to Donegal Bay and the dilution factor involved (including buffer of Lough Eske), no source-pathway-receptor chain for significant impacts to have occurred or to occur on the pNHA was identified Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenaguse/Ardbane Bog pNHA (000172)	12.9km from the Wind Farm Site 9.8km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this pNHA and is separated from it by a distance of approximately 9.8km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Nationally Designated Site. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 9.8km with no source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Meenaguse Scragh pNHA (0018800)	11.9km from the Wind Farm Site 10.2km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this pNHA and separated from it by a distance of approximately 10.2km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Nationally Designated Site. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 10.2km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Tamur Bog pNHA (001992)	15km from the Wind Farm Site 11.8km from the Grid Connection Site	This pNHA overlaps with Tamur Bog SAC and is located approximately 11.8km from the Wind Farm Site and Grid Connection Site at closest. There is no potential for direct effects on this pNHA to occur or have occurred as a result of the Existing Development. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 11.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Lough Nillan Bog (Carrickatieve) (004110)	14.1km from the Wind Farm Site 12.6km from the Grid Connection Site	This pNHA overlaps with Lough Nillan Bog SAC and SPA and is located approximately 12.6km from the Wind Farm Site and Grid Connection Site at closest. There is no potential for direct effects on this Designated Site to occur or have occurred as a result of the Existing Development. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 12.6km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred.

		Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Tullytresna Bog pNHA (001870)	13.8km from the Wind Farm Site and Grid Connection Route	The Wind Farm Site and Grid Connection Site are located entirely outside this Nationally Designated Site and is separated from it by a distance of approximately 13.8km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Nationally Designated Site. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 13.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Ballintra pNHA (000115)	20.4km from the Wind Farm Site 14.9km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are located entirely outside this pNHA and is separated from it by a distance of approximately 14.9km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Nationally Designated Site. The Wind Farm Site and Grid Connection Site are separated from the pNHA by a distance of approximately 14.9km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the pNHA to occur or have occurred. Therefore, this Nationally Designated Site is not within the Likely Zone of Influence, and no further assessment is required.
Areas of Special Scientific Interest (ASSI's)		
River Foyle and Tributaries (AASI229)	Adjoins southern boundary of the Wind Farm Site 4.8km from the Grid Connection Site	This ASSI overlaps with the River Finn SAC [002301] and River Foyle and Tributaries [UK0030320] and is located adjacent to the southern boundary of the Wind Farm Site and Grid Connection Site at closest. Downstream hydrological connection between the Existing Development and the ASSI was identified via the Glendergan, Bunadaowen, Mournebeg and Shruhanganve Rivers and May Breen's Burn. There is no potential for direct effects to occur or have occurred on this ASSI as a result of the Existing Development. A complete source-pathway-receptor chain for significant indirect effects was identified in the form of the Glendergan, Bunadaowen, Mournebeg and Shruhanganve Rivers and May Breen's Burn. Due to the presence of a source-pathway- receptor chain in the form of surface water connection, the potential for significant effects on this ASSI as a result of the Existing Development cannot be excluded and it is assessed further in this EIAR.
Killeter Forest and Bogs and Lakes (AASI357)	0.57km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this ASSI and is separated from it by a distance of approximately 0.57km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Designated Site.

	2.9km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the ASSI by a distance of over 0.5km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur or have occurred. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Croagh Bog (ASSI378)	0.64km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this ASSI and is separated from it by a distance of approximately 0.64km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Designated Site.
	5.4km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the ASSI by a distance of over 0.6km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur or have occurred. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Essay Burn and Mullyfamore (ASSI134)	4.8km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this ASSI and is separated from it by a distance of approximately 4.8km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Designated Site.
	9.9km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the ASSI by a distance of 4.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur or have occurred. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Moneygal Bog (ASSI005)	13.8km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this ASSI and is separated from it by a distance of approximately 13.8km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Designated Site.
	18.5km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the ASSI by a distance of 13.8km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur or have occurred. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
Moneygal Bog Part II (ASSI209)	14.7km from the Wind Farm Site	The Wind Farm Site and Grid Connection Site are located entirely outside this ASSI and is separated from it by a distance of approximately 14.7km. There is no potential for the Existing Development to result or have resulted in any direct effect on this Designated Site.

	19.8km from the Grid Connection Site	The Wind Farm Site and Grid Connection Site are separated from the ASSI by a distance of 14.7km with no complete source-pathway receptor chain identified. Given the nature and scale of the works undertaken and the absence of any source-pathway-receptor chain, there is no potential for significant indirect effects on the ASSI to occur or have occurred. Therefore, this ASSI is not within the Likely Zone of Influence, and no further assessment is required.
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No NHAs have been included within the Likely Zone of Influence

The following pNHA has been included within the Likely Zone of Influence for further assessment.

- › Lough Eske and Ardnamona Wood pNHA [000163] As the pNHA is also designated as an SAC, potential impacts on this Site are fully considered under the European designation within the rNIS. Impacts on the pNHA are also considered in this chapter.

The following ASSI has been included within the Likely Zone of Influence for further assessment.

- › River Foyle and Tributaries (ASSI229). As the ASSI is also designated as an SAC, potential impacts on this European Site are fully considered under the European designation within the rNIS. Impacts on the ASSI are also considered in this chapter.

6.4.1.2 Article 17 Mapping

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 were conducted prior to undertaking the multi-disciplinary ecological walkover surveys of the Wind Farm Site and Grid Connection Site. The results of the survey undertaken are provided below.

A search of the NPWS Article 17 datasets⁹, was undertaken on 04/03/2026.

The only areas mapped on the NPWS Article 17 dataset within the Wind Farm Site and Grid Connection Site were for [7130] Active Blanket bog. This habitat is mapped in the western sections of the Wind Farm Site, adjacent to the entrance route, Grid Connection Site and amongst the forestry within the centre of the Wind Farm Site.

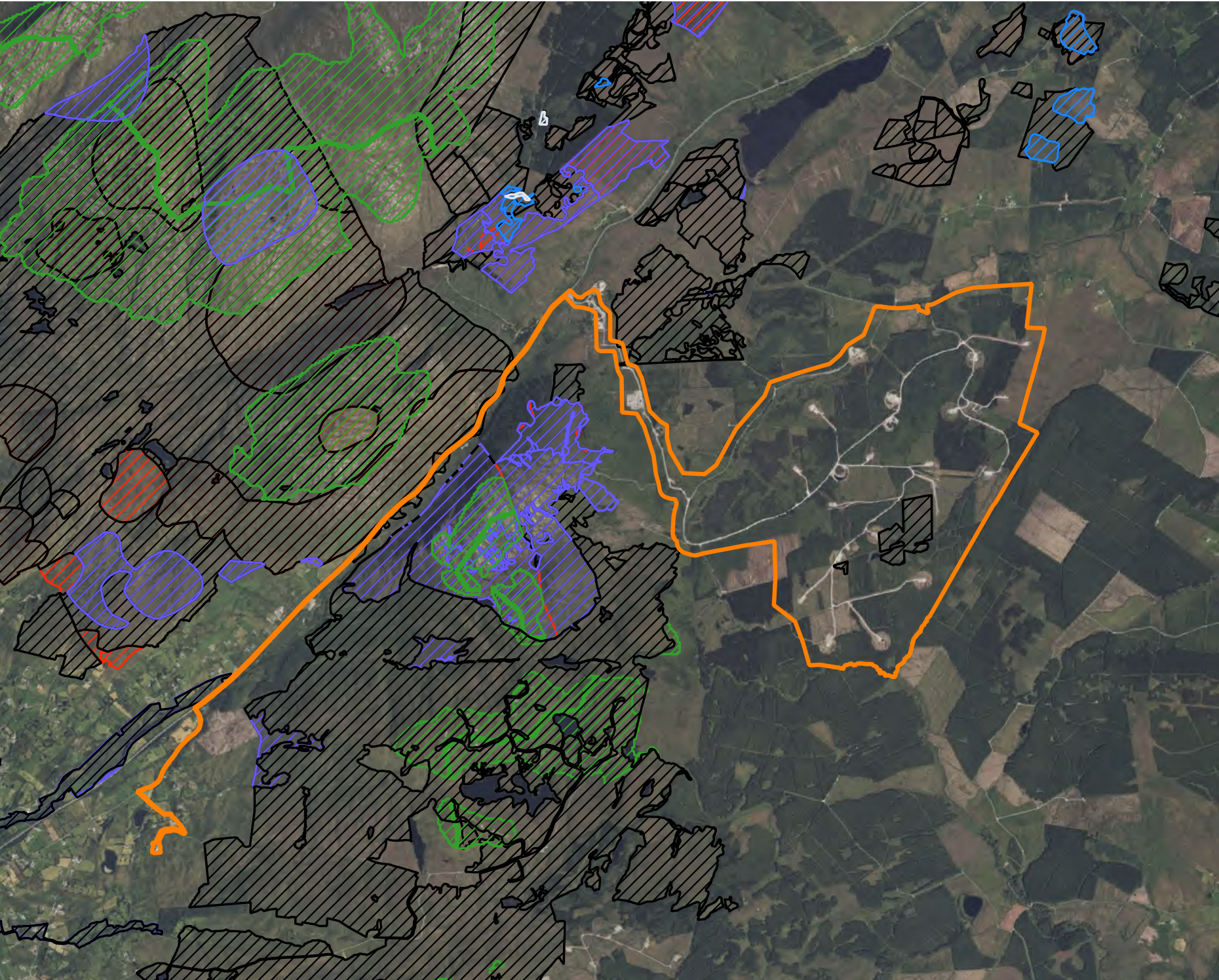
Other habitats are mapped in the wider area. [7130] Active Blanket bog, [7140] Transition Mires and [4041] Wet Heath and [4030] Dry Heath are mapped 1.3km, 1.2km and 1.4km respectively to the northeast, north and northwest of the Wind Farm Site. [7130] Active Blanket bog, [7140] Transition Mires and [4041] Wet Heath [4030] Dry Heath [4060] Alpine and Sub Alpine Heath and [7230] Alkaline Fens have been mapped 1.5km to the west and south of the Wind Farm Site.

Following a review of the Irish Semi-Natural Grassland Survey Database, there were areas of dry-humid acid grassland (GS3) and wet grassland (GS4) were mapped adjacent to the Grid Connection Site along the N15. Areas of annexed grassland habitats including *Nardus* Rich Upland Grassland located 2.4km southeast of the Wind Farm Site and *Molinia* meadows [6410] have been previously mapped approximately 6.8km south of the Wind Farm Site.

There are no Native Woodlands and Ancient and Long-Established Woodlands within the Wind Farm Site and Grid Connection Site according to both datasets. The nearest Long-Established Woodlands mapped in these datasets is located approx. 3.4km southwest of the Wind Farm Site and is classified as (WN1) Oak-Birch-Holly woodland.

Distribution of relevant Article 17 habitat records is provided in **Figure 6-4**.

⁹ Including bog 2012, 2019 and 2025 datasets, Online, Available at: <https://www.npws.ie/publications/article-17-reports>



Map Legend

- Wind Farm Site and Grid Connection Site
- Active Blanket Bog
- Alkaline Fens
- Alpine and Subalpine Heath
- Annual Vegetation of Drift Lines
- Dry Heath
- Nardus Rich Upland Grassland
- Old Oak Woodlands
- Transition Mires
- Wet Heath



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Drawing Title
Mapped Article 17 Habitats

Project Title
Substitute for Consent Application for
Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.4
Scale	Date
1:50,000	10.06.2026



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6.4.1.3 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 (1999, as amended 2015 & 2022) had been recorded in the relevant 10km squares in which the Wind Farm Site and Grid Connection Site is situated (H08). Each hectad contains 100 whole 1km squares containing terrestrial habitats. No species of conservation concern were recorded within this hectad.

6.4.1.4 Bryophytes

A search of the NPWS online database for bryophytes (non-vascular land plants comprising of mosses, hornworts, and liverworts) was also undertaken on the 04/03/2026 with no protected bryophytes recorded within hectad H08, in which the Wind Farm Site and Grid Connection Site is situated, or adjacent to the Site boundary (NPWS, 2020). No protected bryophytes were recorded from within the Wind Farm Site and Grid Connection Site. *Gymnomitrium concinnatum* was recorded just outside the boundary of Meenaguse Scragh SAC Bog SAC [001880] 13km to the west of the Wind Farm Site and Grid Connection Site. *Gymnophis species* was also recorded within Meenaguse Scragh SAC Bog SAC 13km northwest of the Wind Farm Site and Grid Connection Site. *Kiaeria falcata* was recorded outside of the same SAC 12.7km northwest from the Wind Farm Site and Grid Connection Site.

6.4.1.5 NPWS Protected Species Records

National Parks and Wildlife Service (NPWS) online records were searched to see if any rare or protected species of flora or fauna have been recorded from hectad H08 in which the Existing Development is situated. An information request was also sent to the NPWS requesting records from the Rare and Protected Species Database on the 22/07/2025. **Table 6-4** lists rare and protected species records obtained from NPWS, as received on the 11/08/2025, as well as those records available through the online NPWS map viewer.

Table 6-4 National Parks and Wildlife Service Records (Data Request and Map Viewer)

Common name	Scientific name	Status/ Habitats Directive
Bryophytes		
Big-spored Rock-moss	<i>Andreaea megistopora</i>	FPO
Cladonia cilata	<i>Cladonia cilata</i>	Annex V
Cladonia cilata var.tenuis	<i>Cladonia cilata var. tenuis</i>	Annex V
Cladonia portentosa	<i>Cladonia portentosa</i>	Annex V
Cladonia portentosa f. subimpexa	<i>Cladonia portentosa f. subimpexa</i>	Annex V
Drummonds Pincushion	<i>Ulota drummondii</i>	CE
Fir Clubmoss	<i>Huperzia selago</i>	Annex V
Lustrous Bog-moss	<i>Sphagnum subnitens</i>	Annex V
Papillose Bog-moss	<i>Sphagnum Papillosum</i>	Annex V
Rusty Bog-moss	<i>Sphagnum fuscum</i>	Annex V

Common name	Scientific name	Status/ Habitats Directive
Sphagnum imbricatum	<i>Sphagnum imbricatum</i>	
Reptiles and Amphibians		
Common Frog	<i>Rana temporaria</i>	Annex V, WA 1976 (as amended)
Mammals		
Common name	Scientific name	Status
Irish Hare	<i>Lepus timidus hibernicus</i>	Annex V, WA 1976 (as amended)
Eurasian Badger	<i>Meles meles</i>	WA 1976 (as amended)
Red Deer	<i>Cervus elaphus</i>	WA 1976 (as amended)
West European Hedgehog	<i>Erinaceus europaeus</i>	WA 1976 (as amended)
Invertebrates		
Common name	Scientific name	Status
Marsh Fritillary	<i>Euphydryas aurinia</i>	VU, Annex II
Bird Species		
Common Name	Scientific Name	Designation
Curlew	<i>Numenius arquata</i>	Annex II, WA, BOCCI Red List, NT
Greenland White fronted Goose	<i>Anser albifrons</i>	Annex I, BOCCI Amber List, EN
Hen Harrier	<i>Circus cyaneus</i>	Annex I, WA, BOCCI Amber List
Peregrine falcon	<i>Falco Pergrinus</i>	Annex I
Aquatic Species		
Common name	Scientific name	Status
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	CE, Annex II, IV, WA 1976 (as amended)

6.4.1.5.1 Freshwater Pearl Mussel (*Margaritifera margaritifera*)

A section of the Grid Connection Site and Wind Farm Site near the entrance off the N15 is located within the Eske *Margaritifera* Sensitive Area as shown in Figure 6.5. The Eske is categorized as catchments of SAC populations listed in S.I. 296 of 2009. Only the Grid Connection and a section of the access road to the Wind Farm Site is situated within the Eske catchment with all proposed turbines and infrastructure located within the Foyle catchment. A population of freshwater pearl mussels is known to occur within the River Eske. This is more than five kilometres downstream of Keadew Bridge; the River Eske flows out from Lough Eske to reach the sea at Donegal Town. Thus, Lough Eske lies between the section of proposed cable route at Keadew Bridge and the SAC mussel population. An information request was sent to the NPWS regarding the current distribution of *Margaritifera* Species within this catchment. The information provided by NPWS from the *Margaritifera* records dataset 2014_v11 indicated that the nearest record for pearl mussel is located approximately 4.3km (hydraulic distance) from the Grid Connection Site at its nearest point.

6.4.1.6 National Biodiversity Data Centre (NBDC) Records

A search of the National Biodiversity Data Centre (NBDC) records on the 04/03/2026 for the relevant hectad, H08, in which the Wind Farm Site and Grid Connection Site is situated, provided records on a number of fauna species of conservation concern, excluding marine species and bird species. These are provided in **Table 6-5**. The Invasive Species recorded within the hectad H08 are provided in **Table 6.6** below.

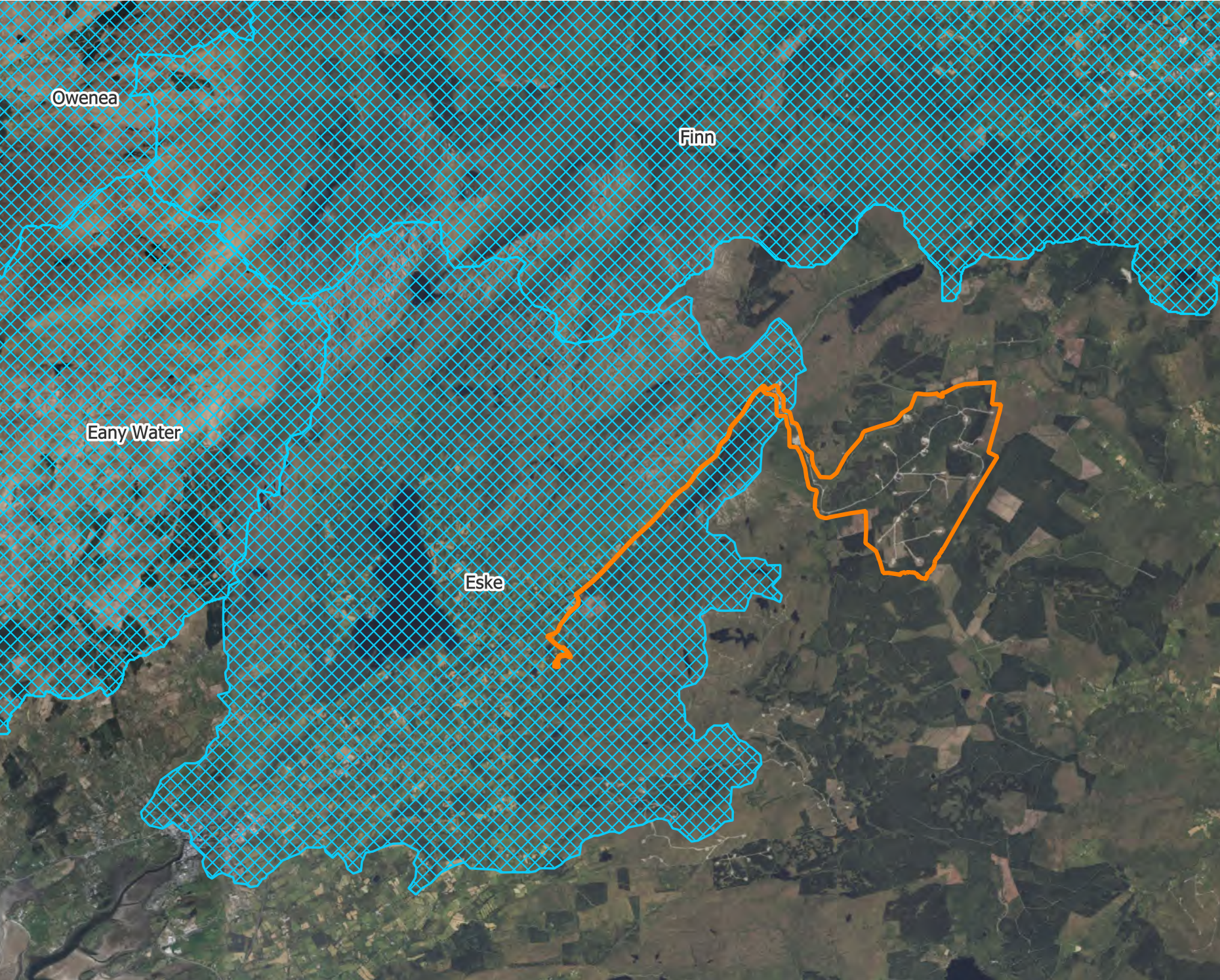
Table 6-5 NBDC Records for Species of Conservation Interest in hectad H08

Species	Scientific Name	Red List Status	Habitats Directive
Common frog	<i>Rana temporaria</i>	LC	Annex V
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>	LC	Annex V, WA
Hedgehog	<i>Erinaceus europaeus</i>	LC	WA
Pine marten	<i>Martes martes</i>	LC	Annex V, WA
Badger	<i>Meles meles</i>	LC	WA
Red Deer	<i>Cervus elaphus</i>	LC	WA
Sika Deer	<i>Cervus nippon</i>	NA	WA
Marsh Fritillary	<i>Euphydrya aurinia</i>	VU	Annex II
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	LC	Annex IV, WA

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA - Wildlife Act), LC - Least concern, NT - Near threatened, VU - Vulnerable.

Table 6-6 NBDC records for Invasive Species in hectad H08.

Common Name	Scientific Name
Japanese Knotweed	<i>Reynoutria japonica</i>
Rhododendron	<i>Rhododendron ponticum</i>
Feral Goat	<i>Capra hircus</i>
Sika Deer	<i>Cervus nippon</i>
Grey Squirrel	<i>Sciurus carolinensis</i>
Sycamore	<i>Acer pseudoplatanus</i>



Map Legend

-  Wind Farm Site and Grid Connection Route
-  Freshwater Pearl Mussel Catchment Areas



Drawing Title
Feshwater Pearl Mussel Catchments

Project Title
Substitute for Consent Application for **Meenbog Wind Farm**

Drawn By MK	Checked By PR
Project No. 240505-a	Drawing No. Figure 6.5
Scale 1:100,000	Date 10.06.2026

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6.4.1.7 Water Quality

6.4.1.7.1 NBDC Aquatic Data

Three species of bony fish have been recorded in hectad H08 in which the Wind Farm Site and Grid Connection Site is situated, on the NBDC Lake Browser. These included, including the European Eel (*Anguilla Anguilla*), a species classified as ‘critically endangered’ in ‘Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish’ (King et al., 2011). These records were obtained in Lough Golagh, approximately 2.1 kilometres west of the Wind Farm Site and Grid Connection Site in the Mourne (Mourne Beg/Derg) catchment. The Foyle River catchment (which includes the River Derg and the River Finn catchments in which the Wind Farm Site is located) is known to contain an internationally important population of spawning Atlantic Salmon (*Salmo salar*), a species classified as ‘vulnerable’ in ‘Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish’ (King et al., 2011) and listed in Annex II of the EU Habitats Directive. Research has indicated that sub-catchments within the River Foyle system can have genetically distinct salmon populations, and it is estimated that the annual number of salmon returning to the river was recently in excess of 40,000, making it one of the most important salmon rivers in the British Isles. The majority of salmon returning are Grilse (single wintering salmon), while a smaller but important number of spring salmon (multi-wintering) also return. In 2011, the River Derg and River Finn were known to have 269 and 107 salmon spawning redds respectively. Angling is permitted in the rivers only on a catch and release basis. The river system (including the River Derg and River Finn) is also known to contain the European Eel, Brook Lamprey (*Lampetra planeri*), and spawning River Lamprey (*Lampetra fluviatilis*), with the latter two being listed in Annex II of the EU Habitats Directive.

6.4.1.7.2 Local Hydrology and Hydrogeology

The majority of the Wind Farm Site is drained by tributaries (Shruhanganve [01S26], Bunadaowen [01B01]) of the Mourne Beg River which flow north-westerly through the Wind Farm Site. The southern portion of the Wind Farm Site is drained by tributaries of the tributaries/ headwaters of Glendergan River (Segment codes: 01_549, 01_599, and 01_GBN10102037) which flow into Northern Ireland. In the western section of the Wind Farm Site, the Barrack Hill stream [37B16] flows culverted under the road (N15) by the entrance to the Wind Farm Site and flows southwards becoming a tributary of the Lowerymore River [37L01]. Two tributaries to the Mourne Beg River (Croaghonagh [01C31] and a tributary of this stream Segment code: 01_1835) flow in a northerly direction through the west of the Wind Farm Site by the access track.

The majority of the Wind Farm Site is located within the Foyle (01) Catchment, except the Wind Farm Site access route and the Grid Connection Site which is within the Donegal Bay North (37) Catchment. Most of the Wind Farm Site is within the MourneBeg_SC_010 sub-catchment draining into the Mourne Beg River system. A small southern section of the Wind Farm Site is within the LeaghanyRiver_SC_010 sub-catchment, draining into Glendergan River system. A small section in the west of the Wind Farm Site and the Grid Connection Site is within the Eske_SC_010 sub-catchment which drains into the Lowerymore River system.

As per the latest report on the Foyle Catchment Summary the Castlederg ground waterbody in which the Wind Farm Site lies within is classified to being in “Good” condition. The Grid Connection Site is underlain by the Donegal South GWB which is classified as being in “Good” condition.

6.4.1.7.3 EPA Water Quality Data

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The online EPA Envision map viewer provides access to water quality information at individual waterbody status for all the River Basin Districts in Ireland. The EPA Envision map viewer and catchments.ie mapper was consulted, most recently, on the 4th of December 2025 regarding the water quality status of the rivers which run within and directly adjacent to the Wind Farm Site and Grid Connection Site.

The WFD 3rd cycle River Waterbody Status 2016 – 2021 for the watercourses which flow within, adjacent and downstream of the Wind Farm Site and Grid Connection Site have been reviewed and details of their status and risk are provided in **Table 6-7**.

Table 6-7 Watercourses on Wind Farm Site and Grid Connection Site with relevant water quality statuses

Name	Location	Status	Risk
Bunadaowen _010 system (tributary to the Mourne Beg)	Flows in a northeasterly direction through the western edge of the Wind Farm Site through the centre and out through the north of the Wind Farm Site. Drains into the Mourne Beg flows into the River Finn SAC.	Moderate	At risk
Mourne Beg _010 system	Flows in an easterly direction to the north of the Wind Farm Site. Two stream systems flow through/from within the Wind Farm Site into this watercourse. Two tributaries of the Mourne Beg flow through the western edge of the Wind Farm Site in a north easterly direction and enter the Croaghonagh Bog SAC and then east into the Mourne Beg River.	Poor	At risk
Mourne Beg River (Derrygoonan)	The headwaters are found within the Wind Farm Site in the eastern side of the Wind Farm Site and flows in a northeasterly direction through the Wind Farm Site and becomes a tributary to the Mourne Beg River.	Moderate	At risk
Glendergan River	The headwaters are found within the south of the Wind Farm Site and flows in a southerly direction through the Wind Farm Site and crosses the border into Northern Ireland.	Poor	In review
Lowerymore _020	Flows in a south westerly direction through the Wind Farm Site at the western edge and along the Grid Connection Site by the N15. Flows into the Lough Eske and Ardnamona Wood SAC.	High	Not at Risk

The Biotic Index of Water Quality (BIWQ) was developed in Ireland by the Environmental Protection Agency (EPA). Biotic indices (Q-Values) reflect water quality at any location. Q-values are assigned using a combination of habitat characteristics and structure of the macro-invertebrate community within the waterbody. Individual macro-invertebrate families are classified according to their sensitivity to organic pollution and the Q-value is assessed based primarily on their relative abundance within a sample.

The EPA operates a number of Q-value monitoring sites in the vicinity of the Wind Farm Site and Grid Connection Site. The sampling stations listed below are downstream of the Wind Farm Site and Grid

Connection Site and have the potential to be affected or to have been affected by the Existing Development. EPA sampling stations are situated downstream of the Wind Farm Site and Grid Connection Site in four out of the five subbasins relevant to the Existing Development.

The Northern Ireland Environment Agency (NIEA), an agency with the Department of Agriculture Environment and Rural Affairs is responsible for water quality monitoring in Northern Ireland. Part of the Existing Development is situated in the Glendergan catchment, which drains across the Northern Irish border into the River Derg. The Northern Ireland Water Framework Directive Statistics Report 2021 (“the 2021 Report”) is the latest available water quality report. Water bodies are assessed against a number of elements as required by the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2017. For surface waters, ecological status is assessed against five classes: bad; poor; moderate; good; and high. Chemical status surface water bodies are assessed against two classes: good and failing to achieve good. The status of a water body is determined by the lowest test element and follows the one-out, all-out rule. The ecological status of a river waterbody is consequently assigned as a combination of lowest test element from the chemical testing and biological testing.

In the 2021 Report, uPBT substances, so called ‘forever’ chemicals, and Cypermethrin, an insecticide, were included for the first time in the chemical classification. Prior to 2021 these criteria were not included in the assessments. Further information on these significant changes in methodology can be found in the 2021 Report.

Therefore, across Northern Ireland, river waterbody ecological status has declined as ‘forever’ chemicals were recorded in all rivers. The NIEA Catchment Data Viewer allows for comparison of river classification without the inclusion of ‘forever’ chemicals, which allows for comparison of pre- and post-construction water quality in the Glendergan river. The relevant monitoring location in the Glendergan catchment is Glendergan River at Scraghcumber (Site code F10049).

The location of the EPA and NIEA monitoring sites are shown in Figure 6-6. EPA monitoring sites are briefly described below.

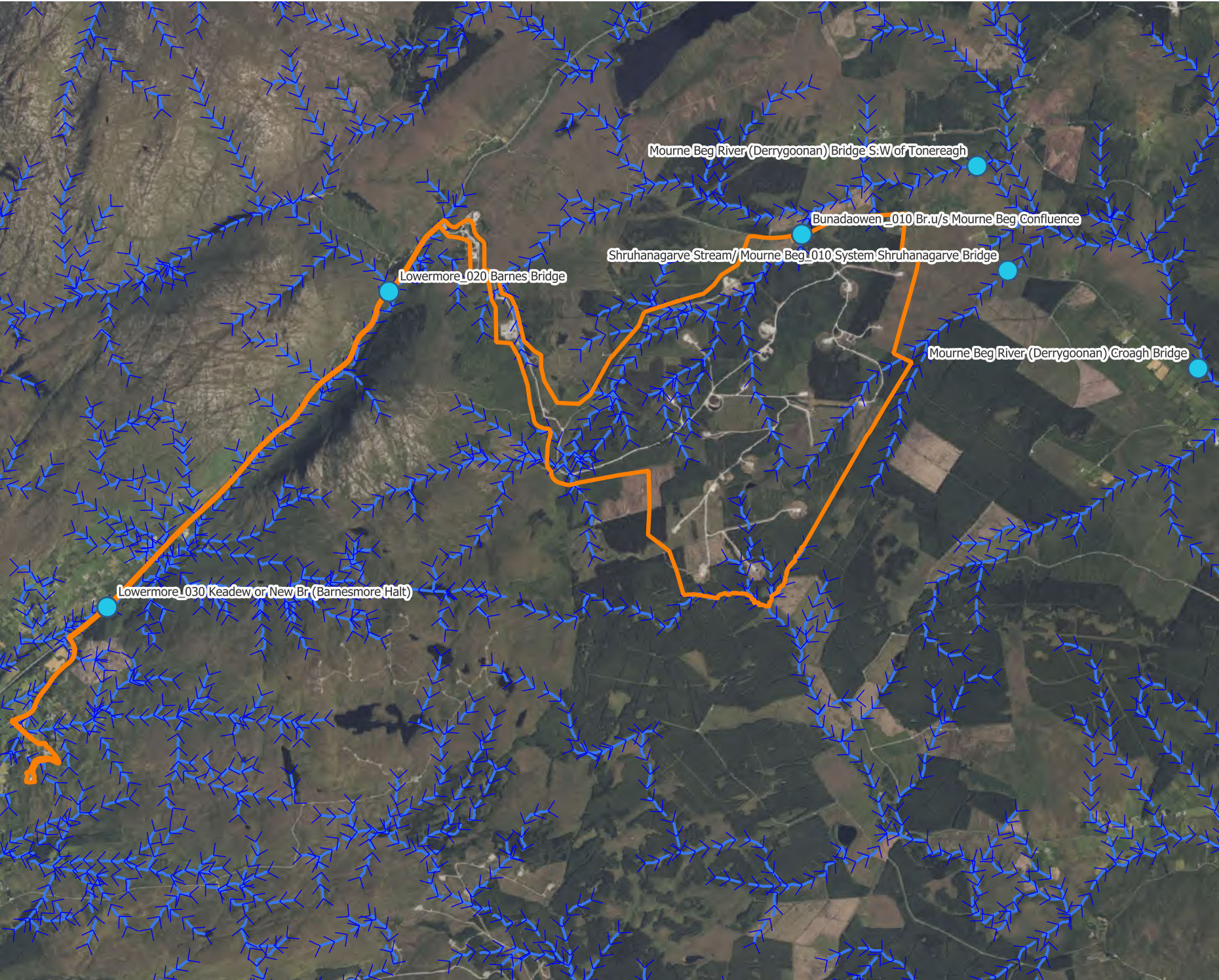
- EPA. Bunadaowen. Br. u/s Mourne Beg Confluence (ITM coordinates 608091E, 887615N), immediately upstream of its confluence with Mourne Beg River. This sampling station is downstream of a large part of the Wind Farm Site but upstream of where the November 2020 Peat Slide entered the Mourne Beg River.
- EPA. Mourne Beg. Bridge SW of Tonreagh (ITM coordinates. 609853E, 888310N), is located downstream of the confluence with the Bunadaowen River and immediately upstream of the River Finn SAC. Data from this sampling station is relevant as it is downstream of the Wind Farm Site and where the November 2020 Peat Slide entered the river.
- EPA Shruhagarve Bridge (ITM coordinates 610179E, 887240N. This is the river that was directly impacted by the November 2020 Peat Slide that occurred in 2020.
- NIEA Glendergan River at Scraghcumber (Easting: 614538.1, Northing: 879646.3) is located to the southeast of the Wind Farm Site and downstream of a section of the Wind Farm Site.
- EPA. Lowerymore River. Barnes Bridge (ITM coordinates 603930E, 887019N) is located close to the Wind Farm Site entrance and is downstream of the Site entrance and Grid Connection Site.
- EPA. Lowerymore River. - Keadew or New Br (nr Barnsmore Halt) (ITM coordinates 601082E, 883845N), is located downstream from Sampling station “Barnes Bridge” at the beginning of Lough Eske and Ardnamona SAC on the Lowerymore river. This sampling stations samples for potential impacts of the Existing Development on Lough Eske and Ardnamona SAC.
- EPA. Mourne Beg “~150m u/s Croagh Bridge (u/s Croagh Burn trib Conflu)” (ITM coordinates 612419E, 889317N), is located on the Mourne Beg River further downstream of the Wind Farm Site and November 2020 Peat Slide.

Table 6-8 Watercourses within the vicinity of the Wind Farm Site and Grid Connection Site with relevant Q-Values

Name	Location / Date	Q-Values Status
Bunadaowen _010 system (tributary to the Mourne Beg)	Br. u/s Mourne Beg Confluence- 2022 Station Code: RS01B010100 Easting: 208140.55 Northing: 387608.56	2016- Q2 (Poor Status)
		2017- Q2-3 (Poor status)
		2019- Q3-4 (Moderate Status)
		2020- Q4 (Good Status)
		2022- Q4 (Good status)
Shruhangarve Stream/ Mourne Beg_010 system	Shruhangarve Bridge- 2022 Station Code: RS01S260830 Easting: 210229.29 Northing: 387230.11	2020- Q1 (Poor Status)
		2023- Q3 (Poor Status)
Mourne Beg River (Derrygoonan)	Bridge S.W. of Tonreagh- 2022 Station Code: RS01M010200 Easting: 209903 Northing: 388300	2020- Q3-4 (Moderate Status)
		2022- Q4 (Good Status)
Mourne Beg River (Derrygoonan)	Croagh Bridge Station Code: RS01M010420 Easting: 212470.33 Northing: 385903.4	2020- Q3-4 (Moderate status)
		2022- Q4 (Good status)
Glendergan River*	Glendergan River At Scraghcumber - 2021 Station Code: UKGBNIF10049 Easting: 614538.1, Northing: 879646.3	Poor* (with “forever” chemicals assessment)
		Good* (without “forever” chemicals assessment)
		2013-2018- “Moderate”
		2016-2021- “Poor”
Lowerymore_020	Barnes Bridge - 2021 Station Code: RS37L010100 Easting: 203974.22 Northing: 387034.09	2015- Q3-4 (Moderate Status)
		2018- Q4 (Good Status)

Lowerymore_030	Keadew or New Br (nr Barnsmore Hall) Station Code: RS37L010300 Easting: 201129.83 Northing: 383850.21	2015- Q4-5 (Good Status)
		2018- Q4-5 (Good Status)

* Northern Ireland Environment Agency Monitoring (ecological/chemical) system.



Map Legend

- Wind Farm Site and Grid Connection Site
- Water Quality Monitoring Locations
- WFD River Waterbodies

Drawing Title

EPA/ NIEA Water Quality Monitoring Locations

Project Title

Substitute for Consent Application for Meenbog Wind Farm

Drawn By	Checked By
MK	PR
Project No.	Drawing No.
240505-a	Figure 6.6
Scale	Date
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6.4.1.8 Conclusions of the Desk Study

The desktop study has provided information about the existing environment in the hectad H08, within which the Wind Farm Site and Grid Connection Site is located.

The desk study revealed records on several rare and protected species of flora and fauna that occur within hectad H08 and informed the studies and assessments that were undertaken.

An area of the EU Habitats Directive Annex I habitat, [7130] Active Blanket bog that is within the Croaghonagh Bog SAC is included on the NPWS Article 17 inventory. This is located within the Wind Farm Site and adjacent to the development footprint on the entrance road. Another area of Active Blanket Bog is mapped within southeastern section of the Wind Farm Site. No other Article 17 mapped habitats were located within or adjacent to the Wind Farm Site and Grid Connection Site.

Whilst the Existing Development did not involve construction works within any natural watercourse, there are potential connections via forestry drains, watercourse crossings and overland flow where works were in close proximity to these features. In addition, the November 2020 Peat Slide was located within the Shruhangerve and Mourne Beg River catchments and directly affected those rivers. Thus, there are direct and indirect connections to the Shruhangerve and Mourne Beg Rivers. There are also indirect connections to the Bunadaowen, Shruhangerve rivers, which are partially located on the Site, along with the Mourne Beg, Lowerymore and Glendorgan Rivers, that are located downstream. There is also potential for effects on associated sensitive and protected aquatic fauna including freshwater pearl mussel, salmon, trout and eel that have been recorded in these catchments.

A pathway for significant effects on the following downstream European Designated Sites was identified:

- › Croaghonagh Bog SAC [000129]
- › River Finn SAC [002301]
- › River Foyle and Tributaries SAC [UK0030320]
- › Lough Eske and Ardnamona Wood SAC [000163]

The following pNHA is also downstream of the Wind Farm Site and Grid Connection Site has been included within the Likely Zone of Influence for further assessment.

- › Lough Eske and Ardnamona Wood pNHA (000163)

The following ASSI is also downstream of the Site has been included within the Likely Zone of Influence for further assessment.

- › River Foyle and Tributaries ASSI (AASI229).

6.5

Description of the Existing Environment

The baseline against which the impacts of Existing Development are assessed is that which is set out in the 2017 EIAR and incorporated into the descriptions below. The site visits, surveys and assessments that have been carried out since that time, have documented the changes to the site, either naturally occurring or associated with the Existing Development and the November 2020 Peat Slide.

6.5.1

Floral Habitats and Species

A habitat map of the Wind Farm Site is provided in Error! Reference source not found.7. The Grid Connection Site is not included in the map as it is primarily located within built habitats within the existing road network or immediately adjacent to it. A short section of the Grid Connection Site is located immediately adjacent to the road and in a field of improved Wet Grassland (GS4) that was reinstated following construction. There was a small section of scrub located in this area. The pre-construction baseline was described in the biodiversity chapter of the 2017 EIAR.

The below paragraphs describe the habitats on the Wind Farm Site as they exist at the current time and how they have changed as a result of the Existing Development or other processes. The habitats associated with the Grid Connection Site are discussed in Section 6.5.1.10.

6.5.1.1

Conifer Plantation (WD4)

Conifer plantation (WD4) remains the dominant habitat type recorded on the Wind Farm Site. Conifer plantation was recorded throughout the Wind Farm Site and includes a variety of growth stages from recently clear-felled, through young plantation to closed canopy forest. This is typical of a commercially managed upland coniferous forest. In some areas throughout the Wind Farm Site, the original peatland habitat persists amongst the trees where the trees had grown poorly. Species recorded include Sitka spruce (*Picea sitchensis*), lodgepole pine (*Pinus contorta*), Japanese larch (*Larix kaempferi*) and noble fir (*Abies procera*). Typical conifer plantation habitat from within the Wind Farm Site is shown in **Plate 6.1**.

In 2016 conifer woodland accounted for approximately 91% of the study area. In 2025 the habitat accounted for approximately 81% of the study area. This change is largely as a result of the Existing Development having been constructed primarily within this habitat. The forestry has largely been replaced, with coniferous forestry having been felled and replaced with habitats associated with the built infrastructure such as Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3) associated with the footprint of the Existing Development as constructed. In addition, conifer plantation has also been replaced with Wet Grassland (GS4)/Wet Heath (HH3) mosaics surrounding the infrastructure where trees have been felled to buffer the turbines and adjacent to infrastructure.

The November 2020 Peat Slide also resulted in the loss of Conifer Plantation. This has been replaced primarily with Recolonising Bare Ground (ED3) and Wet Grassland (GS4). Areas have also been planted with broadleaved tree species including grey willow (*Salix cinerea*) and alder (*Alnus glutinosa*).



Plate 6-1 Example of Immature Conifer Plantation as found throughout the Wind Farm Site

6.5.1.2 Upland Blanket Bog/Wet Heath (PB2/ HH3)

These peatland habitats on the Wind Farm Site include an intimate mosaic of Upland blanket bog (PB2) and Wet Heath (HH3). The Blanket Bog is present on the flatter sections with heath habitat occurring where the ground is more sloping or where there are rock outcrops. This habitat type is shown in Plate 6.2. The northeast corner of the study area forms part of a larger peatland area that stretches further to the north and east. The other section of the study area where this habitat exists is located amongst forestry plantations to the northeast of Carrickaduff Lough.

In this habitat type purple moor-grass (*Molinia caerulea*) and Ling were often either abundant or frequent, while deergrass (*Trichophorum germanicum*) and common cottongrass (*Eriophorum angustifolium*) could be frequent. Other vascular plants that were regularly encountered were harestail cottongrass (*Eriophorum vaginatum*), cross-leaved heath (*Erica tetralix*), bog asphodel (*Narthecium ossifragum*), Round leaved Sundew (*Drosera rotundifolia*), white-beaked sedge (*Rhynchospora alba*) and tormentil (*Potentilla erecta*). The bryophyte flora of these areas included a number of Sphagnum species, with *S. capillifolium* being the commonest, followed by *S. Papillosum*, with *S. magellanicum* and *S. Cuspidatum* also regularly recorded. Other frequently-encountered bryophytes were the moss *Racomitrium Lanuginosum* and the liverwort *Pleurozium purpurea*. The lichens *Cladonia portentosa* and *C. uncialis* were regularly encountered also. On the flatter sections, peat depths tended to exceed 0.5m and these communities correspond best to the National Survey of Upland Habitats (NSUH) type BB4 *Trichophorum germanicum* – *Eriophorum angustifolium* blanket bog.

On steeper sections, the peat depth tended not to exceed 0.5m and were classified as wet heath. The major components of the Wet heath vegetation type were ling, deergrass and purple moor grass. Other plants present included cross-leaved heath, tormentil, harestail cottongrass, common cottongrass, heath rush (*Juncus squarrosus*), heath bedstraw (*Galium saxatile*), tormentil, heath milkwort (*Polygala serpyllifolia*), green-ribbed sedge (*Carex binervis*) and bilberry (*Vaccinium myrtillus*). Bryophytes present included *Sphagnum capillifolium*, *Racomitrium lanuginosum* and *Hypnum jutlandicum*. Overall heath cover in these areas exceeded 25% and the depth of peat was less than in the blanket bog areas (often 50 cm or less).

This type of vegetation is best described by the NSUH type WH4b, *Trichophorum germanicum* – *Eriophorum angustifolium* wet heath (with *Calluna vulgaris* frequent). Typical upland blanket bog/ wet heath habitat from within the Wind Farm Site is shown in **Plate 6-2**.



Plate 6-2 Upland Blanket Bog and Wet Heath Habitat as recorded within and surrounding the Wind Farm Site

Two significant changes to the baseline from 2017 were identified and are described below.

November 2020 Peat Slide

An area of upland blanket bog that is located to the northeast of Carrickaduff Lough was the site of the November 2020 Peat Slide. This directly affected an area of approximately 2.2 hectares. With much of the surface and sub surface peat sliding down the hill to the north, through areas of conifer plantation. The affected habitat is still classified as Blanket Bog (PB2) but is highly degraded with large areas of bare peat, shallow pools and islands of vegetation as shown in **Plate 6-3**. The recovery in this area has been monitored since 2021. Surveys were undertaken at four locations within the November 2020 Peat Slide area and at four locations adjacent to it. The surveys within the November 2020 Peat Slide area were designed to monitor recovery and recolonisation in the areas that were directly affected. The other surveys were designed to monitor any indirect changes to the habitat that may occur as a result of the peat slide such as drainage and desiccation.

It was noted that in all except one of the survey sites within the peat slide area, slow recolonisation is progressing in the five-year period since the slide occurred. Species such as ling heather, Woolly Fringe moss (*Racomitrium Lanuginosum*), cottongrasses (*Eriophorum spp.*) and purple moor grass are slowly recolonising the bare peat along with some *Sphagnum* species in places, as shown in **Plate 6-4**.



Plate 6-3 Degraded Blanket Bog at the site of the November 2020 Peat Slide



Plate 6-4 Colonisation of bare peat in November 2020 Peat Slide area with sparse vegetation (*Eriophorum* sp.)

It was further noted that there were no significant differences in the condition of the surrounding habitats during the monitoring period, with a similar species composition being recorded throughout.

As part of the monitoring, consideration was given to:

- The blocking of drains that are located on the bog outside the November 2020 Peat Slide area but run into it from the south. However, there was no flow observed in these drains during any of the surveys, no deterioration of surrounding bog habitats and no clear benefit to the installation of dams.
- Blocking of flow paths within the November 2020 Peat Slide area itself. However, it was noted that the flow path through the November 2020 Peat Slide area actually created small pools and areas with shallow water that would facilitate natural recolonisation.
- Active re-seeding of bare peat. The area is recolonising with species that are typical colonisers of bare peat and whilst it is a slow process, the re-seeding was not considered necessary. This will continue to be monitored and if necessary, seed will be spread.

Wind Farm Infrastructure

The Existing Development has resulted in the loss of approximately 0.8ha of Blanket Bog to facilitate the construction of two turbine bases (T16 and T19), with an approximate 0.1 ha indirectly affected through disturbance. This impact was identified in the 2017 EIAR. The wind farm infrastructure in this area is shown in **Plate 6-5**.

In addition to the area lost to facilitate the Existing Development, peatland habitats are recorded within the recolonising habitats where forestry has been felled to construct peat management areas. They are highly degraded versions of the habitat and have been mapped primarily as wet grassland given their presence as a mosaic with this habitat, but nonetheless, species such as ling (*Calluna vulgaris*), *Polytrichum* and *Sphagnum* species were starting to recolonise also and are indicators of wet heath. Some of the wetter areas on the peat repository areas are developing with *Sphagnum* pools with species such as bog pondweed (*Potamogeton polygonifolius*) as shown in **Plate 6-6**. Much of the southeastern section of the Wind Farm Site, where heath vegetation was always present beneath the conifers is recolonising with heath and wet grassland where the conifers have been felled as shown in **Plate 6-7**.

It is noted that peatland habitats including uncut Upland Blanket Bog exist outside the Site but alongside the Shruhanganve Stream, which was directly affected by the November 2020 Peat Slide.



Plate 6-5 Representative photo of the wind farm infrastructure at T19, which is similar at T16



Plate 6-6 Colonisation of bare peat in peat and spoil management areas with *Sphagnum* and bog pondweed



Plate 6-7 Heath type vegetation colonising where conifers have been felled alongside infrastructure

6.5.1.3 Cutover blanket bog (PB4)

A small area of cutover blanket bog occurs adjacent to the access road in the northwestern section of the Wind Farm Site. This area has been recently cut-over and peat extraction has continued throughout the survey period between 2016 and 2025. This area was characterised by a high occurrence of bare peat. There was a mosaic of revegetating/revegetated BB4 blanket bog (PB2) and more recently cutover wet areas with a high percentage of bare ground, but also frequent/abundant common cottongrass. The latter community is best described the NSUH type HW2i, *Eriophorum angustifolium* – *Sphagnum fallax* hollows (PB2). There have been no significant changes in this habitat since the surveys for the 2017 EIAR were undertaken.

6.5.1.4 Wet Grassland (GS4)

Wet grassland (GS4) was recorded within the Wind Farm Site adjacent to the access road within the northwest of the Wind Farm Site during the surveys for the 2017 EIAR. This type of grassland also occurs naturally, e.g. along river valleys, but most of the grassland classified as this habitat type in the wider area is the result of the modification of peatlands and is associated with agricultural activities, notably sheep grazing. These grasslands were still present during the subsequent surveys up to 2025 and had not been affected by the Existing Development.

Additional areas of Wet Grassland (GS4) have been created around the infrastructure where coniferous forestry has been felled around turbine bases and access roads. It has also developed on recolonising peat repository areas. This recolonised habitat is often dominated by species such as soft rush (*Juncus effusus*) and bulbous rush (*Juncus bulbosus*). Other species including Yorkshire fog (*Holcus lanatus*), creeping bent grass (*Agrostis stolonifera*) and tormentil (*Potentilla erecta*) are frequent. In places, this habitat includes elements of blanket bog (PB4), heath (HH3) and willow scrub (WS1) communities with *Polytrichum* and *Sphagnum* species along with Ling heather and grey willow in places. It is noted that in the drier areas, without management, this grassland is likely to succeed to bramble and grey willow scrub, like the existing habitats alongside the forestry infrastructure around the Wind Farm Site. No areas of Annex I Molinia Meadows habitat were recorded on the Wind Farm Site. An example of the Wet

Grassland habitat that has developed around the Existing Development infrastructure is shown in Plate 6-8.



Plate 6-8 Wet grassland (GS4) found commonly throughout the Wind Farm Site

6.5.1.5 Scrub (WS1)

A number of small areas of scrub (WS1) were identified within the Wind Farm Site. This was generally associated with young forestry, along tracks, roads and forestry edges. These are small, fragmented and have not been mapped. Types of scrub encountered included areas with tangled Bramble (*Rubus fruticosus* agg.), as well as gorse (*Ulex europaeus*) and grey willow (*Salix cinerea* ssp. *oleifolia*) scrub patches. These areas can be characterised as areas of habitat dominated by (i.e. at least 50% cover) vigorous shrubs like bramble and gorse, or by small sub-mature trees less than 4-5 metres in height (Plate 6.6). Other plants present in some of these areas of scrub included Ivy (*Hedera helix*), honeysuckle (*Lonicera periclymenum*), holly (*Ilex aquifolium*) and hazel (*Corylus avellana*). There had been no significant changes in the scrub habitats on the Wind Farm Site between 2016 and 2025. However, it was noted that many of the areas where conifers had been felled around infrastructure within the Wind Farm Site had recolonised with wet grassland/heath habitats but in the drier sections, grey willow and bramble were starting to encroach and these areas were likely to succeed to scrub.

6.5.1.6 Eroding/upland rivers (FW1)

Three small catchments, consisting of a number of small rivers or streams arise or flow through the Wind Farm Site. They are all classified as Upland Eroding Rivers (FW1) and are typical of steep upland streams in peaty catchments. Each of the streams were extensively surrounded by coniferous forestry prior to the Existing Development.

Watercourses within these catchments were all described in the *Aquatic Baseline Report for Meenbog Wind Farm (2025)* that is provided as **Appendix 6-2**. The fisheries assessment that was provided for the 2017 EIAR is also provided within **Appendix 6-2**.

The largest of these channels is the Bunadaowen River, a tributary of the Mourne Beg River (Derg catchment) (See **Plate 6-10**). This catchment arises in the mountains to the west of the Wind Farm Site and flows through it in a north easterly direction. There are numerous small tributary streams that flow into it, many of which arise on the Wind Farm Site. There were no works undertaken within this watercourse as part of the Existing Development, but the Wind Farm infrastructure crosses the stream on existing forest roads that have been upgraded. Descriptions of the watercourses are provided in Appendix 6-2. Three aquatic survey locations are located within the Wind Farm Site and one immediately downstream of the confluence of the Bunadaowen and Mourne Beg Rivers. The river has a steep to moderate gradient, with few macrophytes and low cover of bryophytes. The upper reaches of the channel, outside the Wind Farm Site are surrounded by open upland heath habitats. Moving through the Wind Farm Site itself, the surrounding land use is predominantly coniferous forestry. Whilst there is a buffer of wet grassland and bramble/willow scrub between the main stem of the river and the forestry, there is no such buffer surrounding many of the tributaries. There were no significant changes to the watercourses recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.



Plate 6-8 Bunadaowen River

The Glendergan River arises out of a lough that is located to the west of the Wind Farm Site and flows along the southern boundary of the Wind Farm Site for a distance of approximately 900m. A small tributary of this River arises in Carrickaduff Lough within the Wind Farm Site and flows in a southerly direction before exiting the Wind Farm Site in the southeastern corner, where it joins the Glendergan River. Another short tributary arises within the Wind Farm Site and flows south before joining the Glendergan River slightly further west. All waterbodies described above are narrow, peaty streams that are surrounded, and in many places, shaded by coniferous forestry. Other areas are surrounded by clear felled forestry, bog and heath habitats. A sampling point within this catchment is fully described in **Appendix 6-2** and is located the southeastern corner of the Wind Farm Site. At this point, the stream is approximately 1m wide and is an incised, silty channel with high banks and the upstream tributaries are very small channels within the forestry. The wind farm infrastructure has avoided all instream works in this catchment.

There were no significant changes recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.

The Shruhangarve River arises within forestry and bog in the eastern sections of the Wind Farm Site and flows in a northerly direction before exiting the Wind Farm Site and flowing through peatland habitats until it converges with the Mourne Beg River. This is a steep, high energy channel with a substrate consisting of large boulders, bedrock and large cobble over much of its length. The November 2020 Peat Slide directly affected this river and resulted in the obscuring of approximately 1km of the channel, all of which was within the Wind Farm Site. It also resulted in large volumes of peat being deposited downstream on the Shruhangarve and its banks along with the Mourne Beg River. A dedicated clean up and restoration programme was undertaken under Section 12 of Local Government (Water Pollution) Acts following a notice issued by Donegal County Council. This included the manual removal of peat from the channel and recreation of a flow path, stabilisation of the banks with coir mesh and the planting of native tree species including alder and grey willow along a wide riparian buffer surrounding the stream. In addition, a small pond was created along the river channel. This river restoration has been successful in that in 2025, the Shruhangarve is in very similar condition to that which was recorded during the surveys that were undertaken for the 2017 EIAR. In addition, it is surrounded by a wide riparian buffer as opposed to being overshadowed by conifer plantation. **Plates 6-11 and 6-12** show the Shruhangarve within the Wind Farm Site immediately following the November 2020 Peat Slide and in 2025, following restoration. Downstream of the Wind Farm Site, the Shruhangarve, its banks and the Mourne Beg River have likewise returned to pre-November 2020 Peat Slide conditions. Details of the condition of this river in 2025 are provided in **Appendix 6-2**.



Plate 6-10 Shruhangarve immediately after the November 2020 Peat Slide



Plate 6-11 Shruilangarve at similar location in 2025

Mary Breen's Burn (also known as Croaghonagh River) flows close to the entrance road on the Wind Farm Site and discharges to the Mourne Beg catchment. It flows in a north easterly direction from the Wind Farm Site, through the Croaghonagh Bog SAC, which supports Upland Blanket Bog and Wet Heath habitats. It joins the Mourne Beg River approximately 2 km to the northeast of the access road on the Wind Farm Site. It is an upland, peaty channel of up to 2.5m in width. In both the surveys that were carried out for the 2017 EIAR and subsequent surveys up to 2025, the river was in poor condition with high levels of filamentous algae recorded (suggesting nutrient enrichment). There were no significant changes recorded in this catchment between the surveys undertaken for the 2017 EIAR and the subsequent surveys undertaken up to 2025.

6.5.1.7 Drainage ditches (FW4)

The Wind Farm Site is bisected with numerous artificial forestry drainage channels. The majority of these support little or no flow and are less than 0.5m in width. They often support dense bryophyte communities with rush dominated banks and iron deposits. This habitat is shown in **Plate 6.12**.



Plate 6-12 Example of Forestry Drains throughout the Site.

6.5.1.8 Dystrophic lake (FL1)

Carrickaduff Lough is classified as a dystrophic lake. It is located within a peatland section of the Wind Farm Site and has steep banks that comprise of peat rather than stone or mineral soil. Yellow water lily (*Nuphar lutea*) and broadleaved pondweed (*Potamogeton natans*) were recorded from the lake and the Wet Heath/Bog habitat continued right up to the water's edge. This habitat has not been impacted by the existing works and there are no significant changes since the surveys for the 2017 EIAR. This habitat is shown in **Plate 6.13**.

6.5.1.9 Built and Artificial Habitats

The amount of built and artificial habitats on the Wind Farm Site has increased as a result of the Existing Development. These habitats mainly include Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2) and Recolonising Bare Ground (ED3) associated with Wind Farm infrastructure such as turbine bases, access roads and associated ground works. The majority of these habitats are located on lands that were previously coniferous forestry. In 2016, the majority of the built and artificial habitats on the Wind Farm Site were associated with forestry roads that were classified as Spoil and Bare Ground (ED2). Shown in **Plate 6.14**.

There is a quarry close to the Wind Farm Site entrance. The current habitats at this location include Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3) associated with the ongoing operation of the quarry and the new access road, willow (*Salix cinerea*) and bramble (*Rubus fruticosus*) Scrub (WS1) and Active Quarries and Mines (ED4) in the wider area.



Plate 6-13 Carrickaduff Lough - Dystrophic Lake



Plate 6-14 Wind farm infrastructure present throughout the Wind Farm Site

6.5.1.10 Other artificial lakes and ponds (FL8)

Artificial lakes and ponds were recorded throughout the Wind Farm Site during the 2025 surveys. These included ponds that had developed in the borrow pits and open excavations that had been constructed as part of the Existing Development, as shown in **Plate 6-15** below.



Plate 6-15. Artificial Pond within borrow pit

In addition, there was a settlement pond recorded close to the Wind Farm Site entrance and classified as Artificial Lakes and Ponds (FL8), this was lined with plastic and was of low ecological value (Plate 5-2). This was an existing artificial settlement pond from an adjacent quarry that had been recorded in the surveys 2017 EIAR but had been slightly relocated and lined. An overflow system was observed and was in use at the time of the visit (after several days of heavy rain), with the pond discharging to an existing culvert beneath a wind farm access road that forms part of the Existing Development and an existing and unrelated quarry road and into a drain that forms part of the adjacent quarry drainage network. This pond is shown in **Plate 6.16**.



Plate 6-16 Artificial Pond close to the quarry entrance

In addition to the above, a pond was created on the Shruhangarve River behind a barrage wall that was built under emergency works in the aftermath of the November 2020 Peat Slide to provide habitat diversity in the northern section of the Wind Farm Site as part of the river restoration works. This is shown in **Plate 6-17**.



Plate 6-17 Artificial Pond on the Shruhangarve River to increase habitat diversity

6.5.1.11 Grid Connection Site

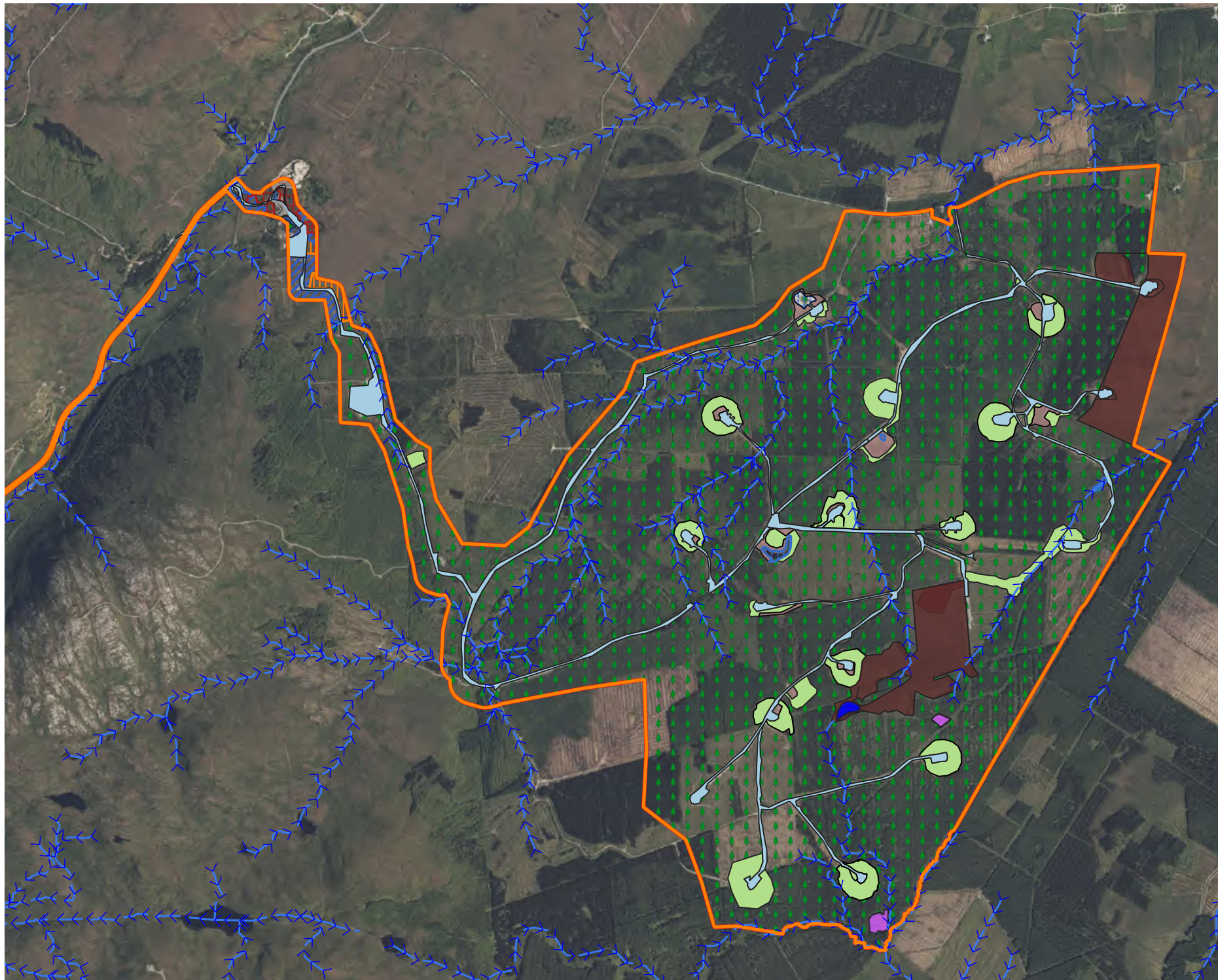
The Grid Connection Site primarily follows the public road network in a southerly direction and the development footprint is located within the road infrastructure itself. The N15, in which the Grid Connection is located for over 5km, is surrounded by peatland habitats, coniferous forestry and wet grassland habitats. It crosses the Lowerymore River (within the existing bridge infrastructure) and runs adjacent to it over much of the route.

The Grid Connection Site extends from the Wind Farm Site entrance along the N15 National Primary Road to the L-2595 Local Primary Road, then proceeds to the L-1985 Local Primary Road where it travels east along the road and through agricultural lands parallel to the local road before continuing along the L-19852 Local Tertiary Road and finally following a private road to reach the Clogher 110kV substation. The road is surrounded by agricultural fields that are bounded by hedges and drainage ditches in the northern sections and wire fences at it continues south. The southernmost sections, surrounding the Clogher Substation are surrounded by acid grasslands and heath habitats.

A short section of approximately 430m in length is located immediately adjacent to the road, in a field of improved wet grassland habitat. This was bounded by a post and wire fence during the walkover surveys and was similarly bounded by a fence in advance of the construction of the Existing Development, with the exception of a short section of approximately 25m in length, which consisted of immature trees and scrub including ash and birch.

6.5.1.12 Protected Floral Species

No floral species that are listed in Annex II of the EU Habitats Directive or the Flora (Protection) Order (2015) were recorded on the Wind Farm Site and Grid Connection Site and the Existing Development avoids all suitable habitat for the species Irish lady's tresses (*Spiranthes romanoffiana*) and globeflower (*Trollius europaeus*), which are known from the wider area but have not been recorded on the Site and were the subject of dedicated surveys to inform the 2017 EIAR and were similarly, not recorded.



Map Legend

- Wind Farm Site and Grid Connection Site
- Eroding/ Upland Rivers (FW1)
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Recolonising bare ground (ED3)
- Dystrophic lakes (FL1)
- Other artificial lakes and ponds (FL8)
- Wet grassland/ Wet heath (GS4/HH3)
- Wet heath (HH3)
- Cutover bog (PB4)
- Conifer plantation and Associated habitats (WD4)
- Scrub (WS1)
- Upland blanket bog/ Wet heath (PB2/HH3)



Drawing Title

Habitat Map

Project Title

Substitute for Consent Application for
Meenbog Wind Farm

Drawn By

MK

Checked By

PR

Project No.

240505-a

Drawing No.

Figure 6.7

Scale

1:25,000

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6.5.2 Results of Faunal Surveys

The results of the faunal surveys carried out as part of the 2017 EIAR have been taken into account. This section includes results of the surveys undertaken subsequently up to 2026.

6.5.2.1 Multi-disciplinary walkover surveys

6.5.2.1.1 Summary results of Surveys undertaken to support Permitted Development (2017 EIAR)

The Wind Farm Site and Grid Connection Site were surveyed for protected faunal species during the preparation of the 2017 EIAR. During these surveys, fox (*Vulpes vulpes*) scat, Irish hare (*Lepus timidus ssp. hibernicus*), red squirrel (*Sciurus vulgaris*) pine marten (*Martes martes*), red deer (*Cervus elaphus*) and sika deer (*Cervus nippon*) were all recorded. No signs of otter were recorded during the surveys for the 2017 EIAR. However, the suitability of the Wind Farm Site and Grid Connection Site and downstream watercourses for the species was acknowledged and they were identified as a KER. No signs of badger (*Meles meles*) or other mammals such as pygmy shrew (*Sorex minutus*), hedgehog (*Erinaceus europaeus*), and stoat (*Mustela erminea*) but they are likely to be present, at least on occasion

In addition to these mammalian species, common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) were also recorded and suitable breeding habitats were identified. Whilst none were recorded, suitable habitat for common lizard (*Zootoca vivipara*) was identified and it was considered likely to occur on the Wind Farm Site and Grid Connection Site.

The surveys also included an evaluation of the Wind Farm Site and Grid Connection Site and construction footprint for suitable marsh fritillary (*Euphydryas Aurinia*) habitat, with none recorded.

6.5.2.1.2 Results of Walkover Surveys

Mammals

The following species (or signs thereof) were recorded during the walkover surveys of the Wind Farm Site and Grid Connection Site. The surveys undertaken and evidence recorded indicated that the Wind Farm Site and Grid Connection Site was not of particular significance for mammals and as such, no requirement for further dedicated surveys to inform an impact assessment was identified for these species.

Badger

There was a single recording of a badger within the Wind Farm Site, this was a sighting of an individual. No setts, definitive foraging signs, prints or other signs of the species were recorded during any of the surveys undertaken. Whilst the Wind Farm Wind Farm Site and off road sections of the Grid Connection Site offers suitable habitat, no evidence that it is of particular importance to the species was recorded.

Fox

Fox was recorded on two occasions and scat was recorded frequently throughout the Wind Farm Site during the walkover surveys undertaken on the Wind Farm Site and Grid Connection Site. The species was also recorded in the general area outside the Wind Farm Site and Grid Connection Site on two occasions.

Red Deer

This species was recorded on the Wind Farm Site on two occasions during the walkover surveys but signs in the form of prints and droppings were frequently recorded throughout the Wind Farm Site.

Hare

Hare were recorded frequently throughout the open areas on the Wind Farm Site and are a typical species of upland grassland and peatland habitats.

Pine Marten

This species was recorded once within the Wind Farm Site and once in the surrounding area. The Wind Farm Site provides suitable habitat for the species and likely scat was recorded on tree stumps occasionally within the Wind Farm Site. No dens or other signs that the Wind Farm Site or Grid Connection Site were of particular significance to the species were recorded.

Red Squirrel

Feeding signs of this species were recorded occasionally within conifer plantation forestry within the Wind Farm Site and a single animal was recorded outside the Site boundary. No dreys or other signs that the Wind Farm Site or Grid Connection Site were of particular significance to the species were recorded.

Otter

Suitable otter habitat was recorded within the Wind Farm Site in the form of the Bunadaowen and Shruhangarve Rivers and anywhere that the footprint was within 150m of this suitable habitat was the subject of dedicated otter surveys, which are described below. In addition, dedicated aquatic surveys both within the Wind Farm Site and Grid Connection Site and downstream in the catchments included otter surveys.

Other mammals

Pygmy shrew was recorded on the Wind Farm Site and other mammalian species such as hedgehog (*Erinaceus europaeus*), wood mouse (*Apodemus sylvatica*) and stoat (*Mustela erminea*) are also likely to be present, at least on occasion. However, no signs that the Wind Farm Site or Grid Connection Site were of particular significance any such species were recorded.

Amphibians and Reptiles

Common frog was recorded on the Wind Farm Site frequently during the walkover surveys. It was noted that the peat repositories, artificial ponds and other peripheral habitats associated with the Existing Development provided good habitat for the species with additional pools, ditches and wet areas when compared to the pre-development situation. No frog spawn was recorded during the surveys, but it is highly likely that the species breeds on the Wind Farm Site and it supports a large amount of suitable habitat.

No other reptile or amphibian species were recorded but it is highly likely that smooth newt and common lizard are present on the Wind Farm Site or Grid Connection Site. The Existing Development has led to an increase in small pools and wet areas in and around the peat cells and on the Shruhangarve River, which provide suitable habitat for newt.

Terrestrial Invertebrates

During the walkover surveys, the suitability of the Wind Farm Site and Grid Connection Site for other protected species such as marsh fritillary was assessed with no significant habitat for the species recorded. The Wind Farm Site and off-road sections of the Grid Connection Site do provide suitable habitat for a range of invertebrate that favour upland peatland and wet grassland/forestry habitats.

Habitat diversity for these species has increased as a result of the Existing Development with the pre-existing conifer plantations broken up to provide more open areas with wetlands created in the peat repositories and sheltered glades, in the place of blanket forestry.

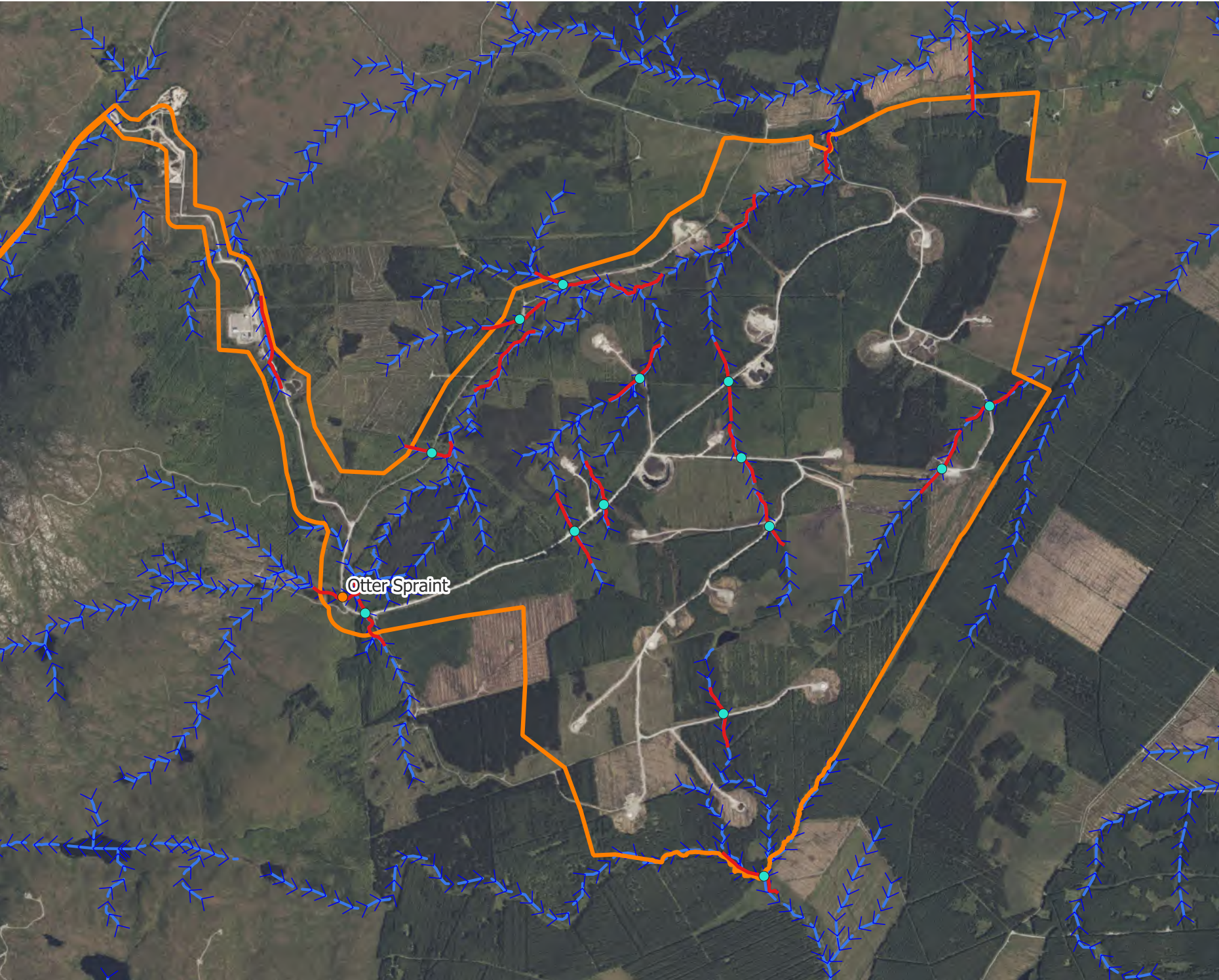
Aquatic species

The Wind Farm Site contains two main watercourses, the Bunadaowen and the Shruhanganrve. In addition, a small tributary of the Glendergan is located in the southeastern section of the Wind Farm Site and flows out via the southeastern boundary. These watercourses were visited during the walkover surveys but were the subject of detailed aquatic surveys, which are provided in **Appendix 6-2** and are summarised in subsequent sections below. These dedicated surveys also assess the baseline biodiversity in the downstream Mourne Beg, Lowerymore and Glendergan Rivers

6.5.2.2 Dedicated Otter Survey

A dedicated otter survey was undertaken on the Bunadaowen and Shruhanganrve Rivers that are within the Wind Farm Site. This involved a walkover of the relevant watercourses where they occur within 150m of the existing or Prospective Development. Otter spraint was recorded under a bridge over the Bunadaowen River, where the wind farm road crosses it, during each of the dedicated surveys (and during many of the walkover surveys). This bridge was the subject of works to facilitate the Existing Development and is clearly a regularly used sprainting area. No other signs of otter activity were recorded within the Wind Farm Site or Grid Connection Site during any of the surveys undertaken. A map showing the areas surveyed and location of the spraint site is shown in **Figure 6-8**.

In addition to the dedicated surveys for otter within the Wind Farm Site and Grid Connection Site, otter were recorded during the aquatic surveys that are provided in Appendix 6-2 and described in subsequent sections.



Map Legend

- Wind Farm Site and Grid Connection Site
- Otter Survey Stretch
- Crossing Points
- Otter Signs
- Rivers

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Drawing Title

Otter Survey Map

Project Title

Substitute for Consent Application for Meenbog Wind Farm

Drawn By	Checked By
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Project No.	Drawing No.
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6.5.2.3 Bat Surveys

Full details of the bat survey results are available in the baseline bat report available as **Appendix 6-1** of this rEIAR and a summary is provided below.

A comprehensive desk study, field survey programme and site-specific analysis were undertaken in accordance with NatureScot (2021) guidance and relevant best practice to characterise baseline conditions, including bat habitat suitability, roosting potential, activity levels and species composition. The Study Area was found to comprise predominantly commercial conifer plantation and smaller areas of peatland habitats, with bat foraging and commuting habitat assessed as largely of **Low to Moderate** suitability. No bat roosts were identified within the Wind Farm Site and Grid Connection Site, and no features of **High** roosting suitability were recorded.

The following species were recorded during the surveys in 2024:

- › Leisler's Bat (transect and static surveys)
- › Myotis Spp. (transect and static surveys)
- › Soprano pipistrelle (transect and static surveys)
- › Common Pipistrelle (transect and static surveys)
- › Brown long-eared bat (static surveys only)
- › Nathusius' pipistrelle (static surveys only)

Ground-level static detector surveys and manual transect surveys recorded generally low levels of bat activity, with seasonal and spatial variation typical of upland forestry landscapes. High activity was recorded only at a small number of detector locations during limited periods, and these were localised and not indicative of sustained or widespread use of the Wind Farm Site and Grid Connection Site by high collision-risk species.

All trees within the Study Area occur within commercial conifer plantations and were assessed as having *Negligible* roosting potential. No bat roosts were identified within the Study Area during the 2024 surveys, and all inspected structures were assessed as offering *Negligible* or no roosting potential. No roosts were recorded within the Wind Farm Site or Grid Connection Site.

There are no turbines associated with the Existing Development and therefore, no potential for collision risk.

The information contained in the bat survey report informs both this rEIAR for the Existing Development and the EIAR for the Prospective Development.

6.5.2.4 Aquatic Surveys

The results of the aquatic surveys undertaken are provided in full in **Appendix 6-2**. To avoid repetition, they are not included here but the main findings of each report are summarised below.

6.5.2.4.1 2017 Report- Meenbog Wind Farm Fisheries Assessment

This report was provided as **Appendix 6.3** to the 2017 EIAR and includes a desk study of available information on the Derg catchment as a whole rather than specific information on the Mourne Beg. It also provides more detailed information on the smaller streams within and adjacent to the Wind Farm Site including the Shruhanganarve, Bunadaowen and Mary Breen's Burn. It provides a baseline of the fisheries environment in advance of any works associated with the Existing Development.

The report identifies the known presence of the following fish species within the catchment:

- › Atlantic salmon (*Salmo salar*)
- › Brown trout and sea trout (*Salmon trutta*)
- › Eel (*Anguilla anguilla*)

- > Minnow (*Phoxinus phoxinus*)
- > River/Brook lamprey (*Lampetra sp*)
- > Sea lamprey (*Petromyzon marinus*)
- > Three-spined stickleback (*Gasterosteus aculeatus*)
- > Stone loach (*Noemacheilus barbatula*)
- > Pike (*Esox lucius*)
- > Perch (*Perca fluviatilis*)
- > Roach (*Rutilus rutilus*)
- > Gudgeon (*Gobio gobio*)

It then provides a desk study of relevant data on Salmonids, Lamprey and Freshwater Pearl Mussel (not present in Mourne Beg catchment).

The field surveys included site specific information on each of the streams surveyed:

Shruhangerve

Moderate quality stream with eel the only species recorded.

Bunadaowen

Good Quality stream with brown trout throughout and eel recorded.

Mary Breen's Burn

Poor quality stream but with significant fish stock. Brown trout recorded.

6.5.2.4.2 **2017-Aquatic Macroinvertebrate Surveying**

This report was included as Appendix 6-2 to the 2017 EIAR and includes information on the macroinvertebrate populations in the watercourses within and downstream of the Existing Development in advance of any associated works. It is provided in Appendix 2 of this rEIAR and includes two survey stations on Mary Breen's Burn, one on the Bunadaowen, one on the Mourne Beg (upstream of the November 2020 Peat Slide area) and one on a tributary of the Lowerymore near the wind farm entrance onto the N15. There were no surveys undertaken on the Mourne Beg downstream of the Shruhangerve confluence or on the Shruhangerve River at that time.

In all samples, the recorded Q value was 3-4, indicating moderate water quality. None of the sampled streams achieved 'Good' status during the pre-works baseline survey.

6.5.2.4.3 **2021 – Aquatic & Fisheries Assessment of November 2020 Peat Slide**

An excerpt from the non-technical summary of the report that is included within Appendix 6-2 is provided below.

Triturus Environmental Ltd. in conjunction with McCarthy Keville O'Sullivan, the Lough's Agency and RIVUS Ltd., undertook a fisheries and aquatic habitat assessment of the Mourne Beg catchment draining Meenbog wind farm near Ballybofey, Co. Donegal. Following a significant peat-slide event that occurred at the site in November 2020, the surveys focused on the Shruhangerve (November 2020 Peat Slide pathway) and downstream Mourne Beg River to determine impacts to fish populations, fish spawning and nursery habitat. The assessment also considered direct impacts to riverbed condition in addition to biological water quality and hydromorphology. Long-term Loughs Agency fisheries data and salmonid spawning (redd count) data was also reviewed and used to inform our assessment. A total of 18.95km of riverine channel was surveyed, both upstream and downstream of the peat impact zone, in July and October 2021.

The July 2021 site surveys found that siltation impacts (from peat) were evident throughout the length of our Mourne Beg River survey area some 8 months after the November 2020 Peat

Slide event, extending to >14km downstream of the Shruhangarve confluence. Siltation, in terms of riverbed surface cover, infiltration into riverine gravels and oxygen exchange (redox) was often severe. This resulted in significant reductions in the quality of habitat for salmonids and macro-invertebrates. Whilst siltation was evident in almost all areas of the peat impact zone (including shallow, fast-flowing reaches), the most significant volumes were present in depositional slow-moving glide and pool areas. Reductions in riverbed condition also impacted the hydromorphology of the river, mainly through the deterioration of bed condition, albeit much of the survey area retained hydromorphology equivalent to WFD good status (as would be expected for a natural upland river system).

Based on long term monitoring data (2011-2021), there was a significant restriction in the distribution of salmonid spawning areas (redds) in the first spawning season after the November 2020 Peat Slide. This was primarily due to the (often severe) siltation of routinely used spawning areas. However, despite a considerable reduction, salmonid spawning was confirmed in several impacted areas of the Mourne Beg River in the December 2020-January 2021 period. Of note was the marked increase in spawning in the upper Mourne Beg River, upstream of the peat impact zone, in December 2020-January 2021. Despite evident impacts, numbers of juvenile Atlantic salmon (recorded via electro-fishing) increased in 2021 compared to the previous year (before the November 2020 Peat Slide), thus indicating successful spawning and recruitment within the system. However, the increasing numbers of juvenile salmon may also be explained by a parallel reduction in trout consequential of the peat slippage event. Juvenile brown trout numbers were noticeably reduced within the impact zone in 2021 and this is thought to be linked to a higher degree of impact due to an earlier (than salmon) spawning season that likely coincided with the November 2020 Peat Slide event causing significant mortality.

A swift recovery in biological water quality of the impact zone was observed (as assessed by Q-sampling of macro-invertebrates). Most sites sampled on the Mourne Beg River had recovered to Q4 (good status) water quality by October 2021, having been significantly worse in December 2020 (when some sites supported an absence macro-invertebrate life due to severe siltation impacts). An increased diversity of clean water indicator species, such as mayflies and stoneflies, were recorded in October 2021 demonstrating an improvement in biological water quality. The Shruhangarve, where November 2020 Peat Slide impacts were most severe, was failing to meet Q4 (good status) thresholds in October 2021. In conclusion, the Meenbog November 2020 Peat Slide caused and continues to cause considerable impacts to the quality of aquatic habitats within the Shruhangarve and Mourne Beg River. Whilst there is evidence of considerable recovery, impacts are predicted to last long-term. Given the large volumes of peat present within the system as a result of the November 2020 Peat Slide, the spate nature of the Shruhangarve and Mourne Beg River will likely result in medium-term resuspension and flushing of peat downstream, providing a lasting source of peat and associated impacts to fisheries and aquatic habitats. Other sources of impact to aquatic habitats and water quality, namely coniferous afforestation and agriculture, were identified during the 2021 surveys.

6.5.2.4.4 2024/2025 Aquatic Baseline Reports

Aquatic surveys were undertaken in both 2024 and 2025 and full details of these are provided in Appendix 6-2. The main conclusions are summarised below.

Fisheries

A typical diversity of fish species for the Mourne Beg_SC_010, Mourne Beg_SC_020, and Eske_SC_010 river sub-catchments was recorded during the electro-fishing survey, with Atlantic salmon, brown trout, stone loach, minnow, three-spined stickleback and Red-listed European eel captured. In contrast to previous surveys, an anadromous sea trout (also *Salmo trutta*) was also recorded at a site on the upper reaches of the Mourne Beg River.

Salmonid populations were widespread in vicinity of Meenbog wind farm, being present at all except one survey Site. Annex II Atlantic salmon were recorded from a total of 11 no. sites on the Croaghonagh River, lower Bunadownen River, Lowerymore River and all survey sites on the Mourne Beg River.

The highest salmonid densities were recorded from the Mourne Beg River which represents the most valuable salmonid watercourse in vicinity of the wind farm. As per previous surveys, no lamprey ammocoetes (*Lampetra* sp.) were recorded, reflecting the poor habitat suitability across the survey area (Appendix A to the report provided in Appendix 6-2). Low densities of Red-listed European eel were recorded in the Bunadownen River and Shruhanganve River in addition to 5 no. sites on the Mourne Beg River. Siltation pressures (mostly from peat escapement) and eutrophication pressures (e.g. afforestation) were evident throughout much of the survey area, particularly on the Bunadownen, Mourne Beg and Glendergan rivers, and were impacting the quality of fisheries habitat.

Annex I Aquatic Habitats

Although not diverse examples, the Annex I habitat ‘Water courses of plain to montane levels, with submerged or floating vegetation of the *Ranunculum fluitantis* and *Callitriche-Batrachion* (low water level during summer) or aquatic mosses (3260)’ (aka floating river vegetation) was present on the Mourne Beg River. Here, several indicator species (EC, 2013) were present including water crowfoot (*Ranunculus* sp.), various-leaved pondweed (*Potamogeton gramineus*), alternate milfoil (*Myriophyllum alterniflorum*) and well-developed aquatic bryophytes communities supporting *Fontinalis antipyretica*, *Fontinalis squamosa* and *Chiloscyphus polyanthos*. These sites also supported 3260 habitat in July 2024.

Carrickaduff Lough, located within the footprint of Meenbog wind farm, represented the Annex I habitat ‘Natural dystrophic lakes and ponds (3160)’. Annex I acid oligotrophic lakes are typically associated with small lakes and ponds in Atlantic and upland blanket bog and wet heath (Gray et al., 2022; O’Connor, 2015), such as that present at Meenbog. Annex I (3160) habitats are considered species-poor botanically with a community characterised by bryophytes of the genus *Sphagnum* and sustain the *Utricularietalia* phytosociological order (EC, 2013). In Ireland, this lake habitat has been broadly interpreted as “species poor lake and pond systems dominated by *Sphagnum* mosses and restricted to blanket bogs and wet heaths” (O’Connor, 2015). As per the previous survey, Carrickaduff Lough was dominated by *Sphagnum* species such as *S. cuspidatum*, with common associates for 3160 habitat such as floating bur-reed (*Sparganium angustifolium*), bog bean (*Menyanthes trifoliata*), bulbous rush (*Juncus bulbosus*) and bladderwort (*Utricularia* agg.) (EC, 2013).

Biological Water Quality & Macro-invertebrates

No rare or protected macro-invertebrate species (according to national red lists) were recorded in the biological water quality or sweep samples taken from a total of 19 no. sites in July 2025, i.e. none of greater than Least Concern. The water boatman *Hesperocorixa moesta* was recorded in moderate numbers from Carrickaduff Lough.

Whilst not protected or Red-listed, this is a rare and poorly understood corixid species in Ireland (Mantell & Anderson, 2020) with a paucity of records (NBDC data). It was not recorded during the 2024 surveys.

Biological water quality recorded a slight overall upward trend observed in the Mourne Beg River downstream of the Shruhangerve confluence, as well as an improvement in the Shruhangerve River itself between the 2024 and 2025 surveys.

Eight of the survey sites as shown in Figure 4.1 of the report in Appendix 6-2 achieved Q4 (good status) in 2025. These included all survey locations on the Mourne Beg that are located downstream of the November 2020 Peat Slide except at the confluence with the Shruhangerve where there was a slight decrease from 2024 (Q3 2025 and Q4 in 2025). The other areas that achieved 'Good' status were on an unnamed Croaghonagh River tributary, Barrack Hill River and the Lowerymore River.

The other 10 survey sites were either valued at Q 3/4 (Moderate) or Q3 (Poor) and were located primarily on small streams upstream of the November 2020 Peat Slide and in many cases, not connected to the Existing Development.

Macro-invertebrate abundance, species diversity and taxon richness per site was broadly similar in both the 2024 and 2025 surveys. A swift recovery in biological water quality (mostly to Q4) of the Mourne Beg River occurred following the November 2020 Peat Slide event and, despite other ongoing impacts, much of the watercourse is currently achieving good status as of July 2025.

The Shruhangerve River, was failing to meet Q4 (good status) thresholds in October 2021 (Triturus, 2022) and in July 2024 (Triturus, 2025a). However, the macroinvertebrate community has continued to recover in the interim period, with a greater proportion of pollution sensitive species present in 2025, including the EPA group A stonefly species *Protonemura meyeri* and group B mayfly *Paraleptophlebia cincta* which were both absent in 2024. The biological water quality of the Shruhangerve had improved to Q3-4 (moderate status) in July 2025.

As per previous surveys (2021 and 2024), both eutrophication (primarily from coniferous afforestation) and peat escapement (siltation) pressures were evident throughout the survey area. Clear-felling activities had occurred along the Mourne Beg River since the previous survey, likely leading to nutrient escapement to the watercourse.

6.5.2.4.5 2026 Redd Surveys

The findings of the 2026 Redd surveys are provided below and shown on **Figure 6-9**.

Croagh Bridge (Grid Ref: E212540 N385755), downstream for approximately 1.3km.

Confirmed Redds at Grid Refs E212848 N385636 and E213047 N385674, Potential Redd at E212620 N385627 (unconfirmed due to poor visibility)

Bridge at Grid Ref: E2352 N385183, downstream for approximately 120m.

Two confirmed redds around Grid Ref: E214359 N385072 and two unconfirmed redds around E214363 N385115 (unconfirmed due to poor visibility).

From confluence of Bunadaowen with Mourne Beg (Grid Ref: E208296 N387861) upstream for a distance of approximately 500m.

Seven redds confirmed throughout section – good visibility, shallower water and narrower stream than downstream. Numerous unconfirmed redds.

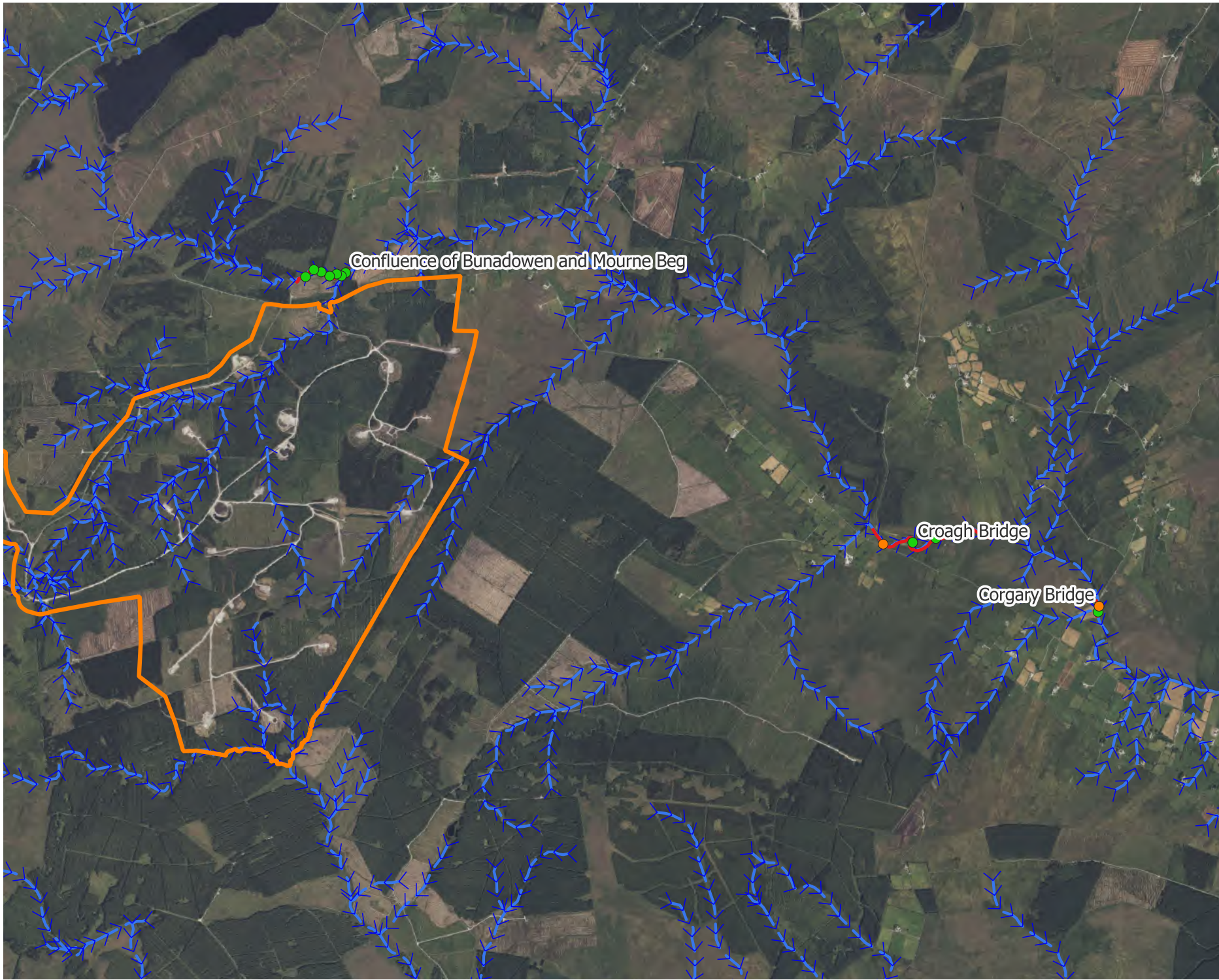
In total, four redds were recorded within the 1.42km surveyed downstream of the November 2020 Peat Slide and seven were recorded in the 500m surveyed upstream of the confluence with the Bunadaowen. It is highly likely that this is an underestimation due to the poor visibility at time of surveying. It does however, confirm that spawning is occurring throughout the Mourne Beg system. Representative photographs of redds are provided below.



Plate 6-19 Confirmed Redd downstream of bridge at H 14359 85072



Plate 6-20 Confirmed Redd upstream of Bunadaowen Confluence



Map Legend

-  rEIA Site
-  Survey Area
-  Confirmed Redd
-  Potential Redd
-  Rivers



Drawing Title

Salmon Redd Survey Map

Project Title

Substitute for Consent Application for
Meenbog Wind Farm

Drawn By

MK

Checked By

PR

Project No.

240505-a

Drawing No.

Figure 6.9

Scale

1:40,000

Date

09.04.2026



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6.5.2.4.6 Loughs Agency data 2012 -2025

Raw data was received from redd and electro-fishing surveys undertaken by the Loughs Agency from 2021 - 2025.

Redd Survey Data

The surveys show redds distributed widely throughout the Mourne Beg system. A map is provided in in **Figure 6-10** below. Redd numbers recorded are as follows:

- 2012 - 7
- 2013 - 12
- 2015 - 32
- 2016 - 4
- 2017 - 44
- 2018 - 32
- 2019 - 69
- 2020 - 41
- 2021 - 74
- 2022 - 83
- 2024 - 56
- 2025 - 24

Whilst there was a decline in redds in 2025, it is still comparable with redd count data from prior to the Existing Development. There is a high level of variability in the number of redds recorded annually.

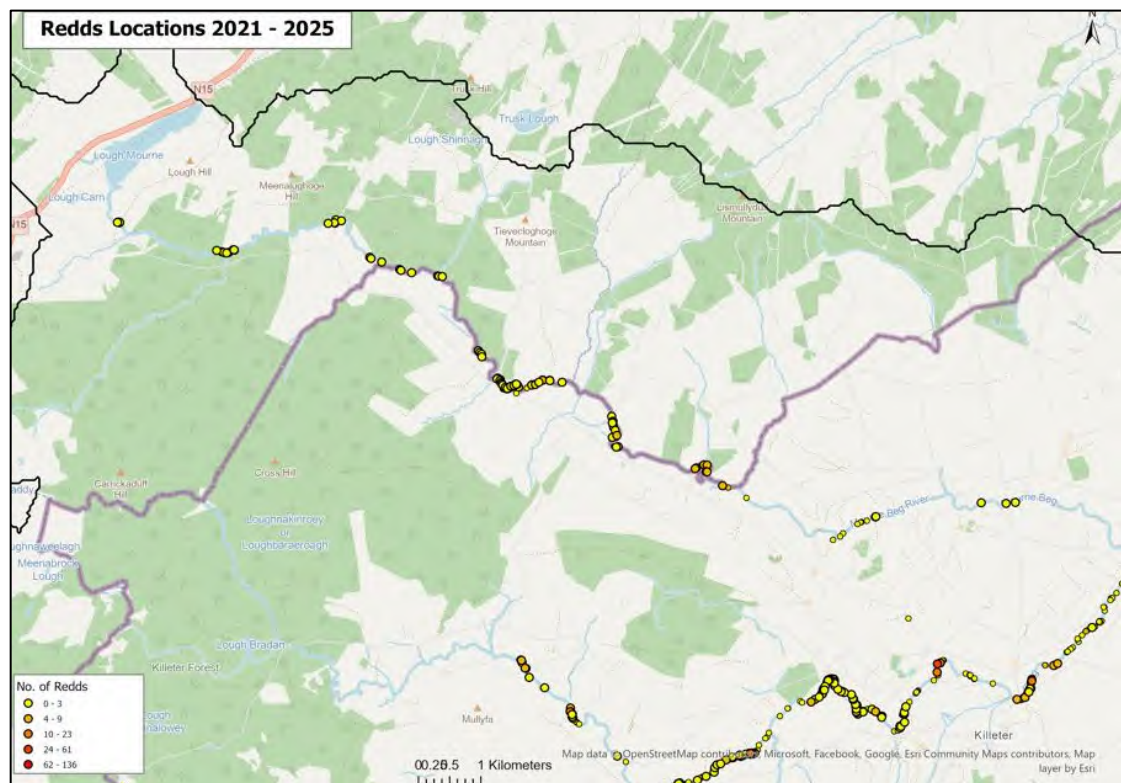


Figure 6-9 Location of Redds on the Mourne Beg and Derg system 2021 - 2025

Electro Fishing Data

The electro fishing data received from the Lough's Agency is provided in Appendix 6-2. It shows low numbers of brown trout recorded throughout the system in 2022 and low numbers of Atlantic salmon recorded in 2023. This trend occurs throughout the system, both upstream and downstream of the Existing Development. Both species are recorded in good numbers in the 2024 and 2025 surveys.

6.5.2.4.7 Summary of Aquatic Survey Results

In summary, the relevant findings of the aquatic surveys undertaken are shown below.

No evidence of deterioration of the aquatic environment having occurred as a result of the construction of the Existing Development has been recorded, with the exception of the November 2020 Peat Slide.

Impacts of the November 2020 Peat Slide were recorded from the Shruhangarve River and downstream in the Mourne Beg River for a distance of >14km. These effects included excessive siltation and associated decline in water quality and salmonid spawning habitat. Despite this, the water quality within the river recovered to good status (Q4) in all surveyed areas downstream of the confluence between the Shruhangarve and the Mourne Beg (including all areas within the River Finn SAC and River Foyle and Tributaries SAC) within 11 months of the November 2020 Peat Slide. In addition, there was an increase in salmon fry recorded during electro-fishing undertaken in 2021. There was, however a decrease in brown trout numbers. Whilst salmonid redds were recorded downstream of the November 2020 Peat Slide in the 2021 surveys, their number was reduced, with a marked increase in redds recorded upstream of the November 2020 Peat Slide in the Mourne Beg upstream of its confluence with the Bunadaowen during that year. Loughs Agency data revealed widespread use of the river for spawning between 2021 and 2025. Electro fishing undertaken by the Loughs Agency between 2021 and 2025 appeared to show low numbers of trout in 2022 and low numbers of Atlantic salmon in 2023. Numbers of both species increased in 2024 and 2025.

Surveys undertaken in 2024 and 2025 recorded continued good water quality in the November 2020 Peat Slide affected area and typical ratios of salmonid and trout fry. In addition, redd surveys have confirmed continued spawning throughout the system. The 2024 and 2025 surveys were undertaken four seasons after the November 2020 Peat Slide event and showed no signs of reduced productivity. Such a reduction would be expected if there had been a significant effect on productivity in 2020. This would have led to a reduction in adults returning from migration four years later and a resultant impact on productivity.

Ongoing pressures from siltation and nutrient enrichment have been noted throughout the system (including areas that are not hydrologically linked to the Existing Development) but no evidence of this occurring as a result of the Existing Development were recorded.

The Shruhangarve River has shown steady improvement over the years between 2020 and 2025 and the restoration works undertaken following the November 2020 Peat Slide event have successfully stabilised the river and its banks. It was not surveyed for water quality before the construction of the Existing Development, but it is possible that (like all the other small streams surveyed) it did not meet 'good' water quality standards at that time.

6.5.2.5 Invasive Species

During field surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011) was conducted. Two established invasive non-native terrestrial plant species were noted during the surveys: Rhododendron (*Rhododendron ponticum*), and Himalayan knotweed (*Persicaria wallichii*). Rhododendron was found occasionally within the Wind Farm Site, but there were no large patches, just single bushes or very small clumps. A stand of Himalayan knotweed was recorded at one location outside the Wind Farm Site and Grid Connection Site, along a public road to the north of the Wind Farm Site (H08630, 87790).

In addition, a rare semi-aquatic form of the invasive species, New Zealand flatworm was recorded in a kick sample in the Mourne Beg River in July 2024 (as discussed in **Appendix 6-2**). Sika deer were also

recorded during the surveys to inform the 2017 EIAR but were not recorded during the surveys for the current application. This species is listed as a high-risk invasive species under the Irish Invasive Species Regulation (SI 477 2011 and SI 374/2024).

6.5.3

Importance of Ecological Receptors

Table 6.9 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, 2009). This table also provides the rationale for this determination and identifies the habitats and species that are **Key Ecological Receptors (KERs)**.

Table 6-9 Key Ecological Receptors identified during the assessment.

Ecological feature or species	Reason for inclusion as a KER	KER
Designated Sites		
European Designated Sites	The following Special Areas of Conservation are identified in the AA Screening as being within the Likely Zone of Impact and are assessed fully in the NIS that accompanies this application: Croaghonagh Bog SAC [000129] River Finn SAC [002301] River Foyle and Tributaries SAC [UK0030320] Lough Eske and Ardnamona Wood SAC [000163] These sites are assigned International Importance and included as KERs as the potential for indirect effects on them via water pollution has been identified. The potential for other effects on Croaghonagh Bog is identified on a precautionary basis due to its proximity to the Existing Development.	Yes
Nationally Designated Sites	The following nationally Designated Sites has been identified as being within the likely Zone of Impact: Lough Eske and Ardnamona Wood pNHA (000163) This site is assigned National Importance and included as a KER as the potential for indirect effects to have occurred or occur on it via water pollution has been identified.	Yes
Habitats		
Upland Blanket Bog (PB2) / Wet Heath (HH3) County Importance	A mosaic of Blanket Bog/Wet Heath habitat occurs within the Site. This mosaic includes peatlands that conform to the EU Habitats Directive Annex I habitats Active Blanket Bog (7130* priority) and Atlantic Wet Heaths with Erica tetralix (4010) It is assigned County Importance as, although it supports Annex I habitats, they are highly fragmented and affected by forestry and agriculture. These habitats are not designated as either SAC, NHA or pNHA. The Existing Development resulted in the loss and or deterioration of approximately 0.9 hectares of blanket bog habitat (as permitted under APB-303729-19). In addition, the November 2020 Peat Slide affected approximately 2.2ha of blanket bog habitat. As such, the potential for significant effects to occur or have occurred was identified and these peatland habitats were included as a KER.	Yes

	The cut over bog that is located within the Wind Farm Site is located outside the footprint of the works and no pathway for significant effects was identified – it was not identified as a KER.	
Dystrophic Lakes (FL1) County Importance	Whilst this habitat was recorded on the Wind Farm Site no connection between the works and the lake were identified and no potential pathways for the Existing Development to have resulted in significant effects on this habitat or to result in any such effect. It is assigned County Importance as it is a good example of the Annex I habitat the Annex I habitat 3160 Natural Dystrophic Lakes and Ponds but is surrounded on all sides by coniferous forestry.	No
Eroding/upland rivers (FW1) Local Importance (Higher Value)	Three natural watercourses were located within the Wind Farm Site. The Bunadaowen River, The Shruhangerve Stream and the Glendergan River. These rivers flow into the Mourne Beg River and River Derg, which are designated for conservation as part of the River Finn SAC and River Foyle and Tributaries SAC. In addition, a section of the Wind Farm Site and Grid Connection Site (access road and grid connection) drains to the Lowerymore River, which is designated as part of the Lough Eske and Ardnamona Wood SAC downstream and another section drains to Mary Breen's Burn, which discharges to the Mourne Beg. These Rivers and Streams have been assigned Local Importance (Higher Value) as they are of high biodiversity value and connect to downstream waterbodies in the local area. The SACs are not designated for upland eroding rivers but are of International Importance for associated aquatic species and in the case of River Foyle and Tributaries SAC, the Annex I habitat, Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation. They are identified as KERs as pathways for the Existing Development to have, or have had significant effects thereon were identified The drainage ditches on the Wind Farm Site are highly modified from their natural state and whilst they do provide some additional wet habitat throughout the Wind Farm Site, they are not included as KERs but considered in the context of their connectivity with downstream watercourses.	Yes
Artificial Lakes and Ponds (FL8) Local Importance (Higher Value)	This habitat was only recorded in two locations in the surveys undertaken for the Permitted Development and they were associated with quarrying and a historic borrow pit for forestry road building. Neither were of particular ecological significance and both have been affected by the Existing Development. In addition, there has been an increase in the habitat throughout the Wind Farm Site through the construction of ponds in the borrowpits/ peat and spoil management areas and on the Shruhangerve River. They provide additional biodiversity in the local area but are unlikely to be affected by the Existing Development into the future. Some will be retained and will continue to colonise with more species and habitat quality will likely improve. There is potential for some sections of these habitats to be lost into the future, where they exist within borrow pits/ peat and spoil management areas, which may be backfilled. They have not been identified as a KER.	No

Conifer plantation (WD4), Scrub (WS1) and Wet Grassland (GS4) Local Importance (Lower Value)	Conifer Plantation (WD4) is the most abundant habitat type in the Wind Farm Site and covers approximately 81% of it. Approximately 73 hectares was felled as part of the Existing Development. This habitat was primarily planted on peatland habitats but has been highly modified through drainage and planting of coniferous forestry. The scrub and wet grassland habitats were peripheral to forestry and wind farm infrastructure and were similarly highly modified from their natural state. Such habitats are common and widespread in the wider landscape and are not of high ecological value. There is no potential for the Existing Development to have had significant effects on biodiversity as a result of impacts on these habitats and there is no potential for it to result in any such effects into the future. For these reasons, these habitats have not been identified as a KER.	No
Buildings and Artificial Surfaces (BL3), Spoil and Bare Ground (ED2), Recolonising Bare Ground (ED3)	These habitats are of low ecological significance and were either already on the Wind Farm Site and Grid Connection Site or have been created as a result of the Existing Development. They are not identified as a KER	No
Fauna		
Aquatic and Fisheries Species among the Qualifying interests of the Downstream SACs Atlantic salmon, freshwater pearl mussel, otter International Importance	A pathway for significant effects on these species was identified in the form of water pollution. This pathway is direct as it pertains to the November 2020 Peat Slide, which occurred during the construction of the Existing Development and had direct effects on the Shruhangarve River (although no evidence of these QI species was recorded on this river). An additional pathway for effect on otter was identified in the form of disturbance during construction. As such, these aquatic species have been identified as KERs. They are assigned International importance as they are QIs of downstream SACs.	Yes
Other Aquatic and Fisheries Species Brown trout, European eel Local Importance (Higher Value)	The same pathway for these aquatic species was identified in the form of water pollution. As such, these aquatic species have been identified as KERs. They were assigned Local Importance (Higher Value) because there are resident and regularly occurring populations present that are assessed to be important at the local level.	Yes
Bats Local Importance (Higher Value)	Whilst six bat species were recorded commuting and foraging on the Wind Farm Site, no roosts or significant roosting features were identified and no potential for significant effects in the form of habitat loss or fragmentation, disturbance, direct mortality or any other impact was identified as a result of the Existing Development, which has not resulted in significant habitat loss or fragmentation and does not include turbine construction or operation. A total of approximately 73 hectares of forestry was permanently felled as part of the Existing Development. While forestry clearance represents a permanent change in land cover, the Wind Farm Site continues to provide suitable opportunities for bat commuting and foraging, particularly along retained conifer plantation edges and watercourses. Furthermore, the opening up of areas of formerly closed-canopy commercial forestry has increased the extent of woodland edge and linear habitat features	No

	within the Wind Farm Site. Such features are known to be preferentially used by commuting and foraging bats and, at a local scale, may have locally increased habitat heterogeneity and the availability of edge features used by commuting and foraging bats. The Grid Connection Site is primarily routed along existing Wind Farm access tracks and public and private roads or immediately adjacent to them and no potential for significant effects on bats was identified. As such, they are not included as a KER	
Reptiles and Amphibians Local Importance (Higher Value)	The Wind Farm Site provides good habitat for common frog, smooth newt and common lizard. However, the Existing Development has not resulted in any significant effects on such habitat and has led to an increase in pools, wet grassland and other suitable habitat on the Wind Farm Site. No significant habitat for this species was identified on the Grid Connection Site. As such, no pathway for significant effects on these species was identified and they are not included as KERs	No
Mammal Species (excluding otter) Local Importance (Lower Value)	Mammal species recorded included deer species, red squirrel, fox, pine marten and Irish hare. It is likely that other species such as wood mouse, stoat and pygmy shrew are found on the Wind Farm Site and Grid Connection Site also. However, no evidence that the Wind Farm Site and Grid Connection Site was of particular significance to any of the above species was recorded, with similar habitats common and widespread in the wider area and no significant populations were recorded. No pathway for significant effects on these species was identified They are assigned Local Importance (Lower Value) given that they are present on the Wind Farm Site and Grid Connection Site and add biodiversity value. As such, no pathway for significant effects on these species was identified and they are not included as KERs	No
Invasive Species		
Rhododendron, Himalayan knotweed, New Zealand Flatworm, sika deer Local Importance (Higher Value)	No pathway for the Existing Development to result or have resulted in the spread of Himalayan knotweed, New Zealand flatworm or sika deer was identified. The knotweed was recorded outside the Wind Farm Site and Grid Connection Site and not affected; the flatworm was a single individual located in a kick sample on the Mourne Beg River and sika deer are not already present and unlikely to have been spread by the Existing Development (also not recorded since 2016 surveys) Rhododendron is however, present throughout the Wind Farm Site and it is included as a KER	Yes

6.6 Ecological Impact Assessment

6.6.1 Do Nothing Impact

If the Existing Development had not been undertaken, it is likely that the Wind Farm Site would have continued to be managed for forestry production. It is likely that it would have been subject to ongoing road maintenance and forest activities such as rotational and periodic clear felling, planting and establishment. It is unlikely that significant road or infrastructure building activity would have occurred and thus unlikely that there would have been any loss of habitats such as peatlands that have been identified as KERs. There is likely to have been the continuation of likely impacts on the downstream watercourses as a result of nitrification and sediment release in the absence of the Existing Development, but unlikely to have been a November 2020 Peat Slide with all the associated impacts.

6.6.2 Impacts During Construction

The Existing Development has resulted in minor losses of habitats of Local Importance (Lower Value) including pre-existing, built habitats associated with forestry operations on the Wind Farm Site along with small, fragmented areas of scrub and wet grassland that was peripheral to the aforementioned infrastructure. The majority of the Existing Development was centred on conifer plantation. This habitat is also assigned Local Importance (Lower Value). Whilst the Existing Development did impact upon these habitats, these effects are not ecologically significant, given the low value of the habitats for biodiversity and their abundance in the wider area. There is no potential for the Existing Development to result in ongoing effects on these habitats into the future.

Similarly, the Existing Development has resulted in impacts on the habitat of species that have not been identified as KERs. However, any such impacts have not had significant effects on any of the identified species as there is no evidence that any of the non KER species were dependant on the affected areas and the habitats are common and widespread in the locality.

Two habitat types were identified as KERs due to their ecological sensitivities and the identification of effects on biodiversity that resulted from the Existing Development and/or the identification of pathways for such effects to have occurred or to occur.

- Blanket bog and wet heath
- Upland eroding rivers

In addition, the following species were identified as KERs and are linked to the impacts on the watercourses and are assessed alongside them to avoid repetition.

- Atlantic salmon
- Brown trout
- European eel
- Otter
- Freshwater pearl mussel

These KERs are assessed in detail below.

6.6.2.1.1 Impacts on Upland Blanket Bog (PB2) and Wet Heath (HH3)

Table 6-10 Blanket Bog (PB2) and Wet Heath (HH3)

Description of Effect	The Existing Development has resulted in the loss and disturbance of approximately 0.9 hectares of blanket bog and wet heath habitat to facilitate the construction of two turbines (as permitted under the Permitted Development). In addition, the November 2020 Peat Slide has resulted in the damage to approximately 2.2 hectares of blanket bog habitat, whereby a mass of peat was lost from the bog and the acrotelm was broken up leaving bare and exposed peat. Continued monitoring of the affected area has shown some recovery and slow vegetative recolonisation and no signs of degradation or desiccation of the surrounding blanket bog habitat. The undertaking of emergency works at the time of the slide prevented further loss of peat and reduced the scale of the event. These works included the construction of a large containment wall at the edge of the peatland habitat at the site of the slide. The loss and damage to peatland habitats as a result of the Existing Development and November 2020 Peat Slide covered an area of approximately 3.1 hectares. For context, there is over 50 hectares of blanket bog and heath habitat on the Wind Farm Site and it is widespread in the area. Nonetheless, the peatland does represent the loss of and damage to areas of habitat that are listed on Annex I of the EU Habitats Directive (Active Blanket Bog (7130* priority) and Atlantic Wet Heaths with <i>Erica tetralix</i> (4010)). There is for a low risk of the Existing Development to result in any further loss or deterioration, with the Wind Farm Site stable and at low risk of peat failure (see Geotechnical and Peat Stability Report in Appendix 8-1). No signs of desiccation or damage to peatlands surrounding the infrastructure associated with the Existing Development was recorded. These habitats are not designated as either SAC, NHA or pNHA.
Assessment of Significance prior to mitigation	The permanent loss of approximately 0.9 ha and deterioration of 2.2 hectares of these Annex I peatland habitats is a Significant effect on these habitats of County importance. They are valued as being of County importance as opposed to National importance due to their fragmentation as a result of forestry plantations. The magnitude of the impact is moderate, given the relatively small area affected in the context of the overall extent of the habitat in the area.
Mitigation	Approximately 108 hectares of forestry on peatland will be felled and enhanced to promote restoration of heath and bog habitats along with a mosaic of scrub. The restoration area will include an area of 6.2 hectares of wet blanket bog that will be enhanced through restoration measures such as drain blocking, surface smoothing and stump flipping if required. These enhancement measures are fully described and assessed in the EIAR for the Prospective Development, which also accompanies this application.
Residual Effect following Mitigation	Following the implementation of the mitigation measures described above, there will be no significant residual effect on peatland habitat at any geographic scale as a result of the Existing Development.

6.6.2.1.2 Impacts on eroding/upland rivers and associated aquatic species

Table 6-11 Eroding/Upland rivers and associated aquatic species

Description of Effect	The Existing Development had the potential to result in indirect impacts on a number of watercourses resulting from run off of pollutants such as silt, hydrocarbons and cementitious material during construction. No evidence of deterioration of water quality or significant effect of any kind on any of the watercourses resulting from the construction of the Existing Development was identified (with the exception of effects associated with the November 2020 Peat Slide). As such, significant effects on the following rivers and associated species can be excluded:
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	Lowerymore – No evidence of any significant effect having occurred as a result of the Existing Development. No evidence of impacts that could have resulted in significant effect on any aquatic species in that river including salmon, brown trout, eel and freshwater pearl mussel was recorded. The potential for significant effects as a result of the Existing Development as a whole on freshwater pearl mussel can be excluded as this is the only relevant catchment in which it is found. No evidence of otter breeding or resting places was identified within 150m of any works in this catchment and no potential for significant effects was identified. Bunadaowen - No evidence of any significant effect having occurred as a result of the Existing Development. No evidence of impacts that could have resulted in significant effect on any aquatic species in that river including salmon, trout and European eel was recorded. No evidence of otter breeding or resting places was identified within 150m of any works in this catchment and no potential for significant effects was identified. Glendergan - No evidence of any significant effect having occurred as a result of the Existing Development. No evidence of impacts that could have resulted in significant effect on any aquatic species in that river including salmon, trout and European eel was recorded. No evidence of otter breeding or resting places was identified within 150m of any works in this catchment and no potential for significant effects was identified. Mary Breen's Burn and Mourne Beg upstream of confluence with Shruhangarve - No evidence of any significant effect having occurred as a result of the Existing Development. No evidence of impacts that could have resulted in significant effect on any aquatic species in that river including salmon, trout and European eel was recorded. No evidence of any significant effects on the Shruhangarve River or Mourne Beg River (downstream of confluence) were recorded during construction in advance of the November 2020 Peat Slide November 2020 Peat Slide The November 2020 Peat Slide occurred in the Shruhangarve catchment and resulted in severe disruption and temporary loss of approximately 1km of the upper reaches of the channel from where the November 2020 Peat Slide entered it until it exited the Wind Farm Site and associated forestry and crossed more open habitats. The stream was narrow (approx. 1 -1.5m wide) and steep in this area and was surrounded by forestry with little or no buffer on both banks. The lower sections of the Shruhangarve River and the Mourne Beg River were subject to extensive siltation as a direct result of the November 2020 Peat Slide. These effects were recorded for over 14km until the confluence with the River Derg, with severe siltation on the upstream sections, gradually decreasing downstream. These impacts also affected KERs including Atlantic salmon, brown trout and European eel The effects included excessive siltation and associated decline in water quality and salmonid spawning habitat. Despite this, the water quality within the river recovered to good status (Q4) in all surveyed areas downstream of the November 2020 Peat Slide within 11 months of the slide. In addition, there was an increase in salmon fry recorded during electro-fishing undertaken in 2021. There was, however, a decrease in brown trout numbers in this period. Whilst salmonid redds were recorded downstream of the November 2020 Peat Slide in the 2021 surveys, their number was reduced, with a marked increase in redds recorded upstream of the November 2020 Peat Slide in the Mourne Beg upstream of its confluence with the Bunadaowen during that year and the distribution and numbers had recovered in the following years. There was a decrease in salmon recorded numbers in 2023 (3 years after the November 2020 Peat Slide) with no clear cause identified. Surveys undertaken in 2024 and 2025 recorded continued good water quality in the November 2020 Peat Slide affected area and typical ratios of salmonid and trout fry. In addition, redd surveys have confirmed continued spawning throughout the system throughout the period 2021 - 2025. The 2024 and 2025 surveys were undertaken four seasons after the November 2020 Peat Slide event and showed no signs of reduced productivity. Such a reduction would be expected if there had been a significant effect on
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	productivity in 2020. This would have led to a reduction in adults returning from migration four years later and a resultant impact on productivity. Ongoing pressures from siltation and nutrient enrichment have been noted throughout the system (including areas that are not hydrologically linked to the Existing Development) but no evidence of this occurring as a result of the Existing Development were recorded. No evidence of otter breeding or resting places was identified within 150m of any works in this catchment and no potential for significant disturbance was identified. Following the otter surveys undertaken in the area, no evidence of any decline or other significant effect on the species was identified.
Assessment of Significance prior to mitigation	Existing Development No significant effects on any of the aquatic habitats and species were recorded as a result of the construction of the Existing Development and no effects are predicted into the future. November 2020 Peat Slide The November 2020 Peat Slide resulted in a temporary Significant effect on water quality in the Shruhangarve and Mourne Beg Rivers. However, water quality had returned to good status (Q4) throughout the Mourne Beg after 11 months (at most) and to Q3 in the Shruhangarve. The Shruhangarve continues to improve and has likely been helped by the restoration works. The November 2020 Peat Slide resulted in temporary Significant siltation and smothering of aquatic habitat, but this has recovered incrementally in the intervening period and currently siltation and eutrophication in the catchment are likely to be caused by other factors in the catchment, with no evidence of significant ongoing effects resulting from the siltation from the Wind Farm Site. No evidence that the November 2020 Peat Slide resulted in significant effects on Atlantic salmon, European eel or otter were recorded. Salmon fry abundance and redd count increased following the November 2020 Peat Slide but the distribution of redds was altered, with fewer downstream of the November 2020 Peat Slide and higher numbers upstream in 2021. However, numbers increased in the subsequent years and were distributed throughout the system. Eel and otter were recorded in similar numbers and locations before and after the November 2020 Peat Slide. There was a temporary reduction in brown trout during surveys in 2021 and 2022 but this had recovered in the 2023, 2024 and 2025 surveys. This is not considered to be a significant effect.
Mitigation	An emergency response to the November 2020 Peat Slide was undertaken in line with the protocols that were set out in the 2017 EIAR. These involved the construction of three stone barrage walls which were constructed in the immediate aftermath of the peat slide and contained much of the peat on the Wind Farm Site, preventing further damage to sensitive downstream watercourses. Further measures were undertaken to mitigate the effects of the November 2020 Peat Slide under Section 12 of the Local Government (Water Pollution) Acts following a notice issued by Donegal County Council. They included the peat removal, stream channel restoration, bank stabilisation and tree planting works that are described below. Restoration of this section of the channel was undertaken including the manual removal of peat from the channel and recreation of a flow path, stabilisation of the banks with coir mesh and the planting of native tree species including alder and grey willow along a wide riparian buffer surrounding the stream. In addition, a small pond was created along the river channel. As a result, these sections of the Shruhangarve River are in a similar condition to the pre-slide conditions, but with a stable and well-developed riparian buffer as opposed to coniferous forestry. The Loughs Agency undertook gravel cleaning works in suitable spawning habitat in the Mourne Beg River. This was not associated with the Existing Development and followed a standard procedure that was subject to a separate environmental assessment. The Loughs

	Agency routinely carry out these works in the rivers under their jurisdiction but did additional work in the Mourne Beg following the November 2020 Peat Slide.
	Mitigation as set out in the 2017 EIAR and related documentation including the 2019 CEMP was also undertaken during the construction phase of the Existing Development to prevent impacts on water quality.
Residual Effect following Mitigation	Following the implementation of mitigation and through the passage of time no significant residual effects on any of the identified watercourses and associated aquatic habitats and species were identified.

6.6.2.2 Invasive Alien Species

Rhododendron was identified as a KER and was recorded occasionally throughout the Wind Farm Site during all surveys. The 2019 CEMP included an ISMP which was implemented during the construction of the Existing Development and no invasive species were affected or spread during the construction of the Existing Development. No evidence of the spread of invasive species throughout the Wind Farm Site and Grid Connection Site as a result of the Existing Development was recorded during the surveys undertaken. Rhododendron was still present on the Wind Farm Site but its status of being found as single bushes or small clumps throughout the Wind Farm Site was unchanged.

6.6.3 Impacts following construction

Following the construction of the Existing Development, the Wind Farm Site had been stabilised with all infrastructure left in a condition where there was no potential for significant erosion or run off of pollutants. The Wind Farm Site continues to be monitored to ensure that it remains stable in this regard. It will be monitored by a suitably qualified engineer for the first three years following commissioning. Forestry activity continues on the Wind Farm Site with routine felling, planting, removal of timber and other forestry related activities.

There is no potential for further habitat loss and deterioration or other impacts on the identified peatland KERs as a result of the Existing Development and evidence of this is clear in the survey undertaken to support this assessment.

There is no evidence of any ongoing impact on any aquatic habitats and species that are KERs as a result of the Existing Development. In addition, the peat stability report that is provided in Appendix 8-1 finds that the Wind Farm Site is stable and at low risk of peat failure as a result of the Existing Development. The Grid Connection Site is located primarily within existing roadways with short sections located in agricultural grasslands, with no potential for any significant effects on biodiversity identified. The Grid Connection Site is not considered to be at risk of peat failures.

6.7

Impacts on Designated Sites

The EPA Guidance 2022 states:

“A biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European Sites contained in a Natura Impact Statement” but should “incorporate their key findings as available and appropriate”.

This section provides a summary of the key assessment findings with regard to European Sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) and Nationally Designated Sites (NHAs and pNHAs).

6.7.1

Impacts on European Designated Sites

Potential indirect impacts on European Sites (SACs and SPAs) are assessed within a separate remedial Natura Impact Statement accompanying this application.

The potential for likely significant effects on the following European Sites in the absence of any mitigation, individually or cumulatively with other plans or projects, was identified in the rNIS:

- › Croaghonagh Bog SAC [000129]
- › River Finn SAC [002301]
- › River Foyle and Tributaries SAC [UK0030320]
- › Lough Eske and Ardnamona Wood SAC [000163]

The rNIS identified a potential pathway for impact on the River Finn SAC [002301], the River Foyle and Tributaries SAC [UK0030320], and Lough Eske and Ardnamona Wood SAC [000163] in the form of deterioration of water quality resulting from potential hydrological connectivity via surface water in Mary Breen’s Burn, the Shruhangarve, Glendergan, Bunadaowen, Mourne Beg and Lowerymore Rivers.

The rNIS identified a potential pathway for indirect effects on the qualifying interest (QIs) habitat of the Croaghonagh Bog SAC following the precautionary principle due to the proximity of the SAC to the entrance road to the Wind Farm Site.

No adverse effects on the Croaghonagh Bog SAC or the Lough Eske and Ardnamona Wood SAC were recorded. While negative effects on the River Finn SAC and the River Foyle and Tributaries SAC were recorded following a November 2020 Peat Slide event, such effects were temporary and did not undermine the integrity of these European Sites as defined by their conservation objectives. No significant ongoing or residual effects resulting from the Existing Development were recorded and no potential for it to result in any effect on European Sites into the future was identified.

The rNIS concludes as follows:

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

6.7.2 Impacts on Nationally Designated Sites

Impacts on nationally Designated Sites including NHAs and pNHAs are considered in this section of the report.

The Existing Development is not located within any Nationally Designated Site and there is no potential for direct effects to have occurred or to occur on any such site.

Hydrological connection between the Wind Farm Site and Grid Connection Site and the Lough Eske and Ardnamona Wood pNHA (000163) was identified via the Lowerymore River. The potential for significant effects on this pNHA was identified in the form of deterioration of water quality resulting from construction activity.

The 2017 EIAR and associated documentation including the CEMP contained an extensive suite of measures designed to prevent impacts on watercourses and no evidence of any significant effect on the Lowerymore River having occurred as a result of the Existing Development was recorded during the monitoring of construction activity or in the recent surveys to support this application. No evidence of impacts that could have resulted in significant effects on any aquatic species in that river including salmon, brown trout, eel and freshwater pearl mussel was recorded.

No potential for significant effects on the Lough Eske and Ardnamona Wood pNHA to have occurred because of the Existing Development or to occur as a result of them in the future was identified given the lack of evidence for any such effect having occurred and stability of the completed works.

Similarly, hydrological connection to the River Foyle and Tributaries (AASI229) (UK) was identified via Mary Breen's Burn, the Glendergan, Bunadaowen, Mourne Beg and Shruhangerve Rivers. This ASSI overlaps with the River Foyle and Tributaries SAC in this location and the ASSI is located in the Mourne Beg River. An assessment of the effects of the Existing Development and November 2020 Peat Slide on this river and associated species, which were identified as KERs, is provided above. The conclusion of that assessment is repeated below and applies equally to the ASSI.

'Following the implementation of mitigation and through the passage of time no significant residual effects on any of the identified watercourses and associated aquatic habitats and species were identified'

No pathway for potential indirect effects on any other Nationally Designated Site was identified.

6.8

In Cumulation Effects

This section considers the potential for additional impacts to arise when considering the Existing Development in cumulation with the Prospective Development (i.e. the effects of the Subject Development on biodiversity).

No significant residual effects on biodiversity were identified as a result of the Existing Development on its own. The potential for significant effects on the identified KERs associated with the Existing Development to occur when considered in cumulation with the Prospective Development are considered below. No additional KERs were identified as a result of the in cumulation assessment

Table 6-2 Assessment of potential In-Cumulation Effects of the Subject Development

KER Affected	Existing Development	Prospective Development	Subject Development
European Designated Sites	Whilst temporary effects on the conservation objectives of the QI habitats and species of the River Finn SAC and River Foyle and Tributaries SAC were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Peat Slide or Existing Development were identified. No evidence of any significant effect on any other European Site was identified.	The Prospective Development will not result in any works within any SACs. However, in the absence of mitigation, it does have the potential to result in significant effects on Croaghonagh Bog, Lough Eske and Ardnamona Wood, River Finn and River Foyle and Tributaries SACs in the form of surface water pollution. However, robust mitigation measures will be in place to ensure that no such effects occur.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject development to have a significant effect on these European Designated Sites. As such, there is no potential for adverse in cumulation effects on these Designated Sites to occur.
Nationally Designated Sites	Whilst temporary effects on the River Foyle and Tributaries (AASI229) (UK) were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Existing Development were identified. No evidence of any significant effect on any other Nationally Designated Site was identified.	The Prospective Development will not result in any works within any Nationally Designated Site. However, in the absence of mitigation, it does have the potential to result in significant effects on Lough Eske and Ardnamona Wood pNHA (000163) and River Foyle and Tributaries (AASI229) (UK) in the form of surface water pollution. However, robust mitigation measures will be in place to ensure that no such effects occur.	Considering the In-cumulation effect of the Existing and Prospective developments there is no potential for the Subject Development to have a significant effect on these Nationally Designated Sites. As such, there is no potential for adverse in cumulation effects on these Designated Sites to occur.
Peatland Habitats Upland Blanket Bog (PB2) and	The Existing Development will not result in any further loss or deterioration of habitats but has resulted in the loss and deterioration of approximately 0.9ha of Blanket Bog. In addition, the November 2020 Peat	The Prospective Development will result in the loss of approximately 0.07ha of peatland that is already degraded and included within the area that has already been degraded by the existing wind farm. It will not result in any further loss or	Considering the In-cumulation effect of the Existing and Prospective developments there is no potential for the Subject Development to have a significant negative effect on these terrestrial habitats.

Wet Heath (HH3)	Slide has resulted in the damage to approximately 2.2 hectares of blanket bog habitat, The Existing Development cannot contribute to any in cumulation impacts in this regard.	degradation of sensitive habitats such as peatlands but will result in a loss of approximately 22.3 ha of low ecological value habitats including conifer plantation, wet grassland and scrub to facilitate completion of the wind farm infrastructure and provision of buffers around turbines. In addition, the Prospective Development includes the felling of over 100 hectares of coniferous forestry on peatland habitats. Approximately 6.2 hectares of this will be specifically managed for the restoration of blanket bog to offset the losses associated with the Existing Development. The remainder will be managed to create and maintain heathland habitats with low growing scrub. These enhancement measures are fully described and assessed in the EIAR for the Prospective Development, which also accompanies this application. This will result in a net positive impact on peatlands as a result of the Prospective Development.	As such, there is no potential for adverse in cumulation effects on these peatland habitats to occur.
Aquatic Habitats and Associated Species	Whilst temporary significant effects on aquatic habitats and species (brown trout) were identified as a result of the November 2020 Peat Slide, no ongoing or residual effects resulting from the Existing Development were identified.	The Prospective Development does have the potential to result in significant effects on the aquatic environment. However, a robust suite of measures are in place to ensure that such effects do not occur.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject Development to have a significant effect on the aquatic habitats and associated species. As such, there is no potential for adverse in cumulation effects on these aquatic habitats and species to occur.
Invasive Species	The Existing Development has not and will not result in the spread of invasive species	The Prospective Development has the potential to result in the spread of invasive species including rhododendron that was observed on the Wind Farm Site and Biodiversity Management and Enhancement Site. It also has potential to introduce new invasive species in the absence of biosecurity measures. However, the Prospective Development includes an Invasive Species Management Plan with robust measures to ensure that it will not result in the spread of invasive species.	Considering the In-cumulation effect of the Existing and Prospective Developments there is no potential for the Subject Development to have a significant effect on invasive species. There is no potential for adverse in cumulation effects as a result of the spread of invasive species to occur.

6.9 Cumulative Effects

The potential for the Existing Development and Subject Development to result or have resulted in significant effects on Biodiversity was assessed cumulatively with other projects and land uses

6.9.1 Surrounding Land Uses

The land surrounding the Wind Farm Site and Grid Connection Site is dominated by conifer forestry with upland grasslands that are grazed with sheep and cattle. There are quarrying and peat harvesting activities ongoing in the wider area. The potential for the Existing Development to contribute or have contributed to cumulative effects on biodiversity when considered alongside these land uses was assessed. The Coillte planned harvest units for the Croaghonagh South and private forestry activities were considered as part of this assessment.

Effects on Sensitive Terrestrial Habitats

The Existing Development will not result in any further loss or deterioration of habitats and cannot contribute to any cumulative impacts in this regard. The losses that occurred as a result of the Existing Development will be fully offset by the measures proposed in the Prospective Development and no potential for residual effects on terrestrial habitats exists either alone or cumulatively with other land uses.

Effects on Aquatic Habitats and Species

No significant effects on aquatic habitats and species were recorded as a result of the construction of the Existing Development (excluding the November 2020 Peat Slide). No significant effects on the Lowerymore, Bunadaowen, Mary Breens Burn or the Mourne Beg River upstream of the Shruhangerve confluence were recorded and no evidence of the Existing Development contributing to the existing pressures on the catchment from other land uses was recorded.

Temporary significant effects on aquatic habitats and species were identified as a result of the November 2020 Peat Slide, which affected the habitats and species in the Shruhangerve and the Mourne Beg Rivers for a distance of approximately 14km until its confluence with the River Derg. It is clear that the November 2020 Peat Slide did contribute to the existing pressures on the catchment from surrounding land uses. However, the significant effects were temporary and no significant, ongoing or residual effects resulting from the Existing Development were identified and no potential for cumulative effects when considered alongside other projects was identified.

6.9.2 Projects Considered

The planning registers for both Donegal and Tyrone County Councils were consulted with regard to recently permitted or constructed developments within the area (most recently 29/05/2026). The list of projects considered as part of this assessment is provided in Section 2.9 of Chapter 2 of this EIA.

Projects considered included those within approximately 1.5km of the Mourne Beg River, Lowerymore River and the Glendergan River subbasins until Lough Eske downstream of the Lowerymore and River Derg downstream of the Glendergan and Mourne Beg downstream of the Existing Development. The planning history search was compiled via a desk-based study in which the Donegal County Council (DCC) Planning Portal, the An Coimisiún Pleanála website, and Northern Ireland Planning Portal were consulted.

Details of projects considered in this assessment are provided in **Appendix 2.1 of Chapter 2**, described fully in **Section 2.7- Cumulative Impact Assessment in Chapter 2** of this rEIA.

As with the assessment of the surrounding land uses that are described above, no potential for the Existing Development (excluding the November 2020 Peat Slide) to have contributed to any significant effects on biodiversity was identified as there were no residual effects on any sensitive receptors and habitat loss will be fully offset in the Prospective Development.

The effects of the November 2020 Peat Slide contributed to existing pressures on the aquatic habitats and species in the Shruhangerve and Mourne Beg catchments, which may have originated from existing land uses, but also from some of the projects reviewed (although none in particular were identified as sources of pollution). However, the significant effects were temporary and no significant, ongoing or residual effects resulting from the Existing Development were identified and no potential for cumulative effects when considered alongside other projects was identified.

6.9.3

Conclusion of Cumulative Assessment

The Existing Development (excluding the November 2020 Peat Slide) did not and will not have any significant residual effect on biodiversity when considered on its own. No evidence of any effects that could have resulted or result in significant cumulative effects when considered cumulatively with other projects and land uses were identified.

The impacts associated with the November 2020 Peat Slide resulted in significant effects on habitats and species (brown trout) within the Shruhangerve and Mourne Beg Rivers, which contributed to the existing pressures on the catchment. However, the significant effects were temporary and no significant, ongoing or residual effects resulting from the November 2020 Peat Slide that could lead to cumulative effects were identified.

A cumulative assessment of the Prospective Development was carried out in Chapter 6 Biodiversity of the EIAR that accompanies this application. Details of projects considered in that assessment are provided in Appendix 2.1 of Chapter 2, described fully in Section 2.1- Cumulative Impact Assessment in Chapter 2 of the EIAR. This assessment concludes that for the Prospective Development that there is no evidence of any effects that could have resulted or result in significant cumulative effects when considered cumulatively with other projects and land uses were identified.

On this basis the Subject Development will not have any significant residual effect on biodiversity. Following the implementation of mitigation, no potential for significant cumulative effects with other projects and land uses were identified

6.10

Transboundary Effects

Given the location of the Subject Development, close to the border with Northern Ireland, this section considers the potential for transboundary effects as a result of the Existing Development on its own, in cumulation with the Prospective Development and cumulatively with other land uses and projects.

As the Existing Development is located entirely within the Republic of Ireland, there is no potential for direct transboundary effects to occur or have occurred either alone or cumulatively with other projects and land uses.

In consideration of potential indirect transboundary effects on biodiversity, a single pathway for effect was identified – surface water. The Wind Farm Site is located mainly within the River Derg catchment, which flows through Northern Ireland. The Wind Farm Site is connected to this catchment via the Glendergan, Bunadaowen and Shruhargarve Rivers and Mary Breen's Burn.

The Existing Development has not and will not result in significant effects on the Mary Breen's Burn, Glendergan and Bunadaowen catchments and transboundary effects can be excluded in these areas.

The November 2020 Peat Slide occurred in the Shruhargarve catchment, which is connected to the Mourne Beg River in Northern Ireland. Temporary significant effects on the aquatic habitats and species (brown trout) in this catchment were identified and are described in detail in the preceding sections of this report. Whilst temporary significant transboundary effects were identified, no significant, ongoing or residual transboundary effects resulting from the November 2020 Peat Slide were identified.

The Prospective Development will also be located outside Northern Ireland but within the Mary Breen's Burn, Glendergan, Bunadaowen and Shruhargarve catchments and thus the same hydrological pathway for transboundary effects exists. However, there is a comprehensive suite of measures in place to ensure that any potential effects are effectively mitigated. In addition, the Geotechnical and Peat Stability Report that is provided as Appendix 8-4 to the EIAR for the Prospective Development concludes that the Site has an acceptable margin of safety and therefore is considered to be at low risk of peat failure subject to the specified mitigation measures and is suitable for the Prospective Development.

The Subject Development (Existing and Prospective Developments combined) will not result in any significant residual transboundary effect on biodiversity.

6.11

Conclusion

Following the assessment undertaken, it is concluded that the Existing Development (excluding the November 2020 Peat Slide) did not result in any significant effects on Biodiversity at any geographic scale either individually, in cumulation with the Prospective Development or cumulatively with other projects and land uses.

The November 2020 Peat Slide, which occurred during the construction of the Existing Development, resulted in temporary significant effects on aquatic habitats and associated species (brown trout). However, the affected habitats and species have recovered with the passage of time and with the implementation of mitigation. Therefore, no significant ongoing or residual effects resulting from the Existing Development were recorded and no potential for it to result in any effect on biodiversity into the future was identified.

No potential for the Existing Development to result or have resulted in significant effects on any Nationally Designated Site was identified.

The potential for effects on the European Designated Sites are fully described in the rNIS that accompanies this application. The rNIS concludes:

'Therefore it can be objectively concluded that the Existing Development, individually or in combination with other plans or projects, has not and will not adversely affect the integrity of any European Site'

Transboundary effects between the Republic of Ireland and Northern Ireland were considered in the assessment and no significant residual effects were identified.