

Natura Impact Statement

Slieveacurry Renewable
Energy Development, Co.
Clare



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GLOSSARY OF TERMS

Term	Definition
Qualifying Interests	The specific habitats or species for which Special Areas of Conservation (SACs) are designated under the EU Habitats Directive
Biological Q-Rating	A scientific method used to assess water quality in rivers and streams, in Ireland; developed by the EPA
Natural Heritage Area	Areas considered important for the habitats present or areas which hold species whose habitats require protection
Potential Collision Height	The rotor-swept area of the proposed turbines
Proposed Natural Heritage Area	a site designated under non-statutory protection for its significant wildlife and habitats, representing the initial stage of becoming a fully designated Natural Heritage Area
Special Areas of Conservation	Designated for habitats (e.g., active raised bogs, reefs) and non-bird species listed under the EU Habitats Directive.
Special Conservation Interests	Specific species or habitats for which a site is designated as a Special Protection Area (SPA), primarily focusing on rare, vulnerable, or migratory birds, as well as wetlands
Special Protection Areas	Designated specifically for the protection of wild birds and their habitats under the Birds Directive.

GLOSSARY OF ACRONYMS

Acronym	Definition
AASR	Appropriate Assessment Screening Report
BTO	British Trust for Ornithology
DAU	Development Applications Unit
DEM	Digital Elevation Model
DTM	Digital Terrain Model
ECOW	Ecological Clerk of Works
EDNA	Environmental DNA
EQSs	Environmental Quality Standards
GWBs	Groundwater Bodies
IFI	Inland Fisheries Ireland

IPC	Integrated Pollution Control
ITM	Irish Transverse Mercator
JTF	Just Transition Fund
MTN	Midlands Trail Network
MV	Medium Voltage
NIS	Natura Impact Statement
NHA	Natural Heritage Area
NPWS	National Parks and Wildlife Service
OPR	Office of the Planning Regulator
OTE	Over the Edge Drainage
PCH	Potential Collision Height
pNHA	Proposed Natural Heritage Area
QI	Qualifying Interest
RED	Renewable Energy Directive
SAC	Special Area of Conservation
SCADA	Supervisory Control and Data Acquisition
SCI	Special Conservation Interest
SNH	Scottish Natural Heritage
SPA	Special Protection Area

1. INTRODUCTION

1.1 Background

MKO has been appointed to provide the information necessary to allow the competent authority to conduct a screening and, if required, an Article 6(3) Appropriate Assessment of a renewable energy development comprising 9 no. turbines and all associated infrastructure in the townland of Glendine North and adjacent townlands, Co. Clare, including a permanent extension to the existing 110kV Slievecallan substation in the townland of Knockalassa, Co. Clare and associated works, including underground electrical (33kV) cabling to connect to the national grid at the proposed substation extension.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora as amended (the Habitats Directive, as amended). Where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an Appropriate Assessment (AA) of its implications for the Site in view of the Site's conservation objectives. A brief outline of the Appropriate Assessment process and the various stages associated with it (e.g. Screening for AA compared with undertaking a full AA) is provided in Section 1.4.1. The current project is not directly connected with, or necessary for, the management of any European Site. Consequently, the development has been subject to the Appropriate Assessment Screening process, as provided in Section 4 of this report.

This Appropriate Assessment Screening Report has been prepared in accordance with:

- European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021)
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010)
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

The Natura Impact Statement (NIS) provided in Section 5 of this report has been prepared in accordance with:

- European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021)
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018)
- Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010)
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin 7, Ireland OPR (2021).

1.1.1 Project History

October 2020 Application – Planning Ref: 20/806

In October 2020, Slieveacurry Ltd. applied to CCC for planning permission for an 8 no. turbine renewable energy development and associated works on the Site. In January 2021, Slieveacurry Ltd.

withdrew the planning application due to third party legal challenge against the Council's procedures surrounding the processing of the application.

April 2021 Application – Planning Ref: 21/370 & ABP-310707-21

A further planning application for the 8 no. turbine renewable energy development and associated works on the Site was lodged by Slieveacurry Ltd. in April 2021. CCC refused permission in June 2021 and the Applicant subsequently appeal CCC's decision to An Bord Pleanála (now ACP). In October 2021, Slieveacurry Ltd. withdrew the appeal considering the findings of the Derryadd Wind Farm High Court judgment regarding the plans and particulars required for planning applications. It was decided that a further application would be made including precise dimensions for the wind turbines proposed.

November 2021 Application – Planning Ref. 21/1226 & ABP-312728-22

Slieveacurry Ltd. submitted a revised application for planning permission in November 2021 for the same 8 no. turbine renewable energy development and associated works on the Site (Planning Ref. 21/1226). In January 2022, the application was refused by CCC for 4 no. reasons:

1. Height, scale and siting of the turbines proposed being prominent on the landscape and seriously injuring the visual amenities of the area thereby contravening Objective CDP 13.2 of the Development Plan.
2. Noise and disturbance generated from the turbines, cumulatively with other windfarms would seriously injure the amenities of residential property. The turbines would be visually overbearing and thus depreciate property values. The proposal is therefore contrary to Objective CDP 8.40 of the Development Plan.
3. The Planning Authority was not satisfied that the proposal by itself and in conjunction with the cumulative impact with existing and permitted windfarm development would not have a significant adverse ecological impact on the habitat of a number of bird species, including Hen Harrier. The proposal therefore contravenes Objective CDP 14.7 of the Development Plan.
4. The Planning Authority was not satisfied that the management of peat would not have an adverse impact on ground stability or the hydrology of the site.

The decision by CCC was appealed to An Bord Pleanála (now ACP) in February 2022 (ABP-312728-22). In May 2024 the Board decided to refuse permission for the 8-turbine proposal on 3 grounds:

1. *“Having regard to:*
 - (a) the upland and sloping nature of the terrain;*
 - (b) the high rainfall levels prevalent at this location;*
 - (c) blanket bog being the dominant soil type at the site and the importance of assessing any biodiversity impact on this natural resource;*
 - (d) the mapped trending faults intersecting the wind farm site;*
 - (e) the high density of drainage channels throughout the site, both natural and man-made;*
 - (f) the timing of construction works outside of the breeding season for birds coinciding with wetter periods;*
 - (g) the areas of trees to be clear felled, with peat soils and subsoils subsequently exposed;*
 - (h) the water crossings and crossing upgrades required;*
 - (i) the existence of deep peat at turbine locations and along existing and proposed access roads;*
 - (j) the significant volumes of peat and other spoil material requiring excavation, handling,*

storage and management on the site;

(k) the instability associated with the works and movement of waste material, including the necessity for placement of substantial volumes of waste peat and other spoil materials in two large repositories on bogland hilly terrain;

(l) the construction of high retaining stone buttresses required to contain waste peat and other spoil;

(m) the peat-dominated nature of the soils at the repository locations;

(n) the lack of a clear understanding of the land and ground conditions associated with the development of the proposed spoil repositories, including matters relating to the final construction of the repositories, the drainage of the peat repositories, measures required for the control of groundwater, the type and condition of rock at the repository locations, the hillside siting of the repositories, and the associated clear felling of forestry;

(o) the construction works culminating in interference with the natural terrain by the development of the turbine bases and the hardstanding areas, the construction of access roads cutting across contours on bogland, the provision of preferential flow paths for surface waters, and road widening and improvement works along existing internal roads; and

(p) the proposed highly complex system of drainage and the very precise nature of the application of many of the proposed conceptual measures required for their safe functionality on a blanket bog dominated site;

and on the basis of the information submitted with the application and appeal,

the Board cannot be satisfied that the proposed development would adequately mitigate the risk of failure to contain the spoil in the proposed repositories as a consequence of the development of the proposed wind farm, with potential for causing pollution of waterbodies within, and in the vicinity of, the site. Furthermore, the Board is not satisfied, on the basis of the information submitted with the application and appeal, that the proposed repositories would be effective in providing for the permanent retention of peat and other materials and that the mitigation measures, inclusive of the proposed drainage system, would be adequate to ensure the protection of the environment.

In view of the above, it is considered that the proposed development would present a significant risk of adverse environmental impact on the sensitive natural habitats of the site and of the wider area and would constitute an unacceptable risk of pollution of watercourses in the area. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

2. *On the basis of the information submitted with the application and appeal including the Natura Impact Statement, and in light of the assessment of the Board by reference to the issues set out in reason number 1 above, including the risk of pollution of watercourses in the area, the Board cannot be satisfied that the proposed development, either individually or in combination with other projects, would not adversely affect the integrity of European Sites' - Inagh River Estuary Special Area of Conservation (Site Code:000036), Carrowmore Point to Spanish Point and Islands Special Area of Conservation (Site Code:001021), and Mid Clare Coast Special Protection Area (Site Code:004182) in view of the sites' Conservation Objectives. In such circumstances, the Board is precluded from granting permission for the proposed development.*
3. *Based on the information submitted with the application and appeal, the Board noted the range of bird species of conservation value that have been observed on, over and in close proximity to the site indicating this to be an ecologically sensitive area of significant ornithological value and of value to the Annex II species, Marsh Fritillary. In the absence of data monitoring the impacts, if any, of existing wind farm developments in this area on these*

birds and species of conservation value and their habitats, together with the particular sensitivity of some species such as Golden Plover and Hen Harrier to relatively low levels of mortality, the Board cannot be satisfied that the cumulative environmental assessment of the likely effects of the proposed development on avifauna can reasonably exclude the possibility of a significant impact. In this regard, it is considered that the proposed development would be contrary to the proper planning and sustainable development of the area."

1.1.2 Measures to Address Reasons for Refusal

As mentioned in Section 1.1.1 above, Slieveacurry Ltd. submitted an application in November 2021 for planning permission for an 8 no. turbine renewable energy development and associated works in the townland of Slieveacurry and adjacent townlands, in Co. Clare (Planning Ref. 21/1226). Following refusal by Clare County Council, the decision was appealed to ACP in February 2022 (ABP-312728-22). This resulted in a refusal on three grounds, which have been carefully considered and addressed in the current application. Measures to address the grounds for refusal are summarised below:

1.1.2.1 Proposed Peat and Spoil Repositories

Following consideration of the points raised under Reason no. 1 on ACP's decision to refuse the previous wind farm application, the Proposed Wind Farm Site was subject to further detailed site investigations and surveys, which are outlined in Chapter 4: Description and Chapter 8: Land Soils and Geology of the EIAR. The completion of these site investigations, in addition to the site investigations conducted for the previous wind farm application, provide sufficient detail to give a clear understanding of the land and ground conditions on site. Additional site investigations informed refinements to the design of infrastructure associated with the management of peat and spoil within the Site. An updated Peat Stability Risk Assessment that considers all project elements has been prepared and a revised Peat and Spoil Management Plan has also been produced as part of the design phase of the project. Further consideration has also been given to the drainage and monitoring measures during the construction and operational phases in order to ensure adequate protection of the environment. Full details of the revised peat and spoil management plan are identified in Chapter 4: Description and assessed further in Chapter 8: Land, Soils and Geology and associated appendices..

1.1.2.2 Assessment of adverse effects on European Sites

It is acknowledged that one of the reasons for the refusal of the previous application was the potential sediment pollution impact of the Proposed Project, individually or cumulatively with other projects, on the watercourses in the area, and the prospect of this affecting the integrity of the surrounding European Sites. Further to the items discussed under the first refusal reason above, the revised Peat and Spoil Management Plan, as well as the revised drainage design, as elements of the Proposed Project was subject to an Appropriate Assessment Screening and NIS included with this application to determine the potential for adverse effects exists on the integrity of any European Site. The NIS concludes that that the Proposed Project, on the basis of the best available information, beyond reasonable scientific doubt, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in view of its conservation objectives. Further assessment of the potential for effects of the Proposed Project is considered cumulatively and in combination with other proposed developments within the NIS.

1.1.2.3 Sensitivity of areas of high ornithological value and value to Annex II Species

In response to the refusal reason regarding concerns over significant cumulative effects on species of high ornithological value, the accompanying EIAR provides an updated assessment of likely significant

impacts of the Proposed Project on avian receptors, supplemented with over 5 years of continuous field surveys. The assessment of cumulative effects on key ornithological receptors such as golden plover and hen harrier also includes a landscape-level assessment considering the most recent list of cumulative projects, including constructed, planned and permitted wind farms in the surrounding area. A hen harrier habitat enhancement plan has been proposed, taking into consideration most recent data on the population of this species. Following its implementation, the Proposed Project will not contribute to a significant cumulative effect, as there will be no net loss of hen harrier habitat. Please refer to Chapter 7: Ornithology and associated appendices including Appendix 6-4 BMEP to Chapter 7 Biodiversity.

Further marsh fritillary habitat conditions assessments and larval web surveys have been undertaken in 2024 and 2025 to ensure the Proposed Project design has no significant effects on marsh fritillary habitat. A BMEP has also been prepared to provide habitat enhancement within the Site, by managing areas of suitable habitat specifically for marsh fritillary including a monitoring programme during the construction and operational phases. Following implementation of the proposed mitigation measures and the BMEP, there are no significant effects on habitat of high value to Annex II species associated with the Proposed Project. Please refer to Chapter 4: Description, Chapter 6: Biodiversity, Chapter 7: Ornithology and associated appendices including Appendix 6-4 BMEP.

In light of the above, it has been demonstrated that the Proposed Project would not be contrary to the proper planning and sustainable development of the area.

1.2 References to Proposed Project

The Proposed Project will be known as the ‘Slieveacurry Renewable Energy Development’.

- Where the ‘Proposed Project’ is referred to, this encompasses the entirety of the project for the purposes of this report. The Proposed Project is described in detail in Section 2.2 of this report.
- Where the ‘Site’ is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 2-1 of this report, and encompasses an area of approximately 1,260 hectares.
- Where the ‘Proposed Grid Connection Site’ is referred to, this refers to the part of the Site containing the proposed extension to the existing 110kV Slievecallan substation and the 33kV underground cabling connection from the wind farm road to the proposed substation extension.
- Where the ‘Proposed Wind Farm Site’ is referred to, this refers to the portion of the Site containing the proposed turbines and ancillary infrastructure, excluding the Proposed Grid Connection Site.
 - The ‘Proposed Turbines’ refers to the 9 no. turbines associated with the Proposed Wind Farm Site as outlined above.
- Where the ‘Proposed Enhancement Site’ is referred to, this refers to the portion of the Site containing the proposed biodiversity and ornithology enhancement and management areas, excluding the Proposed Wind Farm Site and Proposed Grid Connection Site.

This report assesses the same boundary as the accompanying EIAR i.e. the EIAR Site Boundary and takes into account the combined impacts of these individual elements of the Proposed Project.

1.3 Statement of Authority

This report was prepared by Pádraig Desmond (BSc.) and Stephanie Corkery (BSc., MSc.), and reviewed by Caroline Kelly (BSc., MSc., MCIEEM). Multidisciplinary walkover surveys were carried out in 2023, 2024, 2025, and 2026 by MKO Ecologists Pádraig Desmond and Deepali Mooloo (BSc., MSc.). This is to ensure that the impact assessment presented in this NIS, and the baseline information upon which it depends, is as up to date as possible, robust and accurate. All surveyors have relevant academic qualifications and are competent in undertaking habitat and ecological assessments.

Ecological surveys were undertaken in line with TII (2008) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes).

Caroline Kelly

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

Pádraig Desmond

Pádraig is a Project Ecologist with MKO with six years post graduate ecological experience, five years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as a Junior Ecologist with Envirico, and has been a Project Ecologist since 2023. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set. Pádraig's key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

Stephanie Corkery

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

Deepali Mooloo

Deepali is an Ecologist at MKO with over two years of experience in ecological consultancy, specialising in terrestrial ecology and conservation. She holds an M.Sc. in Applied Coastal and Marine Management from University College Cork, where she focused on spatial ecology and drone photogrammetry.

Since joining MKO, Deepali has contributed extensively to renewable energy and infrastructure projects, providing comprehensive ecological support from early-stage feasibility through to detailed impact assessment. Her expertise encompasses multidisciplinary ecological walkover surveys, habitat identification and classification in accordance with Fossitt's Guide to Habitats in Ireland, and detailed habitat assessments using the ERICA database. She has undertaken a wide range of specialist field surveys, including marsh fritillary larval web and habitat condition assessments, wintering bird, bat, mammal, and botanical surveys, as well as Annex I habitat condition assessments and surveys for rare and protected plant species. She is experienced in conducting detailed vegetation relevés and ecological constraints mapping.

1.4

Methodology

1.4.1

Appropriate Assessment Process

Screening - The purpose of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, either alone or in combination with other plans or projects, is likely to have significant effects on a European site in view of the Site's conservation objectives.

There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether Appropriate Assessment of a project is required. Therefore, where significant effects are likely, uncertain or unknown at screening stage, an AA of the project will be required.

Appropriate Assessment - This stage of the process is a focused and detailed examination, analysis and evaluation by the competent authority of the implications of the plan or project, either alone or in combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, must:

- (i) identify, in the light of the best scientific knowledge in the field, all aspects of the Proposed Project which may, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;
- (ii) contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and
- (iii) may only include a determination that the Proposed Project will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of potential adverse effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three (assessment of alternative) and, if necessary, stage four Imperative Reasons of Overriding Public Interest (IROPI¹).

¹ IROPI - 'imperative reasons of overriding public interest', the test found in Article 6(4) of the Habitats Directive.

1.4.2 Desk Study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with European Sites surrounding the Site. Sources of data consisted of the following:

- Review of NPWS Conservation Objectives supporting documents, site synopsis², standard data forms³ and supporting documents for European Designated Sites,
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Environmental Protection Agency (EPA)⁴,
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper⁵,
- Review of NPWS Article 17 metadata⁶ and GIS database.

1.4.3 Scoping and Consultation

MKO undertook a scoping exercise in February 2025 during preparation of this assessment.

Table 1-1 provides a list of the organisations consulted that raised points relating to biodiversity during the scoping process, and notes where scoping responses were received.

In addition, MKO requested consultation with the National Parks and Wildlife Services (NPWS) to discuss the Proposed Project and to welcome any feedback they may have. A presentation of the Proposed Project was sent to the NPWS in lieu of a meeting, which detailed the surveys undertaken and a summary of the findings. A response was received from the NPWS on the 27th of January 2026, which highlighted the following:

- The response was predominantly pertaining to hen harrier, which is considered in Chapter 7: Ornithology.

It also referred to the proposed biodiversity and enhancement measures, particularly around measures which aimed to restore peatlands. The response referred to Forest to bog guidance, mainly NatureScot (2025) Peatland Action and IUCN (2024) Forest to Bog Restoration. These guidance documents, as well as all other comments in the scoping response, are fully considered in Appendix 6-4 of the accompanying EIAR.

Table 1-1 Organisations consulted regarding biodiversity.

Consultee	Response date	Summary of Response	Addressed in
Department of Agriculture, Food and the Marine (DAFM)	11/03/2025	The tree felling activities required as part of the Proposed Project will be the subject of a Felling Licence application to the Forest Service, in accordance with the Forestry Act 2014, the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments.	Will be addressed post consent.
Bat Conservation Ireland	No response	No response	N/A

² SSCOs and site synopses for European Sites <https://www.npws.ie/protected-sites> Accessed 9th of March 2026

³ Standard Data Forms <https://natura2000.eea.europa.eu/ExpertViewer/?v=latest> Accessed 9th of March 2026

⁴ Environmental Protection Agency (EPA) Map Viewer <https://gis.epa.ie/EPAMaps/> Accessed 9th of March 2026

⁵ NBDC Map Viewer <https://maps.biodiversityireland.ie/map> Accessed 9th of March 2026

⁶ NPWS article 17 metadata and GIS database <https://www.npws.ie/publications/article-17-reports> Accessed 9th of March 2026

Birdwatch Ireland	No response	No response	N/A
Clare County Council (Environment Department)	No response	No response	N/A
Department of Housing, Local Government and Heritage	27/01/2026	Response pertained to Archaeology only.	N/A
Inland Fisheries Ireland	No response	No response	N/A
Irish Peatland Conservation Council	No response	No response	N/A
Irish Raptor Study Group	No response	No response	N/A
Irish Red Grouse Association	No response	No response	N/A
Irish Wildlife Trust	No response	No response	N/A

1.4.4

Ecological Survey Methodologies

A comprehensive survey of the biodiversity within the Site was undertaken to inform this report. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies and guidance followed. Surveys were carried out on various dates in 2017, 2018, 2019, 2020 and 2021 to support the 2021 Application. Additional ground truthing surveys undertaken in 2023, 2024, 2025 and 2026 are summarised in Table 1-1 below. This is to ensure that the assessment presented in this report, and the baseline information upon which it depends, is as up to date as possible, robust and accurate.

Ecological surveys were undertaken in line with TII (2008) guidelines (*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*).

Table 1-1 Surveys carried out between 2023, 2024, 2025 and 2026.

Survey Type	Dates
Multi-disciplinary walkover (incl. habitats) – Proposed Wind Farm Site	6th of September 2024 12th of September 2024 4th of February 2025 9th of April 2025 14th of July 2025 15th of July 2025 16th of July 2025
Multi-disciplinary walkover – Biodiversity management and enhancement lands	9th of April 2025 10th of April 2025 3rd of February 2026

	• 4th of February 2026
Detailed Botanical Surveys – Irish Vegetation Classification (IVC)	• 14th of July 2025 • 15th of July 2025 • 16th of July 2025
Badger/Mammal survey	• 3rd April 2025
Marsh fritillary habitat appraisal/larval web surveys	• 6th of September 2024 • 12th of September 2024 • 4th of February 2025 • 14th of July 2025 • 15th of July 2025 • 16th of July 2025
Bat Surveys	• Spring, Summer and Autumn 2024, 2025 and 2026 (inclusive of transect, static and roost inspection surveys)
Bird Surveys	• October 2020 to September 2025, consisting of five breeding seasons (April – September) and five non-breeding seasons (October – March). See Appendix 1.
Aquatic surveys (including otter)	• September and October 2025. See Appendix 2.
Multi-disciplinary walkover - Grid connection and TDR	• 10th of April 2025 • 16th July 2025

1.4.4.1 Ecological Multidisciplinary Walkover Surveys

Multidisciplinary walkover surveys were undertaken within the Site. The majority of surveys were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). No significant limitations are associated with the surveys which were undertaken outside the optimal survey season (e.g. surveys carried out in February), as these were primarily on mammals. A comprehensive walkover of the entire Site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys. During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) was conducted.

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

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

1.4.4.2 Otter Surveys

As part of the multidisciplinary walkover surveys and dedicated aquatic surveys, a search for indications of otter was carried out within the Site. This search was conducted in order to determine the presence or absence of otter within the Site. This involved a search for all potential indications of otter (spraint, tracks, couches, holts). The otter survey was conducted as per TII (2008) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes).

Following the results of the multidisciplinary surveys, no requirement for further, more detailed surveys for otter was identified.

1.4.4.3 Aquatic Surveys

Dedicated aquatic baseline surveys were undertaken by MKO and are detailed in the Aquatic Baseline Report in **Appendix 2**. The baseline assessment focused on aquatic ecology including fisheries and biological water quality, as well as protected aquatic species and habitats in the vicinity of the Site within the following sub-catchments:

- Annagh[Clare]_SC_010
- Inagh [Ennistymon]_SC_010

Undertaken on a catchment-wide scale, the baseline surveys focused on the detection of freshwater habitats and species of high conservation value. These included surveys for white-clawed crayfish (*Austropotamobius pallipes*), macro-invertebrates (biological water quality) and fish species, inclusive of supporting nursery and spawning habitat. The surveys also documented macrophyte and aquatic bryophyte communities including Annex I habitat associations in the vicinity of the project. This holistic approach informed the overall aquatic ecological evaluation of each survey site in context of the Site and ensured that any habitats and species of high conservation value would be detected. Full details of the methodology followed for the aquatic surveys as well as details of the locations of survey sites is provided in the Aquatic Baseline Report (**Appendix 2**).

1.4.4.4 Invasive Species Survey

During the multidisciplinary walkover surveys of the Site, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024). Where present, the extent and location of infestations was recorded, along with photographs. Full details of the methodology followed for invasive species as well as details of the locations of infestations is provided in the Invasive Species Management Plan (**Appendix 3**).

1.4.4.5 Dedicated Habitat and Vegetation Composition Surveys

All habitats recorded on the Site and described in Chapter 6 of the accompanying EIAR have been classified in accordance with Fossitt (2000). In addition, peatland habitats outside of the built infrastructure footprint of the Proposed Project but within the Site are described in detail in Chapter 6 of the accompanying EIAR.

Botanical surveys of the Site were also undertaken throughout multidisciplinary walkover surveys carried out in 2025. These surveys provided an understanding of the baseline and informed further survey work following finalisation of the Proposed Project layout. The habitat assessment surveys described in this report have been undertaken in accordance with the following guidelines and interpretation documents:

- Smith, G.F. & Crowley, W. (2020) The habitats of cutover raised bog. Irish Wildlife Manuals, No. 128. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland. Version 2.0. Irish Wildlife Manuals, No. 79. National Parks and Wildlife Service.
- Commission of the European Communities (2013) *Interpretation manual of European Union habitats*. Eur 27. European Commission DG Environment.
- Foss, P.J. & Crushell, P. 2008, *Guidelines for a National Fen Survey of Ireland, Survey Manual*. Report for the National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Ireland.
- NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Habitat Assessments Volume 1. Version 1.1. Unpublished Report, National Parks and Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

- NPWS (2025). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report. Edited by: Domhnall Finch, Aoife Delaney, Fionnuala O'Neill and Deirdre Lynn
- Martin, J.R., O'Neill, F.H. & Daly, O.H. (2018), *The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats*. Irish Wildlife Manuals, No. 102. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.
- O'Neill, F.H., Martin, J.R., Devaney, F.M. & Perrin, P.M. (2013), *The Irish semi-natural grasslands survey 2007-2012*. Irish Wildlife Manuals, No. 78. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Ireland.
- Perrin, P., Martin, J., Barron, S., O'Neill, F., McNutt, K. & Delaney, A. (2008) National Survey of Native Woodlands 2003-2008. Unpublished report submitted to National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin

Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2019), while mosses and liverworts nomenclature follows 'Mosses and Liverworts of Britain and Ireland - a field guide' (British Bryological Society, 2010).

1.4.4.5.1 Vegetation composition assessment

Detailed habitat classification and assessment was undertaken by MKO at targeted locations within the built infrastructure footprint of the Proposed Project, with relevés⁷ undertaken in 2025 within representative habitats at each turbine base, peat and spoil management areas, met mast, construction compounds and substation extension. The extent of each habitat on site was mapped using aerial photography, handheld GPS and smartphone technology (Arc GIS Field Maps). A representative photograph was also taken for each of the habitats recorded on site, including all relevés.

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

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

The Engine for Relevés to Irish Communities Assignment (ERICA)⁸ is a web application for assigning vegetation data to communities defined by the Irish Vegetation Classification (IVC). Data can be uploaded, checked for errors, and analysed and the results can then be downloaded. ERICA works with both quantitative vegetation cover data (such as are recorded in relevés and other types of botanical recording plots) and presence/absence data, such as species lists. ERICA covers grasslands, woodland, duneland, heaths, bogs, fens, mires, freshwater, saline waters, rocky habitats, scrub, strandline, saltmarsh and weed communities (Perrin, 2019).

The data collected from the botanical assessments was uploaded to ERICA, analysed and the resulting data downloaded.

The analysis procedure uses a clustering process to assign classification affinity to vegetation plots based on a degree of membership to each of the communities defined by the IVC. Table 1-2 details the categorizing types of plots utilizing the clustering analysis. This categorizing procedure was utilized to

⁷ Relevés, or survey plots, included 2m x 2m (for grassland and peat habitats) or 10m x 10m (for woodland) sample areas within which all species and their percentage cover was recorded. Physical characteristics and Irish Grid reference were also noted for each relevé.

⁸ Perrin, 2019, ERICA – Engine for Relevés to Irish Communities Assignment V5.0 User's Manual, Online, Available at: https://biodiversityireland.shinyapps.io/vegetation-classification/w_9cd4889a/manual.pdf, Accessed: February 2026

determine if the Relevés within the study area had any affinity to Annex I habitats and whether further assessment was required.

Table 1-2 Categorising types of plots using clustering analysis (after Wiser & de Cáceres, 2013).

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

1.4.4.6 Bird Surveys

To inform this report, bird surveys were undertaken during the survey period October 2020 to September 2025, consisting of five breeding seasons (April – September) and five non-breeding seasons (October – March).

Full details of all bird surveys undertaken within the Proposed Wind Farm Site are provided in Chapter 7: Ornithology of the accompanying EIAR and those pertinent to this report are summarised below. Full details of the survey efforts are provided in **Appendix 1**. Results pertaining to this report and the SPAs identified to be within the Likely Zone of Influence of the Proposed Project are included in the sections below.

Based on the results of the desk study, review of the 2021 Application, consultation and reconnaissance site visits described in Sections 7.3.1 to 7.3.8 of Chapter 7: Ornithology, of the accompanying EIAR, the assemblage of bird species within the Proposed Wind Farm Site and the likely importance of the Proposed Wind Farm Site for these species were ascertained. Then, adopting a precautionary approach, a site-specific scope for ornithological surveys was devised. The data provided by the field surveys is robust and allows clear, precise and definitive conclusions to be made on the avian receptors identified within the Proposed Wind Farm Site.

The survey work that was undertaken between October 2020 to September 2025 forms the core dataset for the assessment of impacts on ornithology. In the absence of specific national bird survey guidelines, the ornithological surveys were designed and undertaken in full accordance with the guidance document 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017). The various ornithological surveys undertaken at the Proposed Wind Farm Site and hinterland are described in detail below.

1.4.4.6.1 Target Species

Based on the results of the desk study, consultation and reconnaissance visits, the assemblage of bird species in the Proposed Wind Farm Site and the likely importance of the Proposed Wind Farm Site for these species was ascertained. A list of 'target species' likely to occur at the Proposed Wind Farm Site was compiled. The list was drawn from:

- Species listed on Annex I of the EU Birds Directive.
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects.
- Red listed Birds of Conservation Concern in Ireland (BoCCI).
- Raptors and species that are particularly sensitive to wind farm developments.

Then, adopting a precautionary approach, a site-specific scope for ornithological surveys was devised. These were specifically designed to survey for the target species.

1.4.4.6.2 Methodology

Vantage Point Surveys

Vantage point surveys were undertaken in accordance with SNH (2017; revised in NatureScot, 2025) to monitor flight activity within a 500m radius of the Proposed Turbines. Surveys were conducted from three fixed vantage points from October 2020 to March 2021 inclusive, and four fixed point vantage points from April 2021 to September 2025 inclusive due to expansion of the Proposed Wind Farm Site, with comprehensive coverage to a 500m radius of the Proposed Turbines. The vantage point locations were selected by undertaking a viewshed analysis (described below) and confirmed by a reconnaissance visit and initial field surveys to ensure that the Proposed Turbines were entirely covered.

Viewsheds were calculated using the Visibility Analysis plugin (Version 1.8) over a raster digital terrain model (DTM) in QGIS (Version 3.28). Note that while the relevance of being able to view as much of the site to ground level is acknowledged, the NatureScot guidance emphasises the importance of visibility of the ‘collision risk volume’ when the data is to be used to estimate the risk of collision with turbines by birds. Therefore, the viewshed analysis aims to identify the most suitable locations to site vantage points such that the airspace of the turbine rotor swept area is in view using the fewest possible number of vantage points. As no specific turbine model was confirmed at the outset of surveys, the viewsheds were based on a notional layer suspended 20m above the ground. The vantage point locations were tested for visibility coverage by creating a point 1.75m in height (to represent the height of the surveyor) on a map using 10m contours terrain data. The relative height of any surrounding landscape features (e.g., trees) and their effects on visibility was also accounted for in the analysis. The software produced a 360° viewshed 20m from ground level up to a 2km radius around the vantage point. This viewshed was then cropped to a 180° arc representing the area visible to the surveyor. Once the turbine model was confirmed to have the lowest swept height of 25m, the viewsheds were recalculated using a notational layer suspended at 25m. The viewsheds provided adequate coverage of the Proposed Wind Farm Site for a collision risk assessment to be undertaken.

Survey methodology followed SNH (2017; revised in NatureScot, 2025). The surveyor collected data on bird observations and flight activity from the scanning arc of 180° to a 2km radius at the fixed vantage point locations for two 3-hour watches separated by a minimum 30-minute break (i.e. 6 hours total) per month. Surveys were conducted from October 2020 to September 2025 inclusive and were scheduled to provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity (Table 1-3). Note that in September 2022 unsuitable weather conditions prevented VP3 from being completed on time and it was completed as early into October as was possible. During May 2024 due to a surveyor miscommunication VP2 was missed and VP4 was carried out twice. However, given the number of seasons completed at the Site, these missed surveys are not considered a limitation in the data.

Table 1-3 Vantage point survey duration

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Winter Season 2020/2021 (3 VPs)	36 hours per VP
Breeding Season 2021 (4 VPs)	Minimum 36 hours per VP
Winter Season 2021/2022 (4 VPs)	Minimum 36 hours per VP

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Breeding Season 2022 (4 VPs)	Minimum 36 hours per VP (VP3 30 hours)
Winter Season 2022/2023 (4 VPs)	36 hours per VP (VP3 42 hours)
Breeding Season 2023 (4 VPs)	36 hours per VP
Winter 2023/2024 (4 VPs)	36 hours per VP
Breeding 2024 (4 VPs)	Minimum 36 hours per VP (30 hours for VP2)
Winter 2024/2025 (4 VPs)	36 hours per VP
Breeding 2025 (4 VPs)	36 hours per VP

Flight activity of target species was mapped and recorded as per defined flight bands which were chosen in relation to the dimensions of potential turbine models for the Site at the outset of surveys. Bands were split into 0-15m, 15-25m, 25-200m and >200m. All flight activity within a height band 25-200m is considered to be within the Potential Collision Height (PCH) with regard to the turbine swept area. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Winter Walkover Surveys

Winter walkover surveys were undertaken to record the presence of bird species within the Proposed Wind Farm Site and Proposed Grid Connection Site, and to a 500m radius from the Proposed Footprint, including areas between vantage point locations. The methodology was adapted from the breeding walkover methodology outlined in Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021). Winter walkover surveys were conducted in daylight hours over four visits between October and March (i.e., four visits in winter 2020/2021, four visits in winter 2021/2022, four visits in Winter Season 2022/2023, four visits in Winter Season 2023/2024, and four visits in Winter Season 2024/2025).

Transect routes were walked across different habitat complexes within the survey area where access allowed. All target species were recorded and mapped. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity within the Proposed Wind Farm Site, and to a 500m radius from the Proposed Turbines. The methodology was based on Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat. Breeding walkover surveys were conducted in daylight hours over four visits during the core breeding season months April to July in years 2021, 2022, 2023, 2024, and 2025.

Transect routes were walked across different habitat complexes within the Study Area where access allowed. Using binoculars, the surveyor regularly scanned the surroundings of each transect for target species. All target species were mapped, and breeding status was assigned following British Trust for

Ornithology (BTO) breeding status codes⁹. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

Roost watches of 2-3 hours were conducted at seven hen harrier vantage point locations from dusk until last visible light. All hen harrier observations were recorded and mapped.

Proposed Grid Connection Site and Proposed Enhancement Site

As part of the Multidisciplinary walkover surveys, protected bird species and behaviour, including those designated under SPAs, were noted if recorded along/within/adjacent to the Proposed Grid Connection Site and Proposed Enhancement Site.

1.4.4.7 Other Fauna

Whilst additional targeted surveys for other fauna and birds were carried out to inform Chapter 6: Biodiversity and Chapter 7: Ornithology of the accompanying EIAR, such as Special Conservation Interest (SCI) birds including hen harrier and golden plover, bats, and marsh fritillary, these were intended to provide a baseline for non-SAC/SPA populations and therefore, are not pertinent to this report.

⁹ <https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>

Structure and Format of this Document

The points below set out the structure and format of this report:

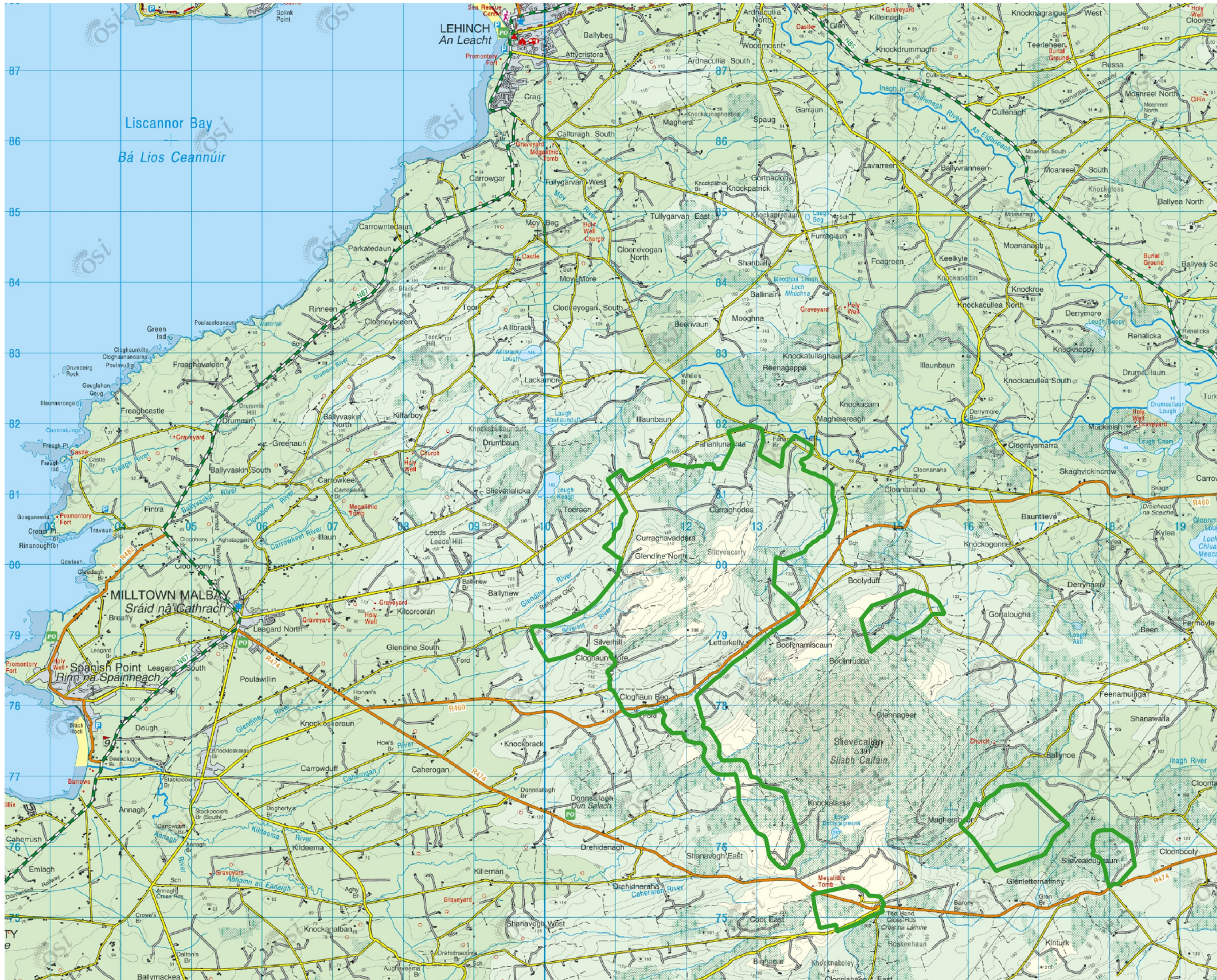
- **Section 1** provides an introduction, background information, methodology and statement of authority for the AASR and NIS.
- **Section 2** provides a full description of all elements of the Proposed Project.
- In **Section 3**, the characteristics of the receiving environment are fully described.
- In **Section 4**, a Stage 1 Appropriate Assessment Screening is undertaken to identify any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the Proposed Project.
- **Section 5** provides a detailed consideration of the European sites located within the zone of influence of the Proposed Project and identifies the relevant qualifying features and how they may be affected in light of their conservation objectives.
- **Section 6** provides an assessment of the potential for adverse effects on the identified European Sites as a result of the Proposed Project and in the absence of mitigation. This section also prescribes mitigation to robustly block any identified pathways for impact for effect.
- **Section 7** provides an assessment of residual effects taking into consideration the proposed mitigation.
- In **Section 8**, the potential in-combination effects of the Proposed Project on European Sites, when considered in combination with other plans and projects, is assessed.
- A concluding statement is provided in **Section 9**.

2. DESCRIPTION OF PROPOSED PROJECT

2.1 Site Location

The Site is located approx. 7km south of Ennistimon, Co. Clare and 8km west of Inagh, Co. Clare. The town of Miltown Malbay is located approx. 5.8km east of the nearest proposed turbine (T07). The Proposed Wind Farm Site is located in an upland setting comprising predominantly cutover bog with areas of commercial forestry, agricultural land and low density residential properties. The nearest Natura 2000 site to the Site, i.e., Special Area of Conservation (SAC) or Special Protection Area (SPA) is the Inagh River Estuary SAC located approximately 6.7km north of the Proposed Wind Farm Site at its closest point (T03). Elevations within the Proposed Wind Farm Site range from ~120mOD (metres above Ordnance Datum) in the south to ~250m in the centre of the Proposed Wind Farm Site. Current land-use on the Site comprises coniferous forestry, agriculture, turf cutting, existing renewable energy infrastructure and public road corridor. Land-use in the wider landscape comprises a mix of agriculture, low density housing, renewable energy and commercial forestry.

The site location is provided in Figure 2-1.



Map Legend

 EIAR Site Boundary



Drawing Title

Site Location Map

Project Title

Proposed Wind Farm Development at
Slieveacurry, Co. Clare

Drawn By DM Checked By PD

Project No. 240718 Drawing No. Figure 2-1

Scale 1:70,000 Date 2025-11-06



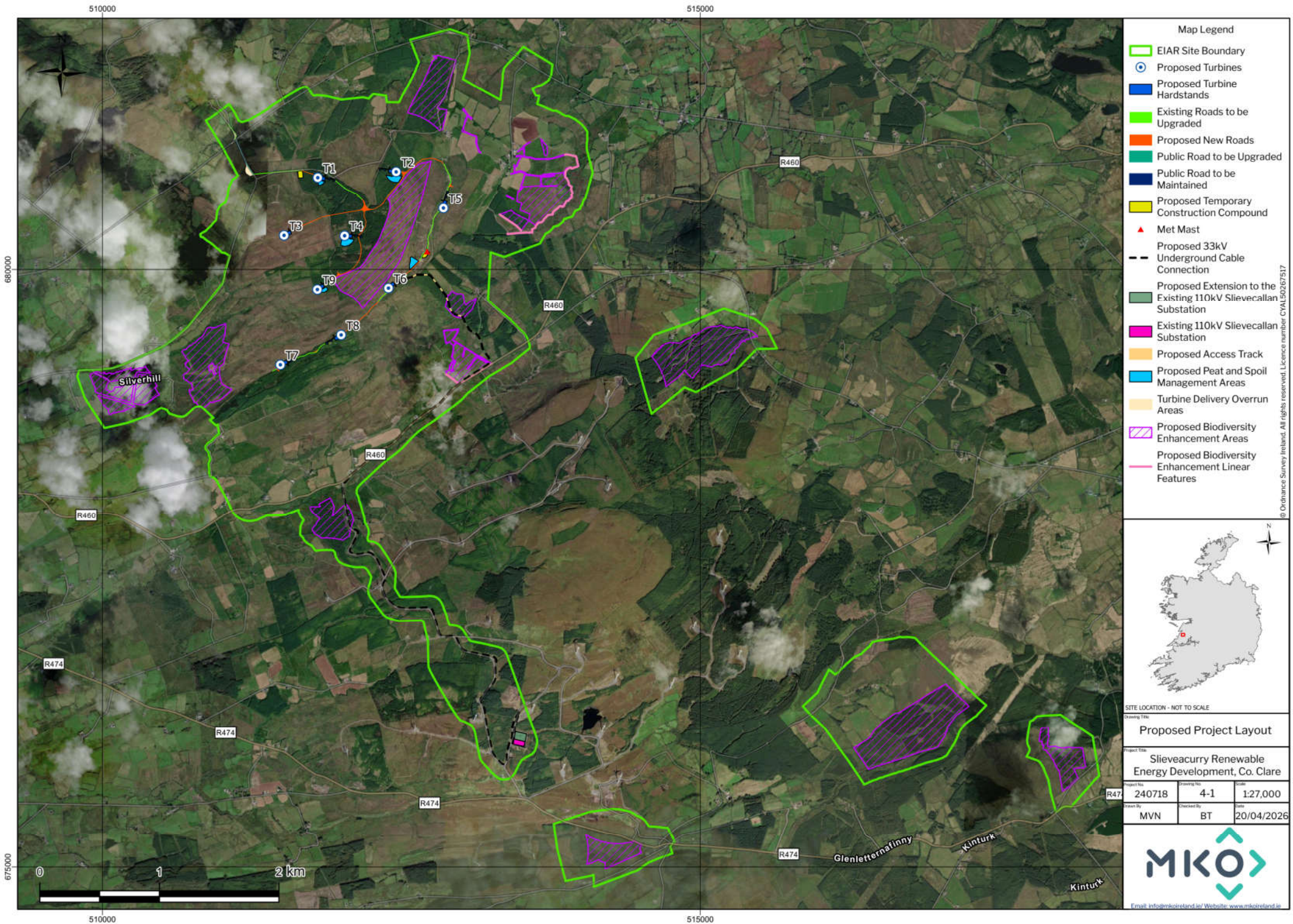
2.2 Development Components of the Proposed Wind Farm Site

The Proposed Project will consist of the provision of the following:

- (i) 9 No. wind turbines with an overall ground-to-blade tip height of 175 metres; rotor diameter of 150 metres; and hub height of 100 metres, and a meteorological mast with a height of 30 metres, and subsequent decommissioning of the wind turbines and meteorological mast, following a thirty five-year operational period from the date of full commissioning of the wind turbines;
- (ii) Associated wind turbine and meteorological mast foundations and hardstanding areas;
- (iii) An extension to the existing 110kV substation compound in the townland of Knockalassa (Including the provision of a new control building (floor area of 112.5 sq.m) with welfare facilities, all associated electrical plant and apparatus for an additional 110kV bay, security fencing, underground cabling, underground wastewater holding tank, site drainage and all ancillary works);
- (iv) Underground electrical (33kV) and communications cabling connecting the proposed wind turbines and meteorological mast to the 110kV substation extension via proposed and existing private access road/tracks and the R460 regional road;
- (v) Temporary accommodation works to facilitate the delivery of turbine components and other abnormal sized loads on the L6230, L1076, L2118 and L1074 local roads;
- (vi) Upgrade and widening works to the L6230 local road and access junction off the L6230 local road;
- (vii) Upgrade of existing tracks/roads and provision of new site access roads and hardstanding areas;
- (viii) A borrow pit;
- (ix) 2 no. temporary construction compounds (including site offices and welfare facilities, with a combined floor area of 202.5 sq.m);
- (x) Peat and Spoil Management;
- (xi) Site Drainage;
- (xii) Tree felling and vegetation removal;
- (xiii) Biodiversity Management and Enhancement Plan measures (including hedgerow planting, peatland, marsh fritillary and hen harrier habitat enhancement areas);
- (xiv) Operational stage site signage; and
- (xv) All associated site development works and apparatus.

This application seeks a ten-year planning permission and a 35-year operational life from the date of commissioning of the Proposed Project.

The layout of the Proposed Project is provided in Figure 2-2. Detailed site layout drawings of the Proposed Project are included in **Appendix 4** of this report.



2.3 Detail on Development Components of the Proposed Project

The following sections will describe each of the development components within this planning application. Detailed site layout drawings of the Proposed Project are included in **Appendix 4** of this NIS.

2.3.1 Wind Turbines

The Proposed Wind Farm Site layout has been optimised using wind farm design software (WindPro) to maximise the energy yield from the Proposed Project, while maintaining sufficient distances between the Proposed Turbines to ensure turbulence and wake effects do not compromise turbine performance. The ITM Grid Reference coordinates of the Proposed Turbines are listed in Table 4-1 below. The final finished top of foundation level of the turbine foundations will be determined by the actual ground conditions at each proposed turbine location and may differ slightly from those levels listed in Table 2-1.

Table 2-1 Proposed Wind Turbine Locations and Elevations

Turbine	ITM Coordinates		Top of Foundation Elevation (m OD)
	Easting	Northing	
T01	511800	680767	162
T02	512456	680814	172.5
T03	511518	680283	211.5
T04	512025	680280	212
T05	512851	680510	201
T06	512391	679844	233
T07	511487	679203	231
T08	511996	679451	243.5
T09	511797	679833	213

2.3.1.1 Site Investigations

Site reconnaissance including shear strength and peat depth measurements undertaken following initial multidisciplinary constraints study (by the design team) to determine the proposed construction areas within the Site i.e. the area within the overall Site where development is possible following multidisciplinary review and assessment of constraints.

As part of the design process for the Proposed Project, numerous intrusive site investigations were undertaken across the built infrastructure footprint to provide detail and clarity on the nature and extent

of sublayers and bedrock as a means of characterising the Site. This assisted in providing additional information on the most suitable location for turbines and associated infrastructure. Intrusive Peat Probing was carried out in 2020, 2021, 2024 and 2025 at 914 no. locations across the Site by Fehily Timoney and Company (FTC) MKO, HES and the Applicant.

Geotechnical ground investigations (i.e. trial pitting) were undertaken on the 17th June 2021, under the supervision of FTC. The objectives of the intrusive site investigations included mapping the subsoil lithology for all Proposed Turbines and other identified locations and assessing the underlying bedrock. This data was used to inform the final layout of the Site.

In summary, a total of 7 no. trial pits, supervised by FTC, were carried out at 5 no. Proposed Turbines and at other identified locations to investigate the underlying mineral soil lithology and subsoil/bedrock interface. The complete geotechnical ground investigations were carried out in accordance with IS EN 1997-2 and BS5930:2015+A1:2020 Code of Practice for Ground Investigations with precedence given to IS EN 1997-2 where applicable.

The geotechnical ground investigations were further supplemented by geophysical surveys (2D-resistivity (ERT) and Seismic Refraction (p-wave)), supervised by FTC on the 11th February 2025. The objectives of the non-intrusive surveys included further mapping of ground conditions at 4 no. Proposed Turbines where access with an excavator was not feasible, and provide further detail on the proposed borrow pit location. The complete geophysical surveys were carried out in accordance with Eurocode 2007 and BSI 2020 standards.

Further details on site investigations completed are outlined in **Appendix 8** Peat and Spoil Management Plan.

2.3.1.2 Turbine Type

Wind turbines use the energy from the wind to generate electricity. A wind turbine, as shown in Plate 2-1 below, consists of four main components:

- Foundation unit
- Tower
- Nacelle (turbine housing)
- Rotor



Plate 2-1 Wind Turbine Components

The Proposed Turbines will have the following dimensions:

- Turbine Tip Height – 175 metres
- Hub Height – 100 metres
- Rotor Diameter - 150 metres

Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics, with only minor cosmetic differences differentiating one from another. The Proposed Turbines will be conventional three-blade turbines, that will be geared to ensure the rotors of all turbines rotate in the same direction at all times.

The Proposed Turbines will be multi-ply coated to protect against corrosion. It is proposed that the turbines would be of a light grey colour to blend into the sky background to minimise visual impact as recommended in the e Wind Energy Development Guidelines (2006) (hereafter ‘the Guidelines (DoEHLG 2006)’) and ‘*The Influence of Colour on the Aesthetics of Wind Turbine Generators*’ (ETSU, 1999).

2.3.1.3 Turbine Foundations

Each wind turbine is secured to a reinforced concrete foundation that is installed below the finished ground level. The size of the foundation will be dictated by the turbine manufacturer, and the final turbine selection will be the subject of a competitive tender process. Different turbine manufacturers use different shaped turbine foundations, depending on the requirements of the final turbine supplier, however, a foundation area large enough to accommodate modern turbine models has been assessed in this EIAR adopting a precautionary approach. The turbine foundation transmits any load on the wind turbine into the ground. The horizontal and vertical extent of the turbine foundation will be 25m and 4m respectively. Where ground conditions are unfavourable to excavate and replace, piles will be installed to formation level. Both foundation options have been assessed in this NIS.

After the foundation level of each turbine has been formed using piling methods or on competent strata (i.e., bedrock or subsoil of sufficient load bearing capacity), the “Anchor Cage” (anchors the first section of the turbine tower to the foundation) is levelled and reinforcing steel is then built up around and through the anchor cage. The outside of the foundation is shuttered with demountable formwork to allow the pouring of concrete and is backfilled accordingly with appropriate granular fill to finished surface level (Plate 2-2 and Plate 2-3 below).



Plate 2-2 Turbine Foundation Anchor Cage surrounded by reinforcing steel.



Plate 23 Finished Turbine Foundation

2.3.1.4 Hardstanding Areas

Hard standing areas consisting of levelled and compacted hardcore are required around each turbine base to facilitate access, turbine assembly and turbine erection. The hard-standing areas are used to accommodate cranes used in the assembly and erection of the turbine, offloading and storage of turbine components, and provide a safe, level working area around each turbine position. The hard-standing areas are extended to cover the turbine foundations once the turbine foundation is in place. All crane hardstand areas will be designed taking account of the loadings provided by the turbine manufacturer and will consist of a compacted stone structure. The crane hardstands will be constructed in a similar manner to the excavated site roads and will measure approximately 50m x 30m.

The precise sizes, arrangement and positioning of hard standing areas are informed by the turbine manufacturers. The extent of the required areas at each turbine location may be optimised on-site depending on topography, position of the Proposed Wind Farm Site access road, the proposed turbine position and the turbine supplier's exact requirements.

The proposed hard standing areas for each individual turbine are shown as part of the detailed layout drawings included in **Appendix 4**.

2.3.1.5 Assembly Area

Levelled assembly areas will be located on either side of the hard-standing area as shown in **Appendix 4**. These assembly areas are required for offloading turbine blades, tower sections and hub from trucks until such time as they are ready to be lifted into position by cranes and to assist the main crane during turbine assembly.

2.3.2 Site Roads

2.3.2.1 Road Construction Types

To provide access within the Proposed Wind Farm Site and to connect the Proposed Turbines and associated infrastructure, existing roads and tracks will need to be upgraded, and new access roads will need to be constructed. FTC were appointed to assess the existing ground conditions and specify the type of road required to access all locations onsite. The road construction design has taken into account the following key factors as stated in the FTC Peat and Spoil Management Plan in **Appendix 8**:

1. *Buildability considerations;*
2. *Maximising use of existing infrastructure;*
3. *Minimising excavation arisings;*
4. *Serviceability requirements for construction and wind turbine delivery and maintenance vehicles;*
5. *Requirement to minimise disruption to peat hydrology.*

Whilst the above key factors are used to determine the road design, the actual construction technique employed for a particular length of road will be determined on the prevailing ground conditions encountered along that length of road.

The Proposed Wind Farm Site makes use of the existing road network insofar as possible. It is proposed to upgrade approx. 2.5km of existing roads and tracks, and to construct approx. 5.2km of new access road on the Proposed Wind Farm Site. Areas such as wide junctions and proposed hardstands will be used as passing bays throughout the construction phase of the Proposed Wind Farm Site.

The road construction techniques to be considered are as follows:

- Upgrades of Existing Access Roads – Type A/A1 and B
- Construction of New Excavated Roads through Peat – Type C/E
- Construction of New Floated Roads Over Peat – Type D

Full details on road construction techniques to be considered are provided in **Appendix 4**.

2.3.3 Watercourse / Culvert Crossings

The Site is extensively drained by a network of natural watercourses and manmade land drains. The following watercourses flow through the Site:

- Fahanlunaghtamore Stream– flows in north direction through the Proposed Wind Farm Site and Proposed Enhancement Site
- Ballynew Stream – flows westerly through the Proposed Wind Farm Site and Proposed Enhancement Site
- Curraghodea Stream – flows east from the Proposed Wind Farm Site
- Letterkelly Stream – flows in southwest direction from the Proposed Wind Farm Site
- Knockacarn – flows northeast from the Proposed Grid Connection Site and Proposed Enhancement Site
- Kildeema – flows west along the proposed 33kv underground cabling
- Annagh [Clare] – flows west across the Proposed Grid Connection Site
- Drumcullaun – flows east through the Proposed Enhancement Site
- Inagh [Ennistymon] – flows east through the Proposed Enhancement Site
- Clonalaheen East – flows south through the Proposed Enhancement Site

To facilitate the construction of the Proposed Wind Farm Site roads, there are a total of 5 no. new watercourse crossing locations over natural watercourses. The crossing locations are outlined below:

- A new crossing is proposed along the proposed access road to the west of T01
- A new crossing on the proposed access road to T03;
- A new crossing on the proposed access road between T02, T03 and T04;
- A new crossing on the proposed access road to the northeast of T02; and,
- A new crossing on the proposed access road to T09

Within the Proposed Wind Farm Site, there is 1 no. existing natural watercourse crossings that will require upgrading to facilitate the construction of site roads. The crossing locations are as follows:

- 1 no. existing culvert along the existing forestry road proposed to be upgraded to the east of T01

In addition to the natural watercourses, there are manmade agricultural, peat and forestry drains within the Proposed Wind Farm Site, which will rerouted around the permanent built infrastructure of the Proposed Project and/or integrated into the proposed drainage design as required.

Please see Section 2.3.3.1 and 2.3.3.2 below for further details on the watercourse crossings to be used within the Proposed Wind Farm Site, and the associated construction methodologies.

2.3.3.1 Bottomless Box Culvert Crossing

It is proposed to construct a bottomless box culvert crossing at 5 no. locations where new watercourse crossings are required within the Proposed Wind Farm Site. The construction methodology for these crossings has been designed to eliminate the requirement for in-stream works at these locations. The watercourse crossings will be constructed to the specifications of the Office of Public Work (OPW) bridge design guidelines '*Construction, Replacement or Alteration of Bridges and Culverts - A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945*', and in consultation with Inland Fisheries Ireland (IFI).

Abutments will be constructed from precast units combined with in-situ foundations, placed within an acceptable backfill material. Confirmatory inspections of the proposed new watercourse crossing locations will be carried out by the Project Civil/Structural Engineer and the Project Hydrologist prior to the construction of the crossing. Please see **Appendix 4** for the location of the bottomless box culvert crossings and **Appendix 6** for the construction methodology.

2.3.3.2 Culvert Crossing

All new proposed culverts and proposed culvert upgrades at field drain crossings required for the Proposed Project will be suitably sized for the expected peak flows in the watercourse. Some culverts may be installed to manage drainage waters from works areas of the Proposed Project, particularly where the waters have to be taken from one side of an existing roadway to the other for discharge. The size of culverts will be influenced by the depth of the track or road sub-base but will have a minimum 900mm diameter. In all cases, culverts will be oversized to allow mammals to pass through the culvert.

Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.

All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance. Please see **Appendix 4** for the location of the proposed culvert crossings and **Appendix 6** for the construction methodology.

2.3.4

Permanent Extension to Existing Slievecallan 110kV Substation

It is proposed to permanently extend the existing Slievecallan 110kV substation to accommodate the connection of the Proposed Project, as shown in Figure 2-2. The works will consist of the construction of a new control building with welfare facilities, associated electrical plant and equipment and security fencing. The proposed substation extension is located in an established expansion area within the Slievecallan Wind Farm and accessed by existing wind farm access roads.

The layouts and elevations of the proposed substation extension works are shown on **Appendix 4**. The construction and electrical components of the proposed substation extension will be to EirGrid specifications. The footprint of the proposed substation extension compound measures approximately 3,950 square metres.

The proposed substation extension will include an extension of the steel palisade fence (approximately 2.8m high or as otherwise required by ESB), and internal fences will also segregate different areas within the main substation.

The extension to the Slievecallan 110kV substation will remain in place after the operational phase of the Proposed Project as it will be under the ownership and control of the ESB Networks and/or EirGrid and will form a permanent part of the national electricity grid.

2.3.4.1

Substation Control Building

A control building will be located within the proposed substation extension compound. The control building will measure 16 metres by 8.5m and 6m in height. Layout and elevation drawings of the control building are included in **Appendix 4**.

The substation control building will include staff welfare facilities for the staff that will work on the substation during the operational phase of the Proposed Project. Toilet facilities will be installed with a low-flush cistern and low-flow wash basin. There will be a very small water requirement for occasional toilet flushing and hand washing and therefore the water requirement for the substation extension does not necessitate a potable source. It is proposed to harvest rainwater from the roofs of the buildings, and if necessary, bottled water will be supplied for drinking.

It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. It is not proposed to treat wastewater on-site, and therefore the EPA's 2009 'Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. 10)' does not apply. Similarly, the EPA's 1999 manual on 'Treatment Systems for Small Communities, Business, Leisure Centres and Hotels' also does not apply, as it too deals with scenarios where it is proposed to treat wastewater on-site.

Such a proposal for managing the wastewater arising on site has become almost standard practice on substation sites, which are often proposed in areas where finding the necessary percolation requirements for on-site treatment would be challenging and has been accepted by numerous Planning Authorities and An Coimisiún Pleanála as an acceptable proposal.

The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. The wastewater storage tank alarm will be part of a continuous stream of data from the Proposed Turbines, wind measurement devices and electricity substation extension that will be monitored remotely 24 hours a day, 7 days per week. Only waste

collectors holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended), will be employed to transport wastewater away from the Site to a licensed facility.

2.3.5 **Underground Electrical (33kV) and Communications Cabling**

Each turbine and the meteorological mast will be connected to the proposed substation extension compound via underground 33kV electricity cabling. Fibre-optic cables will also connect each wind turbine and the meteorological mast to the proposed substation extension compound. The electricity and fibre-optic cabling connecting to the proposed substation extension compound will be run in cable ducts approx. 1.2m beneath ground level following the access tracks to each turbine location.

The proposed 33kV underground electrical cabling will continue from the wind farm road to the proposed substation extension compound located in the townland of Knockalassa. The cable route exits the Proposed Wind Farm Site through forestry for approximately 0.83km, onto a farm track for 0.55km before entering the public road corridor. It stays within the public road corridor for approximately 1.55km. the cable route then exits onto existing forestry /windfarm roads, following these for approximately 4.17km before reaching the proposed substation extension compound. The total length of the proposed 33kv underground cabling measures approximately 7.1km.

The route of the cable ducts will follow the access track to each turbine location and are illustrated on the site layout drawings included as **Appendix 4**, the exact number and configuration of cable ducting may vary within the cabling route. The exact number and configuration of cable ducting may vary within the cabling trench. The cabling may be placed on either side of the roads, on both sides of the road and/or within the road. The exact configuration of the underground cabling will be set by the requirements of the electrical designers at detailed design stage.

Clay plugs (water flow barrier) will be installed at regular intervals of not greater than 50 metres along the length of the trenches where required to prevent the trenches becoming conduits for runoff water. Backfill material will be compacted in layers with approved engineer's specified material, which may be imported onto the Proposed Wind Farm Site should sufficient volumes of suitable material not be encountered during the excavation phase of the proposed infrastructure.

2.3.6 **Meteorological Mast**

One meteorological (met) mast is proposed as part of the Proposed Project. The met mast will be equipped with wind monitoring equipment at various heights. The proposed met mast will be located at E512714, N680150 (ITM) as shown on the Proposed Wind Farm Site layout in Figure 2-1 and the detailed site layout drawings included as **Appendix 4**. The met mast will be a free-standing slender lattice structure 30m in height. It will be constructed on a hard-standing area sufficiently large to accommodate the equipment that will be used to erect the mast.

2.3.7 **Temporary Construction Compounds**

There are 2 no. temporary construction compounds proposed as part of the Proposed Project. The primary construction compound will be located in the northern section of the Proposed Wind Farm Site, adjacent to the existing access road approximately 125m to the west of T01 and measures approximately 2,400m² in area. The secondary construction compound will be located southwest of T05 and measures approximately 2,000m² in area.

The locations of the proposed temporary construction compounds are shown on the Site layout drawing in Figure 2-1 above.

The temporary construction compounds will consist of temporary site offices, staff facilities and car-parking areas for staff and visitors. Temporary port-a-loo toilets and toilets located within a staff portacabin will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply onsite for hygiene purposes, by way of a temporary storage tank. The temporary construction compounds will also include a bunded refuelling and containment area for the storage of oil, lubricants and site generators etc, and full retention oil interceptor.

Both temporary construction compounds will be removed as part of the post-construction reinstatement works of the Proposed Wind Farm Site. The concrete foundation of these compounds will be left in situ and will be left to revegetate naturally.

2.3.8 Biodiversity Management and Enhancement Plan

A Biodiversity Management and Enhancement Plan (BMEP) has been prepared for the Proposed Project and is included as Appendix 6-4 of the accompanying EIAR.

A total of 13 areas totalling approx. 172.7 ha within the Site have been selected for biodiversity enhancement measures as part of the Proposed Project and to enhance the Site for species and habitats known to occur within the Site. An overview map of the Proposed Enhancement Site is shown in Appendix 6-4 of the accompanying EIAR.

2.3.9 Tree Felling and Replanting

2.3.9.1.1 Tree Felling

Tree felling will be required within and around the Proposed Project built infrastructure footprint to allow for the construction of the Proposed Turbines, access roads, underground cabling, and other ancillary infrastructure.

Approximately 144ha (hectares) of forestry will be felled to accommodate the Proposed Project, 20.7ha of which will be around the permanent built infrastructure of the Proposed Project, inclusive of Proposed Turbines T01, T02, T04 and T09, associated infrastructure and an additional 123.3ha as part of the BMEP.

Please note, the conifer plantation to be felled as part of the permanent built infrastructure of the built infrastructure footprint of the Proposed Project will be the subject of a Limited Felling Licence (LFL) application to the Forest Service in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. The policy requires that a copy of the planning permission for the Proposed Project be submitted with the felling licence application; therefore, the felling licence cannot be applied for until such time as planning permission is obtained for the Proposed Project.

2.3.9.1.2 Forestry Replanting

In line with the Forest Service's published policy on granting felling licences for wind farm developments, areas cleared of forestry for access roads, and any other wind farm-related uses will have to be replaced by replanting at an alternative site or sites. The Forest Service policy requires replacement or replanting on a hectare for hectare basis for the felling carried out as part of the Proposed Project.

The identified 144ha of conifer plantation that will be permanently felled for the Proposed Project will be replaced or replanted on a hectare for hectare basis as a condition of any felling licence that will be issued in respect of the Proposed Project felling. Replanting is a requirement of the Forestry Act and is

primarily a matter for the statutory licensing processes that are under the control of the Forest service. An additional 123.3ha will be permanently felled as part of the hen harrier enhancement plan included in the BMEP measures identified above, will be subject to the condition of any felling licence that will be issued in respect of the Proposed Project. The replacement of the felled forestry as part of the Proposed Project may occur on any lands, within the State benefitting from Forest Service Technical Approval¹⁰ for afforestation, should the Proposed Project receive planning permission. Under the Forestry Regulations 2017, all applications for licences for afforestation require the prior written approval (technical approval) of the Minister for Agriculture, Food and the Marine. Before the Minister can grant approval, he/she must first determine if the project is likely to have significant effects on the environment (for EIA purposes) and assess if the development, individually or in combination with other plans or projects is likely to have a significant effect on a European site (for Appropriate Assessment purposes).

2.3.10 Borrow Pit

It is estimated that approx. 101,600m³ of stone material will be required to construct the Proposed Project. It is intended to obtain the majority of materials for the construction of the Proposed Project from the proposed onsite borrow pit (engineer's specified material to be imported onto the Site should sufficient volumes of suitable material not be encountered during the excavation phase of the proposed infrastructure, to come from local licenced quarries). The proposed onsite borrow pit is located approximately 300m southwest of T05 and measures approximately 11,640m² with an estimated volume of 100,000m³.

Access to the borrow pit will be via a proposed new access road from the north. Please see Figure 2-1 for details. Post-construction, the borrow pit will be backfilled with excavated spoil, then reseeded or left to vegetate naturally. A stock-proof fence will be erected after construction materials have been extracted to prevent unauthorised access.

The extraction of material from the borrow pit is a construction phase activity only of the Proposed Project which will be a temporary operation run over a short period of time. Hardcore materials will be extracted from the borrow pit (and some turbine locations, if necessary), principally by means of rock breaking. Depending on the hardcore volume, blasting may also be used as a more effective rock extraction method, capable of producing significant volumes of rock in a matter of milliseconds. Blasting will only be carried out after notifying any potentially sensitive receptors. These two rock extraction methods are discussed below. The processing and crushing of boulders may be required to achieve the grading requirements for use in construction. The potential noise and vibration impact on sensitive receptors associated with the rock extraction measures, detailed below, are assessed in Chapter 12 of this EIAR. Post-construction, any unsafe areas around the borrow pit area will be permanently secured and a stock-proof fence will be erected around the borrow pit area to prevent access to this area. Appropriate health and safety signage will also be erected on this fencing and at locations around the fenced area.

The extraction of rock from the borrow pit will be a temporary operation during the construction phase. The topsoil and subsoil will be stripped back and temporarily stockpiled using standard tracked excavators. Two extraction methods have been assessed for breaking out the useful rock below: rock breaking and blasting.

¹⁰ All proposed forestry developments where the area involved is greater than 0.1 hectare must receive the prior written approval of the Forest Service. The application for approval is known as Pre-Planting Approval – Form 1.

2.4 Peat and Spoil Management Plan

The construction of the Proposed Project will require the excavation of peat and spoil. The quantities of peat and spoil, requiring management on the Proposed Wind Farm Site has been calculated, and are detailed in **Appendix 8**. Further details on construction methodologies, including recommendations and best practice guidelines for the placement of peat and spoil in borrow pits, are detailed in **Appendix 8**.

2.4.1.1 Turbine Delivery Accommodation Works

Works such as road widening are sometimes required along proposed turbine transport routes to accommodate the large vehicles used to transport turbine components to wind farm sites. The proposed transport route for the Proposed Project has been the subject of a route assessment to determine if any works are required along its length. There are sections on the L1074 where the vertical alignment may require specialist transport vehicles. These sections will be further considered by the appointed transport company following turbine procurement process. Accommodation works will be required at various locations on the national and regional road network between the port of arrival and Ennis. These will be limited to temporary measures including temporary local road widening, overruns of roundabout island and temporary relocation of some signs and street furniture.

Location 1 – N85 / R460 junction at Inagh

Minor temporary alterations will be required to the existing streetscape during the delivery of the abnormally sized loads.

Location 2 – Bend on R460

The swept path analysis undertaken for this location shows that the abnormally sized turbine vehicles will be accommodated at this location with minor impacts on sections of hedge (over-sail) and grass verges.

Location 3 – R460 / L1074 junction

The preliminary swept path analysis indicates that the wind farm turbine vehicles will be able to negotiate this bend junction.

Location 4 – Bend on L1074 / L1076

The preliminary swept path analysis indicates that the wind farm blade vehicle will require a narrow strip over overrun on the southern corner of this junction.

Location 5 – L1076 / L6230 junction

The analyses indicate that temporary local road widening will be required at this junction in order to accommodate the wind turbine vehicles.

Location 6 – Proposed Wind Farm Site Access (L6230 / forestry access road junction)

The analyses indicates that a temporary run-over area and visibility splays will be required at this junction in order to accommodate the wind turbine vehicles.

2.5 Site Drainage

The drainage design for the Proposed Project has been prepared by Hydro Environmental Services Ltd (HES). The drainage design has been prepared based on experience of the project team of other wind farm sites, and the number of best practice guidance documents referred to in the References section of the EIAR.

The protection of the watercourses within and surrounding the Site, and downstream catchments that they feed is important to establish the most appropriate drainage proposals for the Proposed Project.

The drainage design for the Proposed Project has been planned with the intention of having no significant negative impact on the water quality of the Site and its associated rivers, and consequently no impact on downstream catchments and ecological ecosystems. The assessment of potential impacts on hydrology and hydrogeology due to the construction, operation and decommissioning of the Proposed Project is included in Chapter 9: Hydrology and Hydrogeology of the accompanying EIAR.

No routes of any natural drainage features will be altered as part of the Proposed Project. Turbine locations and associated new roadways were designed to avoid natural watercourses with existing roads to be used wherever possible. There will be no direct discharges to any natural watercourses or land drains, with all drainage waters being dispersed as overland flows. All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses and drains. Buffer zones around the existing natural drainage features have been used to inform the layout of the Proposed Project.

Detailed drainage drawing are provided in **Appendix 7**.

2.6 Operation

As part of the Proposed Project planning application, permission is being sought for a 35-year operation period commencing from the date of full operational commissioning of the Proposed Turbines. During the operational period, on a day-to-day basis the wind turbines will operate automatically, responding by means of meteorological equipment and control systems to changes in wind speed and direction.

The wind turbines will be connected, and data relayed from the wind turbines to a central control unit at the proposed extension to the 110kV substation at Knockalassa which will facilitate off-site remote monitoring of the wind farm. Each turbine will be monitored off-site by the appointed Operations and Maintenance contractor (typically the wind turbine manufacturer) and a wind farm operations management company. The monitoring of turbine output, performance, wind speeds, and responses to any key alarms will be monitored off-site by both parties 24-hours per day. Regular on-site visual inspections will also be carried out by the wind farm operations management company.

2.6.1 Maintenance

Each turbine will be subject to a routine maintenance programme involving several checks and changing of consumables, including oil changes. The meteorological mast will be subject to a routine maintenance programme involving several checks and changing of instrumentation when required. In addition, there will be a requirement for unscheduled maintenance, which could vary between resetting alarms to major component changes requiring a crane. Typically, maintenance traffic will consist of four-wheel drive vehicles or vans. Maintenance of the internal site roads will involve filling potholes and maintaining road edge markers. Drainage maintenance will typically involve cleaning of drainage ditches when required to prevent water backing up.

The proposed extension to the existing Slievecallan 110kV substation and internal access roads will also require periodic maintenance. The proposed substation extension would be operational 24 hours per

day, 7 days a week throughout the year. Substations can be operated remotely and manually. Supervisory operational and monitoring activities will be carried out remotely using a SCADA system, with the aid of computers connected via a telephone modem link. The following maintenance procedures will also be adhered.

- Periodic service and maintenance work which include some vehicle movement.
- For operational and inspection purposes, substation access is required.
- Servicing of the substation equipment will be carried out in accordance with the manufacturer's specifications, which would be expected to entail the following:
 - Six-month service – three-week visit
 - Annual service – six-week visit
 - Weekly visits as required.

Occasional technical problems may require maintenance visits by technical staff. During the six-month and annual service visits, some waste (lubricating and cooling oils, packaging from spare parts or equipment, unused paint, etc.) will arise. This will be recorded and removed from the Site and reused, recycled or disposed of in accordance with the relevant legislation in an authorised facility.

It is estimated that 1-2 daily visits will be made to the Site for authorised persons and vehicles to undertake minor routine maintenance and inspection, if and when required. Although the level of activity required for the maintenance of the built infrastructure Proposed Project is minimal, the impacts associated with traffic volumes for this period are assessed in Chapter 15 Material Assets: Traffic and Transport.

2.6.2 Monitoring

Section 8 of the CEMP in **Appendix 6** sets out a programme of monitoring required for the operational phase of the Proposed Project. The CEMP should be consulted for detailed information on the monitoring requirements during the operational phase, however a brief summary of the key information is provided below:

- Monthly water sampling and laboratory analysis will be undertaken for six months during the operational phase.
- The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.
- Post-construction bird monitoring which includes breeding bird surveys, winter roost surveys and corpse searching on the Site determine the level of fatalities for the Site as a result of collisions with the installed turbines. These surveys will be completed in accordance with guidelines issued by the Scottish Natural Heritage (SNH, 2009)
- Post-construction bat monitoring will be undertaken for at least three years' post construction of the renewable energy development. The monitoring will also include corpse searching in the areas surrounding the turbines to gather data on any actual collisions.
- Post-construction habitat condition monitoring of the Proposed Enhancement Site as per the BMEP to ensure the success of the proposed measures remains long-term
- Monitoring for shadow flicker at properties within the study area where any exceedance of the shadow flicker limit has been predicted as outlined in Chapter 5.
- Post turbine commissioning noise monitoring.

2.7 Decommissioning

The wind turbines proposed as part of the Proposed Project are expected to have a lifespan of approximately 35-years. Following the end of their useful life, the equipment may be replaced with a

new technology, subject to planning permission being obtained, or the Proposed Project will be decommissioned fully.

Upon decommissioning of the Proposed Project, the wind turbines and the meteorological mast will be disassembled in reverse order to how they were erected. All above ground turbine and mast components would be separated and removed off-site for recycling. Turbine and mast foundations would remain underground and would be covered with earth and allowed to revegetate. Leaving the foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant temporary environment nuisances such as noise, dust and/or vibration. Site roadways will be used during the operational phase by farm machinery and will provide a useful means of extracting the commercial forestry crop which exists on at the Site and therefore will be retained post decommissioning to facilitate these activities.

The underground electrical cabling connecting the turbines to the proposed extension of the 110kV substation will be removed from the cable ducts. The cabling will be pulled from the cable ducts using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at the original cable jointing pits which will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.

The proposed extension to the 110kV electricity substation will remain in place as it will be part of the Electricity Grid under the ownership and control of the ESB Networks and EirGrid.

The Decommissioning Plan will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and will agree with the competent authority at that time. The potential for effects during the decommissioning phase of the Proposed Project has been fully assessed in the EIAR.

As noted in the Scottish Natural Heritage report (SNH) *Research and Guidance on Restoration and Decommissioning of Onshore Wind Farms* (SNH, 2013) reinstatement proposals for a wind farm are made approximately 30 years in advance, so within the lifespan of the Proposed Project, technological advances and preferred approaches to reinstatement are likely to change. According to the SNH guidance, it is therefore:

“best practice not to limit options too far in advance of actual decommissioning but to maintain informed flexibility until close to the end-of-life of the wind farm”.

3. CHARACTERISTICS OF THE RECEIVING ENVIRONMENT

3.1 Hydrology

3.1.1 Regional and Local Hydrology and Hydrogeology

In terms of regional hydrology, the western half of the Proposed Wind Farm Site, including 3 no. Proposed Turbines (T7, T8 and T9), the proposed extension to the existing Slievecallan 110kV substation and approximately 5.6km of the proposed 33kv underground cabling are located in the Annagh River catchment (Annagh(Clare)_SC_010). The Annagh River drains into Mal Bay approximately 7.5km downstream to the west of the Proposed Wind Farm Site.

The eastern half of the Proposed Wind Farm Site, including 6 no. Proposed Turbines (T1 to T6), along with 1.3km of the proposed 33kv underground cabling are located in the Inagh River surface water catchment (Inagh(Ennistymon)_SC_010). The Inagh River flows approximately 0.5km to the northeast of the Proposed Wind Farm Site prior to flowing into Liscannor Bay at Lahinch, approximately 22km downstream of the Proposed Wind Farm Site.

A small section of the Site, which is limited to Proposed Enhancement Site extends into the Annageeragh River catchment on the far south of the Site (Annageeragh_SC_010), which is upstream of Doo Lough.

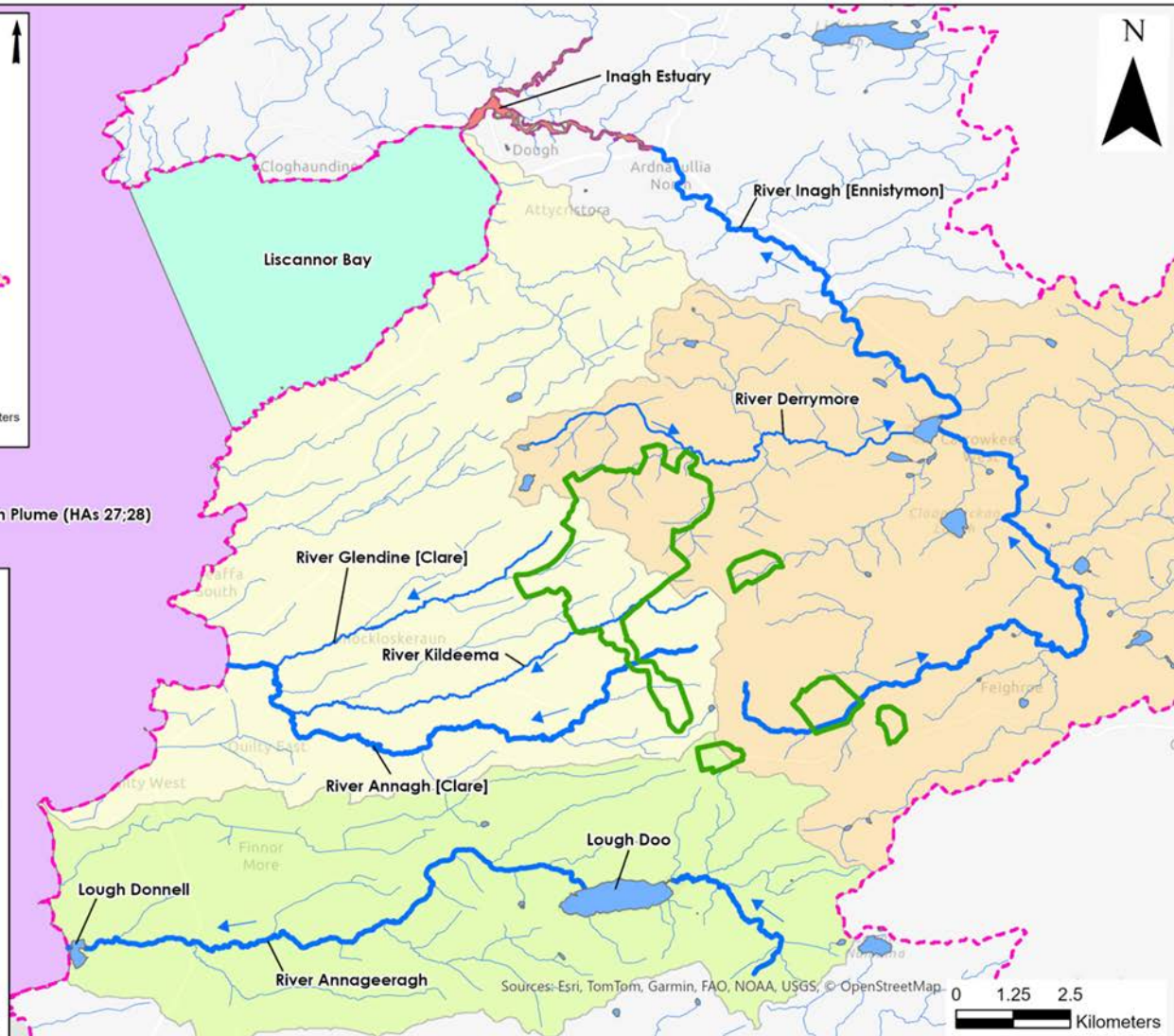
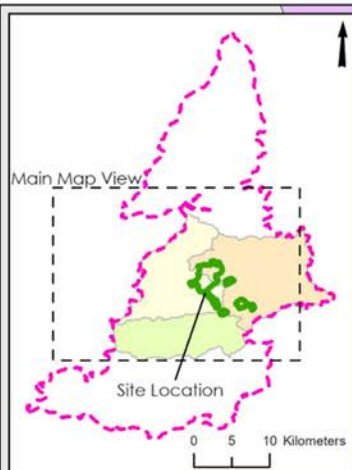
The Proposed Enhancement Site areas are distributed mainly between the Inagh River and Annagh River surface water catchments, with one of the areas extending into the Annageeragh River catchment on the far south of the Site. A regional hydrology map is shown in Figure 3-1.

Locally the Site exists within 6 no. Water Framework Directive mapped sub-basins. The north-western and southwestern sections of the Site drain into the headwaters of the Glendine River (Glendine (Clare)_010) and the Kildeema River (Kildeema_010) respectively with both rivers entering Mal Bay at the same point south of Spanish Point.

The eastern section of the Site along with 1.3km of the proposed 33kv underground cabling drains into the Inagh (Ennistymon)_040 sub-basin. The remainder of the Proposed Grid Connection Site, including underground electrical cabling (5.6km) and the proposed extension to the existing Slievecallan 110kV substation, is located in the Annagh(Clare)_010 sub-basin.

The Proposed Enhancement Site areas are distributed mainly between the Inagh (Ennistymon)_040, Glendine(Clare)_010 and Kildeema_010, along with 2 no. areas located in the Inagh (Ennistymon)_010 and one area in the Annageeragh_020.

A local hydrology map is shown as Figure 3-1.



3.2 Results of Baseline Ecological Surveys

3.2.1 Description of Habitats & Flora within the Ecological Survey Area

A total of 22 habitats were recorded within the Site, which are listed in Table 3-1 below.

Table 3-1 Habitats recorded on the Site

Habitat Name	Fossitt Code
Conifer plantation	WD4
Recently felled woodland	WS5
Upland blanket bog	PB2
Wet Heath	HH3
Cutover bog	PB4
Transition mire and quaking bog	PF3
Eroding blanket bog	PB5
Exposed siliceous rock	ER1
Wet grassland	GS4
Scrub	WS1
Hedgerow	WL1
Wet willow alder ash woodland	WN6
Spoil and bare ground	ED2
Buildings and artificial surfaces	BL3
Stone walls and other stonework	BL1
Eroding/upland rivers	FW1
Drainage ditches	FW4
Recolonising bare ground	ED3
Lowland blanket bog	PB3
Reed and large sedge swamp	FS1
Wet pedunculate oak-ash woodland	WN4
Tall-herb swamps	FS2

3.2.2 Habitats within the Proposed Wind Farm Site

The Proposed Wind Farm Site comprises of areas of active Conifer plantation (WD4), comprising mainly of Sitka spruce (*Picea sitchensis*) and Lodgepole pine (*Pinus contorta*), areas of degraded peatland assessed as Upland blanket bog (PB2), Cutover bog (PB4), and Wet heath (HH3), and Wet grassland (GS4) and Scrub (WS1). The Proposed Wind Farm Site is accessible via a network of local roads and existing forestry and agricultural access tracks.

3.2.2.1 Conifer plantation (WD4) & Recently felled woodland (WS5)

The majority of the built infrastructure footprint of the Proposed Project is within active forestry of various ages including clear-felled areas, semi-mature and mature stands, and immature pre-thicket areas of both first and second rotation. These habitats comprised Conifer plantation (WD4), but where forestry has been recently felled, these areas were classified as Recently felled woodland (WS5). Sitka spruce (*Picea sitchensis*) was the dominant species, with lodgepole pine (*Pinus contorta*) also present in smaller quantities. Turbines 1, 2, 4, 8 and 9 are located entirely within these habitats, as well as the majority of Turbine 7. Other components of the Proposed Project within these habitats include the northern temporary construction compound and sections of new access roads.

The ground layer of the majority of mature Conifer plantation (WD4) in the Proposed Wind Farm Site was typically species poor, with vegetation comprised predominantly of bryophytes and ferns such as *Thuidium tamariscinum* and hard fern (*Blechnum spicant*). Other occasional species included bramble (*Rubus fruticosus* agg.), ivy (*Hedera helix*) and bracken (*Peridium aquilinum*). Much of the Conifer

plantation (WD4) within the Proposed Wind Farm Site has been planted on peatland and therefore the field layer within fire breaks or on the margins of the forestry blocks comprised peatland species including ling heather (*Calluna vulgaris*) and purple moor grass (*Molinia caerulea*) as well as other species including occasional to frequent Yorkshire fog (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), soft rush (*Juncus effusus*) and tormentil (*Potentilla erecta*).

Vegetation of clear-felled areas was again species poor and comprised occasional rosebay willowherb (*Chamaenerion angustifolium*), Yorkshire fog, soft rush (*Juncus effusus*), common sorrel (*Rumex acetosa*) and foxglove (*Digitalis purpurea*), with exposed peat and a leaf litter layer of pine needles dominating.

Representative examples of Conifer plantation (WD4) and Recently felled woodland (WS5) throughout the Proposed Wind Farm Site are provided in Plate 3-1, Plate 3-2, Plate 3-3 and Plate 3-4.



Plate 3-1 Example of mature Conifer plantation (WD4) within the Proposed Wind Farm Site.



Plate 3-2 Example of mature Conifer plantation (WD4) within the Proposed Wind Farm Site.



Plate 3-3 Example of Recently felled woodland (WS5) within the Proposed Wind Farm Site.



Plate 3-4 Example of semi-mature Conifer plantation (WD4) within the Proposed Wind Farm Site.

3.2.2.2 Peatland Habitats

The majority of the Proposed Wind Farm Site is dominated by peatland habitat mosaics, consisting of Upland blanket bog (PB2), Wet heath (HH3), and Cutover bog (PB4), with Eroding blanket bog (PB5) occurring to a lesser extent. Small sections of exposed rock, classified as Exposed siliceous rock (ER1), were also occasionally recorded within these mosaic habitats. These habitats have been extensively altered by drainage and/or historical turbary practices, as well as grazing from both livestock and deer.

The majority of these peatland habitats have been avoided in the design of the Proposed Project, however, Turbines 3 and 6 are located within this degraded habitat mosaic. Additional elements of the Proposed Project within peatland mosaic habitats include a small portion of Turbine 7, the proposed borrow pit, and the southern temporary construction compound, and sections of new access roads. Each habitat within these peatland habitat mosaics is discussed in more detail below.

Upland blanket bog (PB2) & Cutover bog (PB4)

Primarily recorded as a mosaic with Wet Heath (HH3), these habitats were recorded largely in the flatter areas of the Proposed Wind Farm Site, north of Turbine 7. Recorded in areas of historic turbary, this habitat is degraded due to drainage, but vegetation characteristic of Upland blanket bog (PB2) has re-established. Species recorded included frequent to occasional cottongrass species (*Eriophorum angustifolium* and *E. vaginatum*) purple moor grass, bog asphodel (*Narthecium ossifragum*) and deergrass (*Trichophorum cespitosum*), as well as locally frequent peat mosses (*Sphagnum capillifolium*, *S. papillosum*) and lichens such as *Cladonia rangiferina*. Due to historical drainage, this habitat was not particularly wet, to which the lack of widespread peat mosses can be attributed. Other species recorded

were typical peatland species, including occasional ling heather (*Calluna vulgaris*), cross leaved heath (*Erica tetralix*), tormentil (*Potentilla erecta*), and Devil's-bit scabious (*Succisa pratensis*), with rare recordings of milkwort (*Polygala vulgaris*), red fescue (*Festuca rubra*), and soft rush (*Juncus effusus*).

While Cutover bog (PB4) habitat is degraded, areas have regenerated from historic turbary practices and are of high biodiversity value. As such, these areas been assessed as County Importance, as sufficient number of positive indicator species, as detailed in Appendix 6-2 of the accompanying EIAR, were recorded for them to conform to the following Annex I habitat:

➤ Blanket bog [7130]

The Built infrastructure footprint of the Proposed Project is located entirely outside of Upland Blanket Bog (PB2) habitat. An example of this habitat is depicted in Plate 3-5, with Plate 3-6 showing both Cutover bog (PB4) and Upland blanket bog (PB2).



Plate 3-5 Example of Upland blanket bog (PB2) recorded to north of Turbine 7.



Plate 3-6 Example of Cutover bog (PB4) habitat (foreground) within the Proposed Wind Farm Site, dominated by species associated with Upland blanket bog (PB2) (background).

Wet heath (HH3)

This habitat was recorded throughout the peatland habitat mosaic, particularly on rough, less flat terrain and on rises in between sections of Cutover bog (PB4) and field boundaries. Recorded characteristic species of this habitat included abundant to frequent ling heather and purple moor grass with occasional recordings of bell heather (*Erica cinerea*), tormentil, cross leaved heath, heath rush (*Juncus squarrosus*), Devil's-bit scabious, red fescue, broom forkmoss (*Dicranum scoparium*), sharp flowered rush (*Juncus acutiflorus*), common sedge (*Carex nigra*) and deergrass.

Turbine 7 has a slight overlap with Wet heath (HH3), while T6 is located entirely within this habitat. The proposed locations of these turbines are depicted in Plate 3-7 and Plate 3-8. A 2m x 2m relevé was taken at these locations and the results are included in the detailed botanical assessment report in Appendix 6-2 of the accompanying EIAR.

Given the high species diversity of this habitat, albeit degraded due to historical turbary and grazing, it conforms to the following Annex I habitat of the EU Habitats Directive, due to $\geq 50\%$ cover of multiple indicator species (as detailed in Appendix 6-2):

- Northern Atlantic wet heaths with *Erica tetralix* [4010]



Plate 3-7 Receiving Wet heath (HH3) within the footprint of Turbine 7.



Plate 3-8 Receiving Wet heath (HH3) within the footprint of Turbine 6.

Transition mire and quaking bog (PF3)

One area of Transition mire and quaking bog (PF3) was recorded adjacent to the existing access track in the northern section of the Proposed Wind Farm Site, outside of the built infrastructure footprint of the Proposed Project. This was recorded in an area of deep peat where ground conditions were waterlogged and flat. Species recorded in this habitat included abundant to frequent purple moor-grass, Devil's-bit scabious (*Succisa pratensis*), water horsetail (*Equisetum fluviatile*), Lesser Spearwort (*Ranunculus flammula*), peat mosses (*Sphagnum* spp.) and sharp flowered rush (*Juncus acutiflorus*), with occasional marsh cinquefoil (*Comarum palustre*), sedges (*Carex* spp.), bogbean (*Menyanthes trifoliata*), marsh bedstraw (*Gallium palustre*), and water mint (*Mentha aquatica*).

Given the high species diversity of this habitat, it conforms to the following Annex I habitat of the EU Habitats Directive, due to <3 recordings of indicator species (seven indicator species recorded):

- Transition mire and quaking bog [7140]

This habitat has been completely avoided in the design of the Proposed Project.



Plate 3-9 Area of Transition mire and quaking bog (PF3) in the northern section of the Proposed Wind Farm Site.

3.2.2.3 Wet Grassland (GS4)

Large areas of the Site are dominated by Wet grassland (GS4), particularly in the eastern and southern sections (within the Proposed Enhancement Site), away from the majority of the built infrastructure footprint of the Proposed Project, with only Turbine 5 located within this habitat type.

The location of the Turbine 5 is depicted in Plate 3-10 and was an area of unmanaged Wet Grassland (GS4) dominated by sharp flowered rush, as well as frequent Yorkshire fog and occasional common sorrel (*Rumex acetosa*), soft rush, lesser spearwort (*Ranunculus flammula*), and marsh willowherb

(*Epilobium palustre*). A 2m x 2m relevé was taken within this habitat and the results are included in the detailed botanical assessment report in Appendix 6-2 of the accompanying EIAR.

In the eastern and southern section of the Proposed Wind Farm Site, additional large areas of this habitat were used for agricultural purposes. These sections of Wet grassland (GS4) were subject to agriculture practices through livestock grazing of differing intensities and management regimes and thus, presented with varying flora diversity. In the eastern section of the Site, Wet grassland (GS4) was actively managed through rush topping and/or grazing and presented with moderate floral diversity but uniform sward heights (Plate 3-11 and 3-12). These areas were dominated by soft rush and Yorkshire fog, with frequent to occasional recordings of meadow buttercup (*Ranunculus acris*), Devil's-bit scabious, lesser spearwort (*Ranunculus flammula*), creeping bent-grass (*Agrostis stolonifera*), creeping buttercup, sedges (*Carex spp.*), rough hawkbit (*Leontodon hispidus*), and compact rush (*Juncus conglomeratus*). In areas where grazing was of a lower intensity, such as that depicted in Plate 3-13, species composition was similar, but a varied sward height was present.

While Wet grassland (GS4) habitats within the Site were either managed for agricultural purposes or were of low flora diversity, it nonetheless provides potential supporting habitat for important faunal species such as marsh fritillary through the presence of Devil's-bit scabious, as well as amphibians, and other invertebrates.



Plate 3-10 Receiving Wet grassland (GS4) habitat at Turbine 5



Plate 3-11 Area of Wet grassland (GS4) managed via rush topping.



Plate 3-12 Area of Wet grassland (GS4) managed through low intensity grazing



Plate 3-13 Area of Wet grassland (GS4) managed through low intensity grazing, presenting varied sward height

3.2.2.4 Scrub (WS1)

Scrub (WS1) habitat occurs throughout the Site, primarily on the verges of unmanaged areas of upland peat habitats or agricultural lands or adjacent to Conifer plantation (WD4) and often forms land

boundaries. Within the Proposed Wind Farm Site, Scrub (WS1) was dominated by dense thickets of gorse (*Ulex europaeas*) with small sections of Dense Bracken (HD1) (Plate 3-14 and Plate 3-15), adjacent to Conifer plantation (WD4) and peatlands, particularly in proximity to Turbine 8. In the eastern section of the Proposed Wind Farm Site, within agricultural lands, this habitat was recorded forming field boundaries (Plate 3-16) and was dominated by gorse and bramble (*Rubus fruticosus* agg.). Other areas of Scrub (WS1) were recorded as small stands of immature grey willow (*Salix cinerea*) occurring in wetter areas of peatland or along the boundaries of the wet grasslands within the Site (Plate 3-17).



Plate 3-14 Gorse dominated Scrub (WS1) within the Proposed Wind Farm Site.



Plate 3-15 Gorse dominated Scrub (WS1) in close proximity to Turbine 8.



Plate 3-16 Example of willow and bramble Scrub (WS1) in the eastern section of the Proposed Wind Farm Site.



Plate 3-17 Example of willow Scrub (WS1) recorded within the Proposed Wind Farm Site.

3.2.2.5 Hedgerows (WL1) and Treelines (WL2)

Linear features such as Hedgerows (WL1) and Treelines (WL2) were absent from the majority of the Proposed Wind Farm Site, but within the eastern section and the Proposed Enhancement Site, agricultural fields and access roads are delineated by such habitats. Hedgerows (WL1) of willow, blackthorn (*Prunus spinosa*), and bramble were recorded forming field boundaries, as shown in Plate 3-18, while Treelines (WL2) of Sitka spruce were recorded along access roads (Plate 3-19). The built infrastructure footprint of the Proposed Project has no overlap with these linear features.



Plate 3-18 Example of agricultural field in the eastern section of the Site, delineated by willow Hedgerows (WLI).



Plate 3-19 Example of Sitka spruce Treeline (WL2) delineating access track in the eastern section of the Proposed Wind Farm Site.

3.2.2.6 Wet willow alder ash (WN6)

In the eastern section of the Site, Wet willow alder ash woodland (WN6) was recorded on the edges of agricultural fields, often forming field boundaries (Plate 3-20). Species composition within the canopy varied, but predominantly consisted of willow (*Salix* spp.), with frequent to occasional recordings of alder (*Alnus glutinosa*), hawthorn (*Crataegus monogyna*), blackthorn, and Birch (*Betula pubescens*), with an understory of encroaching bramble. This habitat is located outside the built infrastructure footprint of the Proposed Project and is not of sufficient size to warrant mapping as a standalone habitat within the provided habitat map, as per Smith et al. (2011) guidance (requires minimum size of 400m²).



Plate 3-20 Example of Wet willow alder ash woodland (WN6) recorded within the Site.

3.2.2.7 Spoil and Bare Ground (ED2)

The Proposed Wind Farm Site is accessed by a network of existing forestry and farm tracks categorised as Spoil and bare ground (ED2) (Plate 3-21) and comprised of compacted gravel and bare soil with infrequent vegetation. The verges of these tracks across much of the Site comprised of Wet grassland (GS4) dominated by soft rush, as well as species from surrounding peatland habitats, particularly ling heather. This habitat was also delineated by Conifer Plantation (WD4), as shown in Plate 3-22).

Species recorded within the Spoil and bare ground (ED2) habitat included occasional sweet vernal grass (*Anthoxanthum odoratum*), daisy (*Bellis perennis*), dandelion (*Taraxacum officinale* agg.), colt's-foot (*Tussilago farfara*), soft rush, purple moor-grass, and sedges (*Carex* spp). Upgrading of existing forestry tracks is proposed across the Site.



Plate 3-21 Example of farm track within the Site, classified as Spoil and bare ground (ED2).



Plate 3-22 Example of forestry track within the Site, classified as Spoil and bare ground (ED2).

3.2.2.8 Stone walls and other stonework (BL1)

Stone walls were recorded forming field boundaries within the Proposed Wind Farm Site, often as a mosaic with wet heath (HH3) (Plate 3-23).

Whilst these habitats provide potential roosting opportunity and/or foraging corridors for protected fauna, they do not support diverse flora communities and as such, have been assessed as Local importance (lower value).



Plate 3-23 Stone wall forming a field boundary, classified as Stone walls and other stonework (BL1).

3.2.2.9 Eroding/upland rivers (FW1)

A number of watercourses drain the Proposed Wind Farm Site. The Ballynew stream (28B27), an Upland eroding stream (FW1), drains the Site to the west, and discharges into the Glendine River downstream. As shown in Plate 3-24, this is a small watercourse with low discharge rates and a gravel or coarse sediment substrate. Located in an area of upland peatland, this watercourse was delineated by peatland habitats such as Upland blanket bog (PB2) and Wet heath (HH3).

To the north, the Proposed Wind Farm Site is drained via the Fahanlunaghtamore stream (28F09), an Upland eroding stream (FW1), which discharges into the Derrymore River downstream. As shown in Plate 3-25, this is a higher velocity watercourse than the Ballynew stream but is located in a highly modified habitat of Recently felled woodland (WS5).

The Proposed Wind Farm Site is drained to the south via the Letterkelly stream (28L07), an Upland eroding stream (FW1), which discharges into the Kildeema River downstream. As shown in Plate 3-26, this is a small watercourse with highly vegetated banks of Scrub (WS1) species such as bramble and gorse. Given the high density of vegetation on the banks, a clear view of this watercourse was restricted.

To the east, the Proposed Wind Farm Site is drained via the Knockacarn stream (28L07), an Upland eroding stream (FW1), discharging into the Derrymore River further downstream. As shown in Plate 3-27, this is a larger watercourse than those above and presented with typical eroding river riffle-glide-pool sections, with cobble and boulder substrate.

The rivers have been subject to detailed assessment downstream of the Proposed Wind Farm Site and the results are presented in the Aquatic Baseline Report in **Appendix 2** of this report.



Plate 3-24 The Ballynew stream, draining the Site to the west.



Plate 3-25 The Fahanlunaghtamore stream, draining the Site to the north.



Plate 3-26 The Letterkelly stream, draining the Site to the south.



Plate 3-27 The Knockacarn stream, draining the Site to the east.

3.2.2.10 Drainage ditches (FW4)

A number of Drainage ditches (FW4) are located within the Site. These were predominantly located within Conifer plantation (WD4) and occasionally along field boundaries, as shown in Plate 3-28.

Forestry drains were typically unvegetated and of low ecological value, while others, such as that shown in Plate 3-29 were very small, and provided little flow. Flow rates varied from stagnant to faster flowing forestry drains.



Plate 3-28 Drainage ditch (FW4) on a field boundary



Plate 3-29 Small farm drain, which conveyed very little water with high bank vegetation.

3.2.3 Habitats within the Proposed Grid Connection Site

The cable route exits the Proposed Wind Farm Site through forestry for approximately 0.83km, onto a farm track for 0.55km before entering the public road corridor. It stays within the public road corridor for approximately 1.55km. the cable route then exits onto existing forestry /windfarm roads, following these for approximately 4.17km before reaching the proposed substation extension compound. The total length of the proposed 33kv underground cabling measures approximately 7.1km.

As the proposed 33kV underground cabling exits the Proposed Wind Farm Site, it will first travel through an area of gorse dominated Scrub (WS1) (Plate 3-30), before entering a section of Conifer plantation (WD4) (Plate 3-31). The Conifer plantation is a mature stand of Sitka spruce forestry, with very little vegetation in the understory.

The route will then follow an existing unsealed farm road, classified as both Spoil and bare ground (ED2) and Recolonising bare ground (ED3). Vegetation cover was sparse to frequent in these habitats, with species such as daisy (*Bellis perennis*), dandelion (*Taraxacum* sp.), colts foot (*Tussilago farfara*), soft rush, Yorkshire fog, and ling heather recorded. Adjacent habitat to this access road comprised rush dominated Wet grassland (GS4) (Plate 3-32).

The existing R460, along which the proposed 33kV underground cabling will then travel, comprised a sealed regional road, classified as Buildings and artificial surfaces (BL3) (Plate 3-33). This road was delineated by Hedgerows (WL1), Dry meadows and grassy verges (GS2), and private walls classified as Buildings and artificial surfaces (BL3) and one area of Tall-herb swamps (FS2). Species recorded within Tall-herb swamps (FS2) habitat included meadowsweet (*Filipendula ulmaria*), wild angelica (*Angelica sylvestris*), hemlock water-dropwort (*Oenanthe crocata*), marsh bedstraw (*Galium palustre*) yellow iris (*Iris pseudacorus*), and water horsetail (*Equisetum fluviatile*).

Given the species diversity of this habitat, it conforms to the following Annex I habitat of the EU Habitats Directive, due to >3 recordings of indicator species (five indicator species recorded¹¹):

- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)

The proposed 33kV underground cabling exits the R460, and enters the existing Slievacallan Wind Farm, following existing roads of Spoil and bare ground (ED2) (Plate 3-34) until the location of the proposed substation extension compound. This access road is bordered by agricultural fields of Wet grassland (GS4) and Conifer plantation (WD4).

¹¹ *Filipendula ulmaria*, *Angelica sylvestris*, *Galium palustre*, *Iris pseudacorus*, *Equisetum fluviatile*

The route will cross 3 no. watercourses and has been subject to detailed assessments, with the results presented in the Aquatic Baseline Report in **Appendix 2**. Watercourses included the Kildeema stream (28K01), the Annagh [Clare] (28A03), and the Doonsallagh_East stream (28D08). Each were classified as Upland eroding streams (FW1) and provide connectivity to areas of higher ecological importance, such as European and National Sites.



Plate 3-30 Scrub (WS1) along the proposed 33kV underground cabling.



Plate 3-31 Conifer plantation (WD4) along the proposed 33kV underground cabling.



Plate 3-32 Farm track of Spoi and bare ground (ED2) and Recolonising bare ground (ED3) along the proposed 33kV underground cabling e.



Plate 3-33 Existing public road classified as Buildings and artificial surfaces (BL3) along the proposed 33kV underground cabling.



Plate 3-34 Access track to Slievacallan Wind Farm



Plate 3-35 Area of Tall-herb swamps (FS2) along the proposed 33kV underground cabling.

3.2.4 Habitats within the Proposed Enhancement Site

Conifer plantation (WD4)

As part of the proposed Biodiversity Management and Enhancement Plan (BMEP) in Appendix 6-4 of the accompanying EIAR, it is proposed to fell areas of existing commercial forestry to restore the underlying upland habitats. The areas to be felled consisted of Conifer plantation (WD4) dominated by Sitka spruce (*Picea sitchensis*) and lodgepole pine (*Pinus contorta*), with smaller areas of Japanese larch (*Larix kaempferi*). Areas of Recently-felled woodland (WS5) were also recorded within the felling areas. As per the description of this habitat in Section 3.2.2.1 ground vegetation was sparse within Conifer plantation (WD4). An example of such habitat is provided in Plate 3-36.

Wet grassland (GS4)

Habitats recorded adjacent to these felling areas, but within the Site, included Wet grassland (GS4) (Plate 3-37) characterised by dominant to abundant rushes (*Juncus* spp.), meadow-grasses (*Poa* spp.), and Yorkshire fog (*Holcus lanatus*), with frequent to occasional recordings of creeping buttercup (*Ranunculus repens*), pendulous sedge (*Carex pendula*), common speedwell (*Veronica officinalis*), foxglove (*Digitalis purpurea*), tufted hair-grass (*Deschampsia cespitosa*), and purple loosestrife (*Lythrum salicaria*). Additional species recorded within these grassland areas include creeping thistle (*Cirsium arvense*), spear thistle (*Cirsium vulgare*), bramble (*Rubus fruticosus* agg.), broad-leaved dock (*Rumex obtusifolius*), dandelion (*Taraxacum vulgare*), jointed rush (*Juncus articulatus*), sheep's sorrel (*Rumex acetosella*), red fescue (*Festuca rubra*), and clovers (*Trifolium* spp.).

Lowland blanket bog (PB3)

Within the Site, an extensive area of Lowland blanket bog (PB3) (Plate 3-38) was recorded adjacent to an area to be felled. This habitat supports a diverse assemblage of characteristic bog species, including frequent purple moor-grass (*Molinia caerulea*), bog myrtle (*Myrica gale*), ling heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*), with occasional tormentil (*Potentilla erecta*), Devil's-bit scabious (*Succisa pratensis*), deergrass (*Trichophorum germanicum*), jointed rush (*Juncus articulatus*), and various sedge species (*Carex* spp.). Additional species recorded include bog asphodel (*Narthecium ossifragum*), black bog-rush (*Schoenus nigricans*), and bryophytes such as *Dicranum scoparium*, *Polytrichum* spp., *Sphagnum rubellum*, and *Sphagnum papillosum*.

Other habitats recorded adjacent to the proposed felling areas included the following

Reed and large sedge swamp (FS1)

Reed and large sedge swamp (FS1) (Plate 3-39) which consisted of bulrush (*Typha latifolia*), common reed (*Phragmites australis*), and purple moor-grass.

Wet pedunculate oak-ash woodland (WN4)

Wet pedunculate oak-ash woodland (WN4) was recorded along the Ballynew River with a canopy of willows (*Salix* spp.), alder (*Alnus glutinosa*), pedunculate oak (*Quercus robur*), ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*) and ground flora including ivy (*Hedera helix*) and wild angelica (*Angelica sylvestris*).



Plate 3-36 Example of conifer plantation (WD4) to be felled as part of the BMEP.



Plate 3-37 Example of Wet grassland (GS4) adjacent to felling areas.



Plate 3-38 large area of Lowland blanket bog (PB3) in the south-east of the Site.



Plate 3-39 Small area of Reed and large sedge swamp (FS1) adjacent to felling areas.

Hedgerows (WL1) and Treelines (WL2)

Hedgerows (WL1) and Treelines (WL2) recorded within the Proposed Enhancement Site overlap with the Proposed Wind Farm Site, as discussed in Section 3.2.2.

Buildings and Artificial Surfaces (BL3) and Stone walls and other stonework (BL1)

There are some farm buildings within the Proposed Enhancement Site comprised of agricultural sheds comprised of concrete and galvanised sheeting. These were categorised as Buildings and artificial surfaces (BL3), see Plate 3-40. Given the composition of these buildings, they do not support significant floral diversity and as such, this habitat has been assessed as Local Importance (lower value).

A stone building, classified as Stone walls and other stonework (BL1), was recorded within the eastern section of the Site, as shown in Plate 3-41. This was an old derelict stone building and provided potential supporting habitat for fauna such as bats and lizards.



Plate 3-40 Example of agricultural sheds categorised as Buildings and artificial surfaces (BL3) within the Site.



Plate 3-41 Derelict stone building classified as Stone walls and other stonework (BL1).

3.2.5 Habitats Along the Turbine Delivery Route

The proposed Turbine Delivery Route (TDR) is predominantly located within existing public road infrastructure, classified as Buildings and artificial surfaces (BL3). For the purpose of this EIAR, the Port of Foynes has been selected and assessed to facilitate turbine delivery to the Site. It is proposed that the Turbine Delivery Route (TDR) will be via the Port of Foynes in County Limerick as follows;

- From the access road serving Foynes Port the route turns left (south) onto the N69 National Secondary Road at the existing priority junction.
- From this point the route heads east on the N69 for approximately 32kms, passing through various bends on the route.
- The route for turbine blade delivery then turns left off the N69 at the Dock Road West Roundabout to head north onto the N18/M18 for approximately 30km to Junction 12 of the M18.
 - For turbine tower sections, the route will continue east at the N69 Dock Road West roundabout along the R510 for approximately 3.4km, passing through 1 no. roundabout before turning left at the Shannon Bridge Roundabout onto the R527.
 - The route continues along the R527 heading northwest through the 1 no. roundabout for approximately 4.1km before turning left at the Coonagh Roundabout onto the R445 for approximately 3.0km, passing through the 3 no. roundabouts before joining the N18/M18 at Junction 4.
- At this point the route turns off the M18 onto the N85 National Road and heads west and then north bypassing the town of Ennis for approximately 7.3km passing through the Skehanagh Roundabout, the R458 Clareabbey Roundabout, the Rocky Road Roundabout, Beechpark Roundabout to the N85 Claureen Roundabout located northwest of Ennis.
- From this roundabout the TDR heads west for approximately 13.7km on the N85 to Inagh.
- The route then turns left in the village of Inagh heading west on the R460 for 4.3 km before veering right onto the local L1074.
- The routes continues westbound on the L1074 for 4.2 kms before taking a left hand bend on the L1076 and continuing in a southwest direction for a further 2.0 kms. At this point the route turns left onto the L6230 heading south for 0.3km. Access to the Site is then gained by turning left onto an existing forest track heading in an eastern direction towards the Site.

The TDR is approximately 94km from the Port of Foynes to the proposed site access off the L6230.

There are no significant TDR accommodation works required to facilitate the delivery of turbine components to the Proposed Wind Farm Site. At the entrance of the Proposed Wind Farm Site, where the TDR will turn south from the Fahanlunaghta More, there is some requirement for road widening and accommodation works, which will encroach in an area of rush dominated Wet grassland (GS4). This habitat is depicted in Plate 3-42.



Plate 3-42 Location of accommodation works to the north of Site, showing rush dominated Wet grassland (GS4).

3.2.6 Otter Surveys

No otter breeding or resting sites, nor any indications such as spraint, were recorded within the Site during the surveys undertaken, including those undertaken as part of the aquatic surveys (**Appendix 2: Aquatic Baseline Report**). Whilst no indication of this species was recorded, watercourses within and downstream of the Site may provide potential foraging and commuting habitat for this species, at least on occasion.

3.2.7 Aquatic Surveys

Watercourses surveyed within the vicinity of the Site consisted of Eroding/upland rivers (FW1), surrounded predominantly by agricultural and pastoral land use, which was largely concurrent with habitat classifications of either Wet grassland (GS4) or Improved agricultural grassland (GA1), with some sites comprising of a mosaic of the two habitat types.

Water quality of the Annagh catchment was generally of Moderate to Good (Q3-4, Q4) status, with one exception, WF8, which presented Poor (Q3) status. Water quality throughout the survey sites within the Inagh catchment was of Poor to Moderate (Q3, Q3-4) status. Watercourses along the Proposed Grid Connection Site were of Poor to Moderate (Q3, Q3-4) status.

No otter signs (including holts) were observed within the Site with the upland nature of many of the watercourses surveyed limiting foraging and commuting suitability for otter. However, watercourses furthest downstream of the Site, which presented higher fisheries potential, may provide suitable foraging and commuting habitat for otter.

The eDNA assessments at all locations were negative for Freshwater Pearl Mussel, White-clawed crayfish and Crayfish plague.

No kingfisher signs were observed at any of the surveyed wind farm sites and grid connection sites, and habitat suitability was generally assessed as being *Negligible- Moderate* throughout the surveyed locations.

Full detailed results of the aquatic surveys are provided in the Aquatic Baseline Report in **Appendix 2**.

3.2.8 Invasive Species

During field surveys, a search for Invasive Alien Species (IAS) listed under the ‘Third Schedule’ of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the ‘First Schedule’ of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. One species - Rhododendron (*Rhododendron ponticum*) - was recorded at multiple locations within the Site. Infestations ranged in size from small saplings within peatland habitat to large dense thickets within all habitat types recorded within the Site. Several infestations overlap with the design of the Proposed Project.

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

3.2.9 Bird Surveys

Bird species recorded during the multidisciplinary walkover surveys within the Site, were typically an assemblage of common species typical of agricultural and upland environments.

Regarding European Sites, the Proposed Wind Farm Site is located within the foraging range of one SCI, barnacle goose (*Branta leucopsis*) [A045] of the Mid-Clare Coast SPA (SNH, 2016).

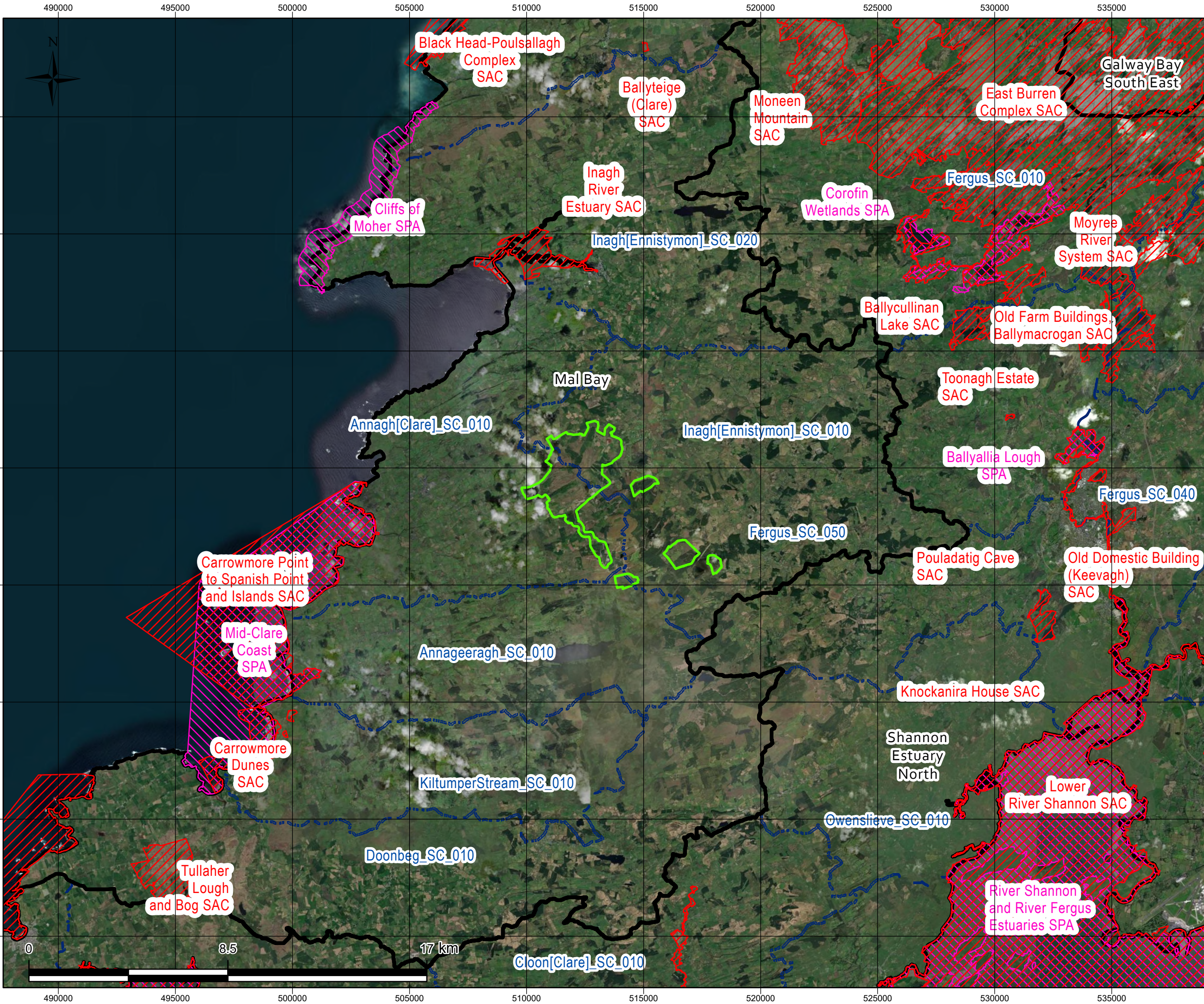
During the targeted bird surveys undertaken, no observations of barnacle goose were recorded within the Site. It was therefore determined that the Proposed Wind Farm Site is not of significance to any SCI population associated with any European Site, given how infrequently the Site is utilised by these species.

4. STAGE 1 – APPROPRIATE ASSESSMENT SCREENING

4.1 Identification of the European Sites within the Likely Zone of Influence

The following methodology was used to establish any European Sites upon which there is a potential for a likely significant effect to occur either individually or in combination with other plans and projects as a result of the Proposed Project:

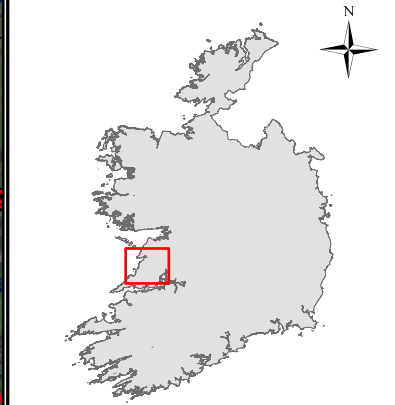
- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 27/04/2026.
- All European Sites that could potentially be affected were identified using a source-pathway - receptor model. To provide context for the assessment, European Sites surrounding the Proposed Project are shown on Figure 4-1. Information on these sites according to the Site-specific conservation objectives is provided in Table 4-1. The Proposed Project does not overlap with any European Site.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the Site and any European Sites. The hydrological catchments are also shown in Figure 4-1.
- European Sites denoted with an * in Table 4-1 deviate from the above methodology but have been included as they were considered in the 2021 Application, and have been included again for completeness and to avoid confusion.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, ‘*Assessing Connectivity with Special Protection Areas (SPA)*’ (2016) was consulted. This document provides guidance in relation to the identification of connectivity between Proposed Projects and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- Table 4-1 provides details of all relevant European Sites as identified in the preceding steps and assesses the potential for likely significant effects on each.
- The assessment considers any likely direct or indirect impacts of the Proposed Project, both alone and in combination with other plans and projects, on European Sites by virtue of criteria including the following: size and scale, land-take, distance from the European Site or key features of the Site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning.
- The Site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for likely significant effect are identified, the Site is included within the likely zone of influence and further assessment is required within the NIS.
- The potential for the Proposed Project to result in cumulative impacts on any European Sites, in combination with other plans and projects, was considered in the assessment that is presented in Table 4-1. Plans and projects considered consist of those that are listed in **Appendix 5**.



Map Legend

- ElAR Site Boundary
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Hydrological Catchments
- Hydrological SubCatchments

Spatial Reference
Name: IREN95 Irish Transverse Mercator
Datum: IREN95
Projection: Transverse Mercator



SITE LOCATION - NOT TO SCALE		
Drawing Title		
European Designated Sites with Hydrological Catchments		
Project Title		
Slieveacurry Renewable Energy Development, Co. Clare		
Project No.	Drawing No.	Scale
240718	4-1	1:150,000
Drawn By	Checked By	Date
MNR	PD	20/04/2026

MKO

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

Table 4-1 European Sites within the Likely Zone of Influence

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
Special Areas of Conservation (SAC)			
Inagh River Estuary SAC (000036) Approx. distance from the Site: 6.7 km Approx. hydrological distance from the Proposed Project: 21.5 km	➤ <i>Salicornia</i> and other annuals colonising mud and sand [1310] ➤ Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) [1330] ➤ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] ➤ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] ➤ Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Detailed conservation objectives for this site (Version 1, January 2017) were reviewed as part of the assessment and are available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000036.pdf	There will be no direct effects within this SAC as the Proposed Project is located entirely outside of this designated site. No Qualifying Interests (QI) habitats associated with the SAC were recorded within or adjacent to the Site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site. The potential for significant indirect effects on this SAC was also considered. There is hydrological connectivity between the Site and this SAC via mapped WFD watercourses that lie within the Proposed Wind Farm Site, namely the Fahanlunaghtamore Order 1 and Order 2 streams [EPA Code: 28F09] within the northwestern portion of the Site. These mapped watercourses within the Proposed Wind Farm Site drain the Derrymore Order 3 watercourse, before joining with the Inagh River which subsequently enters the Inagh River Estuary SAC approximately 21.5 km downstream from the Site. Therefore, a potential pathway for significant indirect effects on aquatic QIs of this SAC was identified. There is potential for the deterioration of water quality within the SAC via the runoff or percolation of pollutants into the Fahanlunaghtamore Order 1 and Order 2 watercourses during the construction, operation, and decommissioning phases of the Proposed Project. Additionally, the Site is located within the same ground water body as this SAC, the Miltown Malbay GWB.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			Regarding potential effects from invasive species, Rhododendron was recorded within the Proposed Wind Farm Site, which is hydrologically connected to this SAC. There is, therefore, potential for significant effects on this SAC as a result of the spread of invasive species as a result of the Proposed Project. A complete source-pathway-receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on this European Site. The European Site is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Carrowmore Point to Spanish Point and Islands SAC (001021) Approx. distance from the Site: 7.2 km Approx. hydrological distance from the Proposed Project: 6.5 km	➤ Coastal lagoons [1150] ➤ Reefs [1170] ➤ Perennial vegetation of stony banks [1220] ➤ Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220]	Detailed conservation objectives for this site (Version 1, April 2014) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001021.pdf	There will be no direct effects within this SAC as the Proposed Project is located entirely outside of this designated site. No QI habitats associated with the SAC were recorded within or adjacent to the Site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site. The potential for significant indirect effects on this SAC was also considered. Surface water connectivity was identified between the Site and this SAC via several mapped Order 1 and Order 2 watercourses that drain the western portion of the Proposed Wind Farm Site. These streams have downstream connectivity to this SPA. Overlapping watercourses with the potential to act as conduits for pollution include the following: Ballynew Order 1 and Order 2 streams [EPA Code: 28B27], Glendine_North Order 1 stream [EPA Code: 28G07], Silverhill Order 1 stream [EPA Code: 28S07], Kildeema_North Order 1 and Order 2 stream [EPA Code: 28K19], Cloghaun_Beg Order 1 stream [EPA

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			Code: 28C44], Kildeema order 1 and Order 2 streams [EPA Code: 28K01], and Letterkelly Order 1 stream [EPA Code: 28L07]. Additionally, the Proposed Project is located within the same ground water body as this SAC, the Miltown Malbay GWB. Therefore, potential exists for significant indirect effects on this SAC via deterioration of water quality arising from the runoff of pollutants into these watercourses during the construction, operation and decommissioning phases of the Proposed Project. Regarding potential effects from invasive species, Rhododendron was recorded within the Proposed Wind Farm Site, which is hydrologically connected to this SAC. There is, therefore, potential for significant effects on this SAC as a result of the spread of invasive species as a result of the Proposed Project. A complete source-pathway-receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project to result in likely significant effects on this European Site. The European Site is considered to be within the Likely Zone of Influence of the Proposed Project and further assessment is required.
Pouladatig Cave SAC (000037)* Approx. distance from the Site: 11.7 km Approx. hydrological	➤ [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) ➤ [8310] Caves not open to the public	Detailed conservation objectives for this site (Version 1, July 2018) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-	There will be no direct effects within these SACs as the Proposed Project is located entirely outside of these designated sites. The potential for significant indirect effects on these SACs was also considered. The Site lies beyond the 2.5km foraging range for lesser horseshoe bat (NPWS, 2018) of both designated sites. Therefore, the Site is not regarded to act in a supporting role to populations of lesser horseshoe bat associated with these SACs.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026)	Conservation Objectives	Identification of Source-Pathway-Receptor chain
distance from the Proposed Project: N/A		sites/conservation_objectives/CO000037.pdf	Considering the associated terrestrial distance between the Site and these SACs, no potential for significant indirect effects on these SACs was identified.
Knockanira House SAC (002318)* Approx. distance from the Site: 11.8 km Approx. hydrological distance from the Proposed Project: N/A	➤ [1303] Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	Detailed conservation objectives for this site (Version 1, July 2018) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002318.pdf	No complete source-pathway-receptor chain for significant effect exists and therefore, these SACs are not within the Likely Zone of Influence, and no further assessment is required.
Lower River Shannon SAC (002165)* Approx. distance from the Site: 13 km Approx. hydrological distance from the Proposed Project: N/A	➤ Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029] ➤ Sea Lamprey <i>Petromyzon marinus</i> [1095] ➤ Brook Lamprey <i>Lampetra planeri</i> [1096] ➤ River Lamprey <i>Lampetra fluviatilis</i> [1199] ➤ Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106] ➤ Sandbanks which are slightly covered by sea water all the time [1110]	Detailed conservation objectives for this site (Version 1, August 2012) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf	There will be no direct effects within this SAC as the Proposed Project is located entirely outside of this designated site. No QI habitats associated with the SAC were recorded within or adjacent to the Site and therefore, there is no potential for direct <i>ex-situ</i> effects on this European Site. The potential for significant indirect effects on this SAC was also considered. No potential for significant effects was identified for any aquatic species associated with this SAC, including otter, due to the terrestrial distance, absence of hydrological connectivity between the Site and this SAC, in addition to the Site lying in a separate hydrological catchment to this SAC.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	➤ Estuaries [1130] ➤ Mudflats and sandflats not covered by seawater at low tide [1140] ➤ *Coastal lagoons [1150] ➤ Large shallow inlets and bays [1160] ➤ Reefs [1170] ➤ Perennial vegetation of stony banks [1220] ➤ Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] ➤ Salicornia and other annuals colonizing mud and sand [1310] ➤ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] ➤ Bottlenose Dolphin (<i>Tursiops truncatus</i>) [1349] ➤ Otter <i>Lutra lutra</i> [1355] ➤ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] ➤ Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> ➤ Vegetation [3260] ➤ Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410] ➤ *Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]		Considering the absence of direct hydrological connectivity, and the associated distance between the Site and the SAC, no potential for significant indirect effects on the QI habitats and species of this SAC was identified. No complete source-pathway-receptor chain for significant effect exists and therefore, this SAC is not within the Likely Zone of Influence, and no further assessment is required.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
Carrowmore Dunes SAC (002250) Approx. distance from the Site: 13.4 km Approx. hydrological distance from the Proposed Project: N/A	➤ Reefs [1170] ➤ Embryonic shifting dunes [2110] ➤ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] ➤ Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] ➤ <i>Vertigo angustior</i> (Narrow-mouthed Whorl Snail) [1014]	Detailed conservation objectives for this site (Version 1, March 2014) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002250.pdf	There will be no direct effects within these SACs as the Proposed Project is located entirely outside of these designated sites. No QI habitats associated with these SACs were recorded within or adjacent to the Site and therefore, there is no potential for direct <i>ex-situ</i> effects on QI habitats or species of these European Sites, given the intervening distances. The potential for significant indirect effects on these SACs was also considered. The Proposed Project is located in separate hydrological sub-catchments to both of these European Sites and therefore, there is no hydrological connectivity to the aquatic QIs of each SAC. Considering the absence of direct hydrological connectivity, and the associated distance between the Site and these SACs, no potential for significant indirect effects on these SACs was identified.
East Burren Complex SAC (001926)* Approx. distance from the Site: 14.6 km Approx. hydrological distance from the Proposed Project: N/A	➤ Marsh Fritillary (<i>Euphydryas Aurinia</i>) [1065] ➤ Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>) [1303] ➤ Otter (<i>Lutra lutra</i>) [1355] ➤ Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. [3140] ➤ Turloughs [3180] ➤ Water courses of plain to montane levels with the Ranunculion fluitantis and <i>Callitriche-Batrachion</i> vegetation [3260] ➤ Alpine and Boreal heaths [4060]	Detailed conservation objectives for this site (Version 1, January 2022) were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001926.pdf	No complete source-pathway-receptor chain for significant effect exists and therefore, these SACs are not within the Likely Zone of Influence, and no further assessment is required.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
	➤ <i>Juniperus communis</i> formations on heaths or calcareous grasslands [5130] ➤ Calaminarian grasslands of the <i>Violetalia calaminariae</i> [6130] ➤ Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] ➤ Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510] ➤ Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>* [7210] ➤ Petrifying springs with tufa formation (Cratoneurion)* [7220] ➤ Alkaline fens [7230] ➤ Limestone pavements* [8240] ➤ Caves not open to the public [8310] ➤ Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, <i>Alnion incanae</i>, <i>Salicion albae</i>)* [91E0]		
Special Protected Areas (SPA)			
Mid-Clare Coast SPA (004182)	➤ Cormorant (<i>Phalacrocorax carbo</i>) [A017]	Detailed conservation objectives for this site, (Version 1, September	There will be no direct effects within this SPA as the Proposed Project is located entirely outside of this designated site.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
Approx. distance from the Site: 6.5 km Approx. hydrological distance from the Proposed Project: 6.6 km	➤ Barnacle Goose (<i>Branta leucopsis</i>) [A045] ➤ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ➤ Sanderling (<i>Calidris alba</i>) [A144] ➤ Purple Sandpiper (<i>Calidris maritima</i>) [A148] ➤ Dunlin (<i>Calidris alpina</i>) [A149] ➤ Turnstone (<i>Arenaria interpres</i>) [A169] ➤ Wetlands [A999]	2014), were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004182.pdf	No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Site. However, the Site is located within the 25km core foraging range of Barnacle Goose (SNH, 2016), and therefore, taking an extremely precautionary approach, there is potential for <i>ex-situ</i> disturbance/displacement, habitat loss, and collision risk to this SCI species, during the construction and operational phases of the Proposed Project. No disturbance/displacement effects on other SCI species are anticipated, as the Site is located outside their core foraging ranges as listed in Thaxter <i>et al.</i> (2012) and SNH (2016). The potential for significant indirect effects on this SAC was also considered. Surface water connectivity was identified between the Site and this SAC via several mapped Order 1 and Order 2 watercourses that drain the western portion of the Proposed Wind Farm Site. These streams have downstream connectivity to this SPA. Overlapping watercourses with the potential to act as conduits for pollution include the following: Ballynew Order 1 and Order 2 streams [EPA Code: 28B27], Glendine_North Order 1 stream [EPA Code: 28G07], Silverhill Order 1 stream [EPA Code: 28S07], Kildeema_North Order 1 and Order 2 stream [EPA Code: 28K19], Cloghaun_Beg Order 1 stream [EPA Code: 28C44], Kildeema Order 1 and Order 2 streams [EPA Code: 28K01], and Letterkelly Order 1 stream [EPA Code: 28L07]. Additionally, the Proposed Project is located within the same ground water body as this SAC, the Miltown Malbay GWB. Therefore, following the precautionary principle and in the absence of best practice and mitigation, a potential pathway for significant indirect effects on supporting wetland habitat for the SCIs of this SPA was identified. There is potential for the deterioration of water quality within the SPA, arising from the runoff of pollutants into surface water systems from the construction, operational, and decommissioning phases of the Proposed Project.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			Regarding potential effects from invasive species, Rhododendron was recorded within the Proposed Wind Farm Site, which is hydrologically connected to this SPA. There is, therefore, potential for significant effects on this SPA as a result of the spread of invasive species as a result of the Proposed Project. A complete source pathway receptor chain was identified and in the absence of mitigation, there is potential for the Proposed Project works to result in likely significant effects on this European Site. Therefore, the European Site is located within the Likely Zone of Influence and is considered further in this assessment.
Cliffs of Moher SPA (004005) Approx. distance from the Site: 11.4 km Approx. hydrological distance from the Proposed Project: N/A	➤ Fulmar (<i>Fulmarus glacialis</i>) [A009] ➤ Kittiwake (<i>Rissa tridactyla</i>) [A188] ➤ Guillemot (<i>Uria aalge</i>) [A199] ➤ Razorbill (<i>Alca torda</i>) [A200] ➤ Puffin (<i>Fratercula arctica</i>) [A204] ➤ Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]	Detailed conservation objectives for this site, (Version 1, May 2025), were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004005.pdf	There will be no direct effects within this SPA as the Proposed Project is located entirely outside of this designated site. No significant supporting habitat for any SCI of the SPA was recorded within or adjacent to the Site. The Site lies within the core foraging range of Fulmar, Kittiwake, Guillemot, and Razorbill. That said, due to the predominantly coastal nature of the SCI species associated with this SPA in addition to these species not being recorded within the Site during the dedicated bird surveys, no potential for significant <i>ex-situ</i> disturbance/displacement to SCIs of this SPA is anticipated during any phase of the Proposed Project. The potential for significant indirect effects on this SPA was also considered. Considering the absence of direct hydrological connectivity, the nature of the Site, and the associated terrestrial distance between the Site and the SPA, no potential for significant indirect effects on the SPA was identified as a result of a deterioration in water quality.

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
			No complete source-pathway-receptor chain for significant effect exists and therefore, this SPA is not within the Likely Zone of Influence, and no further assessment is required.
Corofin Wetlands SPA (004220) Approx. distance from the Site: 14.6 km Approx. hydrological distance from the Proposed Project: N/A	➤ Little Grebe (<i>Tachybaptus ruficollis</i>) [A004] ➤ Whooper Swan (<i>Cygnus cygnus</i>) [A038] ➤ Wigeon (<i>Anas penelope</i>) [A050] ➤ Teal (<i>Anas crecca</i>) [A052] ➤ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ➤ Wetland and Waterbirds [A999]	Detailed conservation objectives for this site, (Version 1, January 2025), were reviewed as part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004220.pdf	There will be no direct effects within this SPA as the Proposed Project is located entirely outside of this designated site. The Site is not located within the core foraging range of any SCI bird populations associated with this SPA as per SNH (2016) and Johnston et al. (2013), and no SCI, nor significant supporting habitat was recorded within the Site. Therefore, no potential exists for significant <i>ex-situ</i> direct effects on this SPA. The potential for significant indirect effects on this SPA was also considered. The Proposed Project is located in a separate hydrological catchment to this European Site and therefore, there is no hydrological connectivity to the SPA. Considering the absence of direct hydrological connectivity between the Site and this SPA, and the associated distance between the Site and the SPA, no potential for significant indirect effects on the SPA was identified as a result of a deterioration in water quality. No complete source-pathway-receptor chain for significant effect exists and therefore, this SPA is not within the Likely Zone of Influence, and no further assessment is required.
River Shannon and River Fergus Estuaries SPA [004077]	➤ Cormorant (<i>Phalacrocorax carbo</i>) [A017] ➤ Whooper Swan (<i>Cygnus cygnus</i>) [A038]	Detailed conservation objectives for this site, (Version 1, September 2012), were reviewed as	There will be no direct effects within this SPA as the Proposed Project is located entirely outside of this designated site. The Site is not located within the core foraging range of any SCI bird populations associated with this SPA as per Thaxter et al. (2012), SNH (2016),

European Sites and distance from the Proposed Project	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 05/02/2026	Conservation Objectives	Identification of Source-Pathway-Receptor chain
Approx. distance from the Site: 17 km Approx. hydrological distance from the Proposed Project: N/A	➤ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] ➤ Shelduck (<i>Tadorna tadorna</i>) [A048] ➤ Wigeon (<i>Anas penelope</i>) [A050] ➤ Teal (<i>Anas crecca</i>) [A052] ➤ Pintail (<i>Anas acuta</i>) [A054] ➤ Shoveler (<i>Anas clypeata</i>) [A056] ➤ Scaup (<i>Aythya marila</i>) [A062] ➤ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ➤ Golden Plover (<i>Pluvialis apricaria</i>) [A140] ➤ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ➤ Lapwing (<i>Vanellus vanellus</i>) [A142] ➤ Knot (<i>Calidris canutus</i>) [A143] ➤ Dunlin (<i>Calidris alpina</i>) [A149] ➤ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ➤ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ➤ Curlew (<i>Numenius arquata</i>) [A160] ➤ Redshank (<i>Tringa totanus</i>) [A162] ➤ Greenshank (<i>Tringa nebularia</i>) [A164] ➤ Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] ➤ Wetland and Waterbirds [A999]	part of the assessment and are available at https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004077.pdf	Summers & Critchely (1990), and Johnston et al. (2013). Therefore, no potential exists for significant <i>ex-situ</i> direct effects on this SPA. The potential for significant indirect effects on this SPA was also considered. Considering the absence of direct hydrological connectivity between the Site and this SPA, and the associated distance between the Site and the SPA, no potential for significant indirect effects on the SPA was identified as a result of a deterioration in water quality. No complete source-pathway-receptor chain for significant effect exists and therefore, this SPA is not within the Likely Zone of Influence, and no further assessment is required.

4.2

Stage 1 Appropriate Assessment Screening Conclusion

It cannot be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Project, individually or in combination with other plans and projects, would be likely to have a significant effect on the following:

- Inagh River Estuary SAC (000036)
- Carrowmore Point to Spanish Point and Islands SAC (001021)
- Mid-Clare Coast SPA (004182)

As a result, an Appropriate Assessment of the Proposed Project is required. Information to enable the competent authority to carry out an AA of the Proposed Project is presented in Sections 5 of this report.

5.

STAGE 2- NATURA IMPACT STATEMENT (NIS)

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 preceding section:

- Inagh River Estuary SAC (000036)
- Carrowmore Point to Spanish Point and Islands SAC (001021)
- Mid-Clare Coast SPA (004182)

The following sections consider each European Site individually to:

1. Determine which individual qualifying features have the potential to be adversely affected by the Proposed Project.
2. Provide information with regard to the Conservation Objectives and site-specific pressures and threats for those qualifying features that have the potential to be adversely affected.
3. Provide the results of any additional survey work that was necessary to inform an impact assessment.

5.1 Identification of relevant Qualifying Features and Desk Study

5.1.1 Inagh River Estuary SAC (000036)

The potential for impacts on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- Deterioration of water quality via the indirect runoff or spillage of pollutants during the construction, operational, and decommissioning phases of the Proposed Project, due to the Site being hydrologically connected to this SAC.
- Indirect effects due to the spread of the invasive species, *Rhododendron ponticum*), as a result of the Proposed Project.

The Site-Specific Conservation Objectives (SSCOs) document and Natura 2000 Data Form for this designated site were reviewed during this assessment and can be found at the following online locations:

SSCOs: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000036.pdf
Accessed the 9th of February 2026

Natura 2000 Data Form:
<https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0000036&release=62> Accessed the 9th of February 2026

Table 5-1 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

5.1.1.1 Identification of Individual Qualifying Interests with the Potential to be Affected.

Table 5-1 Assessment of potential effects on Qualifying features of Inagh River Estuary SAC.

Qualifying feature	Conservation Objective (NPWS, Version 1, January 2017)	Rationale	Potential for Adverse Effects Yes/No
[1310] Salicornia and other annuals colonising mud and sand	To restore the favourable conservation condition of Salicornia and other annuals colonising mud and sand in Inagh River Estuary SAC.	The SSCOs for this SAC state that further areas of these habitats that have not been surveyed may be present within the SAC in addition to those outlined in Map 2. There is direct hydrological connectivity between this SAC and the Proposed Wind Farm Site via several mapped watercourses. Therefore, following the precautionary principle, a potential pathway for significant effect on these QIs were identified via the deterioration of water quality within the SAC arising from the runoff or percolation of pollutants into surface water systems during the construction and operational phases of the Proposed Project.	Yes
[1330] Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)	To restore the favourable conservation condition of Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) in Inagh River Estuary SAC.	A complete source-pathway-receptor chain for adverse effects on these habitats were identified, and it is assessed further in this NIS.	Yes
[1410] Mediterranean salt meadows (<i>Juncetalia maritima</i>)	To restore the favourable conservation condition of Mediterranean salt meadows (<i>Juncetalia maritima</i>) in Inagh River Estuary SAC.	Given the coastal and saline nature of these habitats, there is no potential for recorded invasive species (Rhododendron, which is entirely terrestrial) to establish within these habitats, as a result of the Proposed Project.	Yes
[2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	To restore the favourable conservation condition of Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) in Inagh River Estuary SAC.	According to Map 3 of the SSCOs for this SAC, these habitats are located in excess of 8.5km northwest of the Site.	No

Qualifying feature	Conservation Objective (NPWS, Version 1, January 2017)	Rationale	Potential for Adverse Effects Yes/No
[2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes)* in Inagh River Estuary SAC.	Given that water quality is not listed as an attribute of any of these QI habitats, in addition to the intervening terrestrial distance and terrestrial nature of these QI habitats, no pathway for significant adverse effects was identified. Given the coastal and saline nature of these habitats, there is no potential for recorded invasive species (Rhododendron, which is entirely terrestrial) to establish within these habitats, as a result of the Proposed Project. No complete source- pathway- receptor chain for adverse effects on these QI habitats as a result of the Proposed Project was identified. No further assessment is required.	No

5.1.1.2 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on the Inagh River Estuary SAC were reviewed and considered in relation to the Proposed Project. These are provided in Table 5-2.

Table 5-2 Site-specific threats, pressures, and activities for Inagh River Estuary SAC.

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
High	A02.01	Agricultural Intensification	Inside
High	J02.05.02	Modifying structures of inland water courses	Inside
High	J02.12.01	Sea defense or coast protection works, tidal barrages	Both
Low	I01	Invasive non-native species	Inside
Low	J02.01.02	Reclamation of land from sea, estuary or marsh	Inside
Low	J02.11.02	Other situation rate changes	Inside

As potential impacts on water quality within this European Site have been identified, the Proposed Project, in the absence of mitigation, can potentially contribute to the existing threats and pressures of this SAC.

5.1.1.3 Relevant Special Conservation Interests

[1310] *Salicornia* and other annuals colonising mud and sand

According to the SSCO (NPWS, 2017), *Salicornia* and other annuals colonizing mud and sand for this SAC has been mapped in detail and thus total area of the qualifying habitat is 0.22 ha as per the Natura 2000 Data Form. This may, however, be an underestimate as further unsurveyed areas may be present within the SAC.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Bad' with a deteriorating trend.

Taking a precautionary approach, there is potential for *Salicornia* and other annuals colonizing mud and sand downstream of the Site to be subject to a deterioration in water quality as a result of the Proposed Project.

The targets and attributes for this QI habitat, as per the SSCO of the SAC, are provided in Table 5-3.

Table 5-3 Targets and attributes associated with nominated site-specific conservation objectives for *Salicornia* and other annuals colonising mud and sand in Inagh River Estuary SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No, deterioration of water quality will not undermine this target as it will not affect habitat area.
Habitat distribution	No decline or change in habitat distribution, subject to natural processes	No, deterioration of water quality will not undermine this

		target as it will not affect habitat distribution.
Physical structure: sediment supply	Maintain, or where necessary restore, natural circulation of sediments and organic matter, without any physical obstructions	No, deterioration of water quality will not undermine this target as it will not affect sediment supply.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes including erosion and succession.	No, deterioration of water quality will not undermine this target as it will not affect creeks and pans.
Physical structure: flooding regime	Maintain natural tidal regime	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation height	Maintain structural variation within sward	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of creeks vegetated.	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: typical species and sub-communities	Maintain the presence of species-poor communities with typical species listed in McCorry and Ryle (2009)	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: negative indicator species – <i>Spartina anglica</i>	There is no record of common cordgrass (<i>Spartina anglica</i>) in the SAC, and its establishment should be prevented	No, deterioration of water quality will not undermine this target as this would not increase the threats from invasive species.

[1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

According to the SSCO (NPWS, 2017), Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) for this SAC has been mapped in detail and thus total area of the qualifying habitat is 49.37 ha as per the Natura 2000 Data Form. This may, however, be an underestimate as further unsurveyed areas may be present within the SAC.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Bad' with an overall deteriorating trend.

Taking a precautionary approach, there is potential for Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) downstream of the Site to be subject to a deterioration in water quality as a result of the Proposed Project.

The targets and attributes for this QI, as per the SSCO of the SAC, are provided in Table 5-4.

Table 5-4 Targets and attributes associated with nominated site-specific conservation objectives for Atlantic salt meadows (*Glaucopuccinellietalia maritimae*) in Inagh River Estuary SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No, deterioration of water quality will not undermine this target as it will not affect habitat area.
Habitat distribution	No decline or change in habitat distribution, subject to natural processes.	No, deterioration of water quality will not undermine this target as it will not affect habitat distribution.
Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	No, deterioration of water quality will not undermine this target as it will not affect sediment supply.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes including erosion and succession	No, deterioration of water quality will not undermine this target as it will not affect creeks and pans.
Physical structure: flooding regime	Maintain natural tidal regime	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation height	Maintain structural variation within sward	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of creeks vegetated.	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: typical species and sub-communities	Maintain range of subcommunities with typical species listed in McCorry and Ryle (2009)	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: negative indicator species – <i>Spartina anglica</i>	There is no record of common cordgrass (<i>Spartina anglica</i>) in the SAC and its establishment should be prevented	No, deterioration of water quality will not undermine this target as this would not increase the threats from invasive species.

[1410] Mediterranean salt meadows (*Juncetalia maritimi*)

According to the SSCO (NPWS, 2017), Mediterranean salt meadows (*Juncetalia maritimi*) for this SAC has been mapped in detail and thus total area of the qualifying habitat is 49.23 ha as per the Natura 2000 Data Form. This may, however, be an underestimate as further unsurveyed areas may be present within the SAC.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Inadequate' with an overall deteriorating trend.

Taking a precautionary approach, there is potential for Mediterranean salt meadows (*Juncetalia maritimi*) downstream of the Site to be subject to a deterioration in water quality as a result of the Proposed Project.

The targets and attributes for this QI, as per the SSCO of the SAC, are provided in Table 5-5.

Table 5-5 Targets and attributes associated with nominated site-specific conservation objectives for Mediterranean salt meadows (*Juncetalia maritimi*) in Inagh River Estuary SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Habitat area	Area stable or increasing, subject to natural processes including erosion and succession.	No, deterioration of water quality will not undermine this target
Habitat distribution	No decline or change in habitat distribution, subject to natural processes.	No, deterioration of water quality will not undermine this target
Physical structure: sediment supply	Maintain natural circulation of sediments and organic matter, without any physical obstructions	No, deterioration of water quality will not undermine this target
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes including erosion and succession	No, deterioration of water quality will not undermine this target
Physical structure: flooding regime	Maintain natural tidal regime	No, deterioration of water quality will not undermine this target
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation height	Maintain structural variation within sward	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation structure: vegetation cover	Maintain more than 90% of the area outside of creeks vegetated.	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.

Vegetation composition: typical species and sub-communities	Maintain range of subcommunities with typical species listed in McCorry and Ryle (2009)	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: negative indicator species – <i>Spartina anglica</i>	There is no record of common cordgrass (<i>Spartina anglica</i>) in the SAC and its establishment should be prevented	No, deterioration of water quality will not undermine this target as this would not increase the threats from invasive species.

5.1.2 Carrowmore Point to Spanish Point and Islands SAC (001021)

The potential for impacts on this SAC were identified in Table 4-1 in Section 4 above. The identified pathways for effect include the following:

- Deterioration of water quality via the indirect runoff or spillage of pollutants during the construction, operational, and decommissioning phases of the Proposed Project, due to the Site being hydrologically connected to this SAC.
- Indirect effects due to the spread of the invasive species, Rhododendron, as a result of the Proposed Project.

The Site-Specific Conservation Objectives (SSCOs) document and Natura 2000 Data Form for this designated site were reviewed during this assessment and can be found at the following online locations:

SSCOs: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001021.pdf
Accessed the 9th of February 2026

Natura 2000 Data Form:
<https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0001021&release=62> Accessed the 9th of February 2026

Table 5-1 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

Table 5-6 Assessment of Qualifying features potentially affected for Carrowmore Point to Spanish Point and Islands SAC.

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2014)	Rationale	Potential for Adverse Effects Yes/No
[1150] Coastal lagoons	To restore the favourable conservation condition of Coastal lagoons in Carrowmore Point to Spanish Point and Islands SAC.	According to Map 3 in the SSCO for this SAC, these QI habitats are located approx. 17.5km and 7km, respectively, downstream of the Proposed Project. Several mapped watercourses which drain the Site have direct downstream connectivity to this SAC and these QI habitats. Therefore, a potential pathway for adverse effects on these QIs was identified via the deterioration of water quality within the SAC arising from the potential runoff of pollutants into surface water systems during the construction, operational, and decommissioning phases of the Proposed Project.	Yes
[1170] Reefs	To maintain the favourable conservation condition of Reefs in Carrowmore Point to Spanish Point and Islands SAC.	Given the coastal and saline nature of these habitats, there is no potential for recorded invasive species (Rhododendron, which is entirely terrestrial) to establish within these habitats, as a result of the Proposed Project. A complete source-pathway-receptor chain for adverse effects on this habitat was identified, and it is assessed further in this NIS.	Yes
[1220] Perennial vegetation of stony banks	To maintain the favourable conservation condition of Perennial vegetation of stony banks in Carrowmore Point to Spanish Point and Islands SAC.	According to Map 6 in the SSCO for this SAC, this QI habitat is located approximately 8.5km southwest from the Proposed Project. Given the intervening distance, terrestrial nature, and absence of direct hydrological connectivity between the Proposed Project and this QI habitat, there is no potential for adverse effects on this QI habitat and it will not be considered further in this NIS. No complete source- pathway- receptor chain for adverse effects on these habitats as a result of the Proposed Project was identified. No further assessment is required.	No
[7220] Petrifying springs with tufa formation (<i>Cratoneurion</i>)	To maintain the favourable conservation condition of Petrifying springs with tufa formation (<i>Cratoneurion</i>) in Carrowmore Point to Spanish Point and Islands SAC.	According to Map 6 in the SSCO for this SAC, this QI habitat is located approx. 6.6km downstream of the Proposed Project. The Ballynew Order 2 stream which drains the western portion of the Proposed Wind Farm Site has direct downstream connectivity to this SAC and this QI habitat. Therefore, a potential pathway for adverse effect on this QI was identified via the deterioration of water quality within the SAC arising from the potential runoff or	Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, April 2014)	Rationale	Potential for Adverse Effects Yes/No
		percolation of pollutants into surface water and groundwater systems during the construction, operational, and decommissioning phases of the Proposed Project. A complete source-pathway-receptor chain for adverse effects on this habitat was identified, and it is assessed further in this NIS.	

5.1.2.1 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on Carrowmore Point to Spanish Point SAC were reviewed and considered in relation to the Proposed Project. These are provided in Table 5-7.

Table 5-7 Site specific threats, pressures, and activities for Carrowmore Point to Spanish Point and Islands SAC.

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
Medium	A04	Grazing	Inside
High	J02.12.01	Sea defence or coast protection works, tidal barrages	Inside
Medium	A04	Grazing	Outside
Medium	K01.02	Silting up	Inside
Medium	G01.01	Nautical sports	Inside
High	G01.02	Walking, horse-riding and non-motorised vehicles	Inside
Medium	F06	Hunting, fishing or collecting activities not referred to above	Inside
Medium	A08	Fertilisation	Inside
Medium	F02.03	Leisure fishing	Inside
Medium	A08	Fertilisation	Outside
Medium	C01.01	Sand and gravel extraction	Inside

As potential impacts on water quality within this European Site has been identified, the Proposed Project, in the absence of mitigation, can potentially contribute to the existing threats and pressures of this SAC.

5.1.2.2 Relevant Special Conservation Interests

[1150] Coastal Lagoons

According to the SSCO (NPWS, 2014), Coastal lagoons for this SAC has been mapped in detail and thus total area of the qualifying habitat is 12.5ha, as per the Natura 2000 Data Form.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Bad' with a deteriorating trend.

There is potential for coastal lagoons downstream of the Site to be subject to a deterioration in water quality via the indirect runoff or spillage of pollutants during the construction, operational, and decommissioning phases of the Proposed Project.

The targets and attributes for this QI, as per the SSCO of the SAC, are provided in Table 5-8.

Table 5-8 Targets and attributes associated with nominated site-specific conservation objectives for Coastal Lagoons in Carrowmore Point to Spanish Point and Islands SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Habitat area	Area stable, or increasing, subject to natural processes. Favourable reference area 12.5ha.	No, deterioration of water quality will not undermine this target as it will not affect habitat area.

Habitat distribution	No decline, subject to natural processes.	No, deterioration of water quality will not undermine this target as it will not affect habitat distribution.
Salinity regime	Median annual salinity and temporal variation within natural ranges	No, the Proposed Project will not undermine this target as it will not impact on the salinity regime.
Hydrological regime	Annual water level fluctuations and minima within natural ranges	No, the Proposed Project will not undermine this target as it will not impact the hydrological regime.
Barrier: connectivity between lagoon and sea	Appropriate hydrological connections between lagoon and sea, including where necessary, appropriate management	No, the Proposed Project will not undermine this target as it will not result in any barrier to connectivity.
Water quality: Chlorophyll <i>a</i>	Annual median chlorophyll <i>a</i> within natural range and less than 5µg/L	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Water quality: Molybdate Reactive Phosphorus (MRP)	Annual median MRP within natural range and less than 0.1mg/L	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Water quality: Dissolved Inorganic Nitrogen (DIN)	Annual median DIN within natural range and less than 0.15mg/L	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Depth of macrophyte colonisation	Macrophyte colonisation to maximum depth of lagoon	Yes – Deterioration of water quality or substrate as a result of silt-laden run-off and other pollutants could alter the successful colonisation of macrophytes.
Typical plant species	Maintain number and extent of listed lagoonal specialists, subject to natural variation	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Typical animal species	Maintain listed lagoon specialists, subject to natural variation	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Negative indicator species	Negative indicator species absent or under control	No, deterioration of water quality will not undermine this target as this would not increase the threats from invasive species.

[1170] Reefs

According to the SSCO (NPWS, 2014), reefs for this SAC have been mapped in detail and thus total area of the qualifying habitat is 2,829.46ha, as per the Natura 2000 Data Form.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Bad'. The change in status from Inadequate in 2019 is mainly attributed to more accurate data becoming available.

There is potential for reefs downstream of the Site to be subject to a deterioration in water quality via the indirect runoff or spillage of pollutants during the construction, operational, and decommissioning phases of the Proposed Project.

The targets and attributes for this QI, as per the SSCO of the SAC, are provided in Table 5-9.

Table 5-9 Targets and attributes associated with nominated site-specific conservation objectives for Reefs in Carrowmore Point to Spanish Point and Islands SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes	No, deterioration of water quality will not undermine this target as it will not affect habitat area.
Distribution	The distribution of reefs remains stable, subject to natural processes.	No, deterioration of water quality will not undermine this target as it will not affect habitat distribution.
Community structure	Conserve the following community types in a natural condition: Intertidal reef community complex; <i>Laminaria</i> -dominated community complex.	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.

[7220] Petrifying springs with tufa formation

According to the SSCO (NPWS, 2014), Petrifying springs with tufa formation for this SAC has been mapped in detail and thus total area of the qualifying habitat is 42.38ha, as per the Natura 2000 Data Form.

According to the Article 17 Report (NPWS, 2025), the overall Conservation Status for this QI habitat is 'Inadequate' as in 2019 (NPWS, 2019), but the overall trend is now reported as stable rather than deteriorating due to more accurate data.

There is potential for Petrifying springs with tufa formation downstream of the Site to be subject to a deterioration in water quality via the indirect runoff or spillage of pollutants during the construction, operational, and decommissioning phases of the Proposed Project.

The targets and attributes for this QI, as per the SSCO of the SAC, are provided in Table 5-10.

Table 5-10 Targets and attributes associated with nominated site-specific conservation objectives for Petrifying springs with tufa formation (Cratoneurion) in Carrowmore Point to Spanish Point and Islands SAC.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
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Habitat area	Area stable or increasing, subject to natural processes and not less than c.1100m ²	No, deterioration of water quality will not undermine this target as it will not affect habitat area.
Habitat distribution	No decline.	No, deterioration of water quality will not undermine this target as it will not affect habitat distribution.
Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	No, deterioration of water quality will not undermine this target as it will not affect the height of the water table or water flow.
Water quality	Maintain oligotrophic and calcareous conditions	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.
Vegetation composition: typical species	Maintain typical species	Yes – Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.

5.1.3 Mid-Clare Coast SPA (004182)

The potential for impacts on this SPA was identified in Section 4.1 above. The identified pathways for effect consist of the following:

- There is potential for the deterioration of water quality within the SPA, arising from the runoff or percolation of pollutants into surface or ground water systems from the construction, operational, and decommissioning phases of the Proposed Project.
- Given the Proposed Project is within the core foraging range for SCIs of the SPA, there is potential for habitat loss and disturbance/displacement to SCIs of the SPA.
- Indirect effects due to the spread of invasive species due to *Rhododendron* being recorded, as a result of the Proposed Project.
- Potential collision risk to SCIs of this SPA, as the Proposed Wind Farm Site is within the core foraging range of one SCI, barnacle goose.

The Site-Specific Conservation Objectives (SSCOs) document and Natura 2000 Data Form for this designated site were reviewed during this assessment and can be found at the following online locations:

SSCOs: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004182.pdf
Accessed the 10th of February 2026.

Natura 2000 Data Form:
<https://natura2000.eea.europa.eu/Natura2000/sdf/#/sdf?site=IE0004182&release=55> Accessed the 10th of February 2026.

Table 5-11 below lists the qualifying features of this European Site and determines, in the light of their Conservation Objectives, whether there is any complete source-pathway-receptor chain, by which adverse effects may occur.

Table 5-11 Assessment of Qualifying features potentially affected for Mid-Clare Coast SPA.

Qualifying feature	Conservation Objective (NPWS, Version 1, September 2014)	Rationale	Potential for Adverse Effects Yes/No
[A017] Cormorant (<i>Phalacrocorax carbo</i>)	To maintain the favourable conservation condition of Cormorant in Mid-Clare Coast SPA.	No significant supporting wetland habitat for any SCI of the SPA was recorded within or adjacent to the Site, nor were significant recordings of any SCI of this SPA within the Site. Therefore, no potential for adverse effects exists, as a result of disturbance/displacement, on these SCIs.	Yes
[A045] Barnacle Goose (<i>Branta leucopsis</i>)	To maintain the favourable conservation condition of Barnacle Goose in Mid-Clare Coast SPA.	However, the Site is hydrologically connected to the SPA and taking a precautionary approach, it was considered that the Proposed Project has the potential to undermine the favourable conservation status of the SCI species through a deterioration of water quality during the construction, operational, and decommissioning phases of the Proposed Project. A deterioration of water quality has the potential to result in habitat degradation and reduced prey availability which could have overall implications for maintaining favourable conversation status for these SCI species. Therefore, a complete source-pathway-receptor chain for adverse effects on the SCIs of the SPA was identified, and it is assessed further in this NIS. Regarding barnacle goose and the potential pathway for likely significant effect as a result of collision risk, this species was not recorded within the Proposed Wind Farm Site during the dedicated bird surveys undertaken. Whilst the Proposed Wind Farm Site is within the foraging range of this species, the Site is dominated by upland peatland habitats which do not provide significant foraging habitat for this species. Therefore, there is no potential for adverse effects on this SCI, as result of collision risk, disturbance/displacement, or habitat loss. A collision Risk Model (CRM) has been prepared for Chapter 7: Ornithology of the accompanying EIAR and has been included as Appendix 9 of this report.	Yes
[A137] Ringed Plover (<i>Charadrius hiaticula</i>)	To maintain the favourable conservation condition of Ringed Plover in Mid-Clare Coast SPA.		Yes
[A144] Sanderling (<i>Calidris alba</i>)	To maintain the favourable conservation condition of Sanderling in Mid-Clare Coast SPA.		Yes
[A148] Purple Sandpiper (<i>Calidris maritima</i>)	To maintain the favourable conservation condition of Purple Sandpiper in Mid-Clare Coast SPA.		Yes
[A149] Dunlin (<i>Calidris alpina alpina</i>)	To maintain the favourable conservation condition of Dunlin in Mid-Clare Coast SPA.		Yes
[A169] Turnstone (<i>Arenaria interpres</i>)	To maintain the favourable conservation condition of Turnstone in Mid-Clare Coast SPA.		Yes

Qualifying feature	Conservation Objective (NPWS, Version 1, September 2014)	Rationale	Potential for Adverse Effects Yes/No
[A999] Wetlands	To maintain the favourable conservation condition of the wetland habitat in Mid-Clare Coast SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	Following the precautionary principle, a potential pathway for significant indirect effect on supporting habitats for the SCIs of the SPA was identified via the deterioration of water quality within the SPA, arising from the runoff or percolation of pollutants into surface water during the construction, operational, and decommissioning phases of the Proposed Project. Therefore, a complete source-pathway-receptor chain for adverse effects on supporting wetland habitat for the SCIs of the SPA was identified and it is assessed further in this NIS. Given the coastal and saline nature of this SCI, there is no potential for the recorded invasive species (Rhododendron which is entirely terrestrial) to establish within this habitat, as a result of the Proposed Project.	Yes

5.1.3.1 Site Specific Pressures and Threats

As per the Natura 2000 Data Form, the site-specific threats, pressures, and activities with potential to impact on Mid-Clare Coast SPA were reviewed and considered in relation to the Proposed Project. These are provided in Table 5-12.

Table 5-12 Site specific threats, pressures, and activities for Mid-Clare Coast SPA.

Negative Impacts			
Rank	Threats and Pressures		Inside/Outside
Medium	G01.01	Nautical Sports	Inside
Medium	G01.02	Walking, horseriding and non motorised vehicles	Inside
Medium	A04	Grazing	Outside
Medium	F02.03	Leisure fishing	Inside
Medium	A04	Grazing	Inside

No works associated with any phase of the Proposed Project have the potential to contribute to the above listed threats

5.1.3.2 Relevant Special Conservation Interests

[A017] Cormorant (*Phalacrocorax carbo*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during the breeding season the site regularly supports 1% or more of the all-Ireland population of Cormorant. The peak number of this species recorded in 1990 was 60 breeding pairs.

According to the Article 12 Report (NPWS 2019), the long-term population trend (1987-2012) is increasing for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-13.

Table 5-13 Targets and attributes associated with nominated site-specific conservation objectives for cormorant in Mid-Clare Coast SPA

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Breeding population abundance: apparently occupied nests (AONs)	No significant decline	No, changes to breeding site abundance as a result of the Proposed Project will not occur.
Productivity rate	No significant decline	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other

		pollutants could undermine this target.
Distribution: breeding colonies	No significant decline	No, disturbance on breeding colonies as a result of the Proposed Project will not occur.
Prey biomass available	No significant decline	Yes - deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Barriers to connectivity	No significant decline	No, no barriers to connectivity as a result of the Proposed Project will not occur.
Disturbance at the breeding site	Human activities should occur at levels that do not adversely affect the breeding cormorant population	No, disturbance as a result of the Proposed Project will not occur.

[A045] Barnacle Goose (*Branta leucopsis*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the all-Ireland population of Barnacle Goose (*Branta leucopsis*). The mean peak number of this Annex I species within the SPA during the baseline period (1993-2003) was 250 individuals. The most recent census on barnacle goose was on the 26th of March 2013 when a total of 450 individuals were recorded (Mitchell & Hall, 2013). The flyway population of Greenland Barnacle Goose that winters in Britain and Ireland has been increasing. The last reported census in 2013 estimated the total wintering population in Britain and Ireland to be 80,670 birds, representing a 14.4% increase on the 2008 census total (Mitchell & Hall, 2013). The numbers counted in Ireland (17,500) also represented a 43% increase on the number counted in the 2008 census (Crowe et al. 2014). The estimated site population trend for Mid- Clare Coast is therefore in line with the overall population increase. Most of the population of Greenland Barnacle Goose winter in just a few sites, typically coastal grazed saltmarshes and pastures as well as more intensively managed grasslands on Islay. This species is well adapted for feeding on short coastal turf, including saltmarshes, and machair, but have become more dependent on intensively managed grasslands, and will also take clover, and spilled grain amongst stubble (Ogilvie et al. 1999).

According to the Article 12 Report (NPWS 2019), the long-term population trend (1983-2008) is increasing for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-14.

Table 5-14 Targets and attributes associated with nominated site-specific conservation objectives for barnacle goose in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other

		pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by barnacle goose other than that occurring from natural patterns of variation	Yes - Habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A137] Ringed Plover (*Charadrius hiaticula*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the all-Ireland population of Ringed Plover (*Charadrius hiaticula*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 316 individuals. The estimated site trend should be treated with some caution given that the national trend for this wader species is showing an increase; while the all-Ireland trend is stable. Other west coast sites (e.g. Blacksod/Broadhaven Bays and Inner Galway Bay) show no apparent declines based on I-WeBS peak data (Boland & Crowe, 2012). Increasing numbers in Ireland however contrasts with Northern Ireland and Britain, both of which have seen a long-term decline in numbers.

According to the Article 12 Report (NPWS 2019), the long-term population trend (1999-2011) is unknown for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-15 5-15.

Table 5-15 Targets and attributes associated with nominated site-specific conservation objectives for ringed plover in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by ringed plover other than that occurring from natural patterns of variation	Yes - Habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A144] Sanderling (*Calidris alba*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the all-Ireland population of Sanderling (*Calidris alba*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 272 individuals. The estimated site trend should be treated with some caution given that the national and all-Ireland trends for this wader species are for increasing numbers. Numbers in Britain have also increased over the long-term.

According to the Article 12 Report (NPWS 2019), the long-term population trend (1987-2011) is increasing for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-16.

Table 5-16 Targets and attributes associated with nominated site-specific conservation objectives for sanderling in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by sanderling other than that occurring from natural patterns of variation	Yes - Habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A148] Purple Sandpiper (*Calidris maritima*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the biogeographic population of Purple Sandpiper (*Calidris maritima*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 393 individuals. Long-term I-WeBS data suggests a stable national population while the all-Ireland trend is for decline. Mid-Clare Coast is the main wintering site for this species in Ireland. Incomplete coverage and missing data from I-WeBS means that population size and trend for this site is inadequate. However, of note is that the recent peak count from the co-ordinated 2010/11 Waterbird Survey Programme is less than half of the baseline mean peak number recorded at the site which suggests a real decline in numbers. Further census work at key sites is essential to understand population trends and movements (Boland & Crowe, 2012).

According to the Article 12 Report (NPWS 2019), the long-term population trend (1987-2011) is decreasing for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-17.

Table 5-17 Targets and attributes associated with nominated site-specific conservation objectives for purple sandpiper in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by purple sandpiper other than that occurring from natural patterns of variation	Yes - Habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A149] Dunlin (*Calidris alpina alpina*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the all-Ireland population of Dunlin (*Calidris alpina*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 2,708 individuals. The estimated site trend for Dunlin is in line with the national and all-Ireland trends for decline and a similar downward trend has been observed in Britain and Northern Ireland.

According to the Article 12 Report (NPWS 2019), the long-term population trend (1987-2011) is decreasing for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-18.

Table 5-18 Targets and attributes associated with nominated site-specific conservation objectives for dunlin in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - Deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by dunlin other than that occurring from natural patterns of variation	Yes - Habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A169] Turnstone (*Arenaria interpres*)

As per the conservation objectives supporting document for the SPA (NPWS, 2014), during winter the site regularly supports 1% or more of the all-Ireland population of Turnstone (*Arenaria interpres*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 571 individuals. Numbers of Turnstone in the Republic of Ireland have been showing an increase since the early 2000's. This contrasts markedly with Britain and Northern Ireland where a decline in numbers has been evident for some time.

According to the Article 12 Report (NPWS 2019), the long-term population trend (1987-2011) is unknown for this SCI species.

Taking a precautionary approach there is potential for the deterioration of foraging aquatic habitat for this species within the SPA to occur downstream of the Site resulting in potential for adverse effects on this species via a deterioration in water quality.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-19.

Table 5-19 Targets and attributes associated with nominated site-specific conservation objectives for turnstone in Mid-Clare Coast SPA.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Population trend	Long term population trend stable or increasing	Yes - deterioration in water quality and habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.
Distribution	No significant decrease in the range, timing or intensity of use of areas by turnstone other than that occurring from natural patterns of variation	Yes - habitat degradation as a result of silt-laden run-off and other pollutants could undermine this target.

[A999] Wetlands

According to the site-specific conservation objectives the extent of wetland habitat within the SPA was estimated as 4,641ha, using OSi data and relevant orthophotographs (NPWS, 2014). The following relevant extracts have been gleaned from the NPWS site synopsis and Natura 2000 Data Form for the SPA:

‘The Mid-Clare Coast SPA site extends along the Co. Clare coastline in a south-southwesterly direction from Spanish Point (3km west of Milltown Malbay) to just west of Doonbeg Bay, a distance of some 14km. It comprises the mainland shoreline, Mutton Island and Mattle Island, a series of rocky reefs and the open marine water of Mal Bay between the islands and the mainland.

The Mid-Clare Coast SPA is of high ornithological importance and supports an internationally important population of Purple Sandpiper, and nationally important populations of wintering Barnacle Goose and four wader species.’

Taking a precautionary approach there is potential for the deterioration of this supporting habitat for species within the SPA resulting in potential for adverse effects.

The targets and attributes for this SCI, as per the SSCOs of the SPA, are provided in Table 5-20.

Table 5-20 Targets and attributes associated with nominated site-specific conservation objectives for wetlands and waterbirds.

Attribute	Target	Potential for Proposed Project to Undermine Conservation Objective Target
Wetland habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,641 hectares, other than that occurring from natural patterns of variation	Yes - Deterioration of water quality as a result of silt-laden run-off and other pollutants could undermine this target.

6. ASSESSMENT OF POTENTIAL EFFECTS & ASSOCIATED MITIGATION

This section of the NIS assesses the potential effects of the Proposed Project on the identified relevant Qualifying Interests/Special Conservation Interests. This assessment is undertaken in the absence of any mitigation and in respect of the conservation objectives of the European Site/s. The Conservation Objectives each of the European Sites assessed were reviewed on the 10th of February 2026. The Conservation Objectives for these sites are available at the following locations:

- Inagh River Estuary SAC (000036)
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000036.pdf
- Carrowmore Point to Spanish Point and Islands SAC (001021)
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001021.pdf
- Mid-Clare Coast SPA (004182)
https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004182.pdf

6.1 Potential for Direct Effects on European Sites

There will be no direct effects on the Qualifying Interests (QIs) or on the Special Conservation Interests (SCIs) of any of the above European Sites, as a result of habitat loss/degradation, the *ex-situ* disturbance/displacement of QIs/SCIs, or collision risk as a result of the construction, operational, or decommissioning phases of the Proposed Project.

6.2 Potential for Indirect Effects on the European Sites

6.2.1 Deterioration of Water Quality

The construction of 5 no. new watercourse crossings and 1 no. upgrade of existing (clear span bridge design proposed for both locations) will be required to facilitate the Proposed Wind Farm Site development infrastructure.

The proposed 33kV underground cabling passes through 3 no. local catchments (i.e., Kildeema River, Annagh River and Inagh River catchments). There are a total of 15 no. watercourse and culvert crossings along the proposed 33kV underground cabling, of which 4 no. are EPA mapped watercourses with the remaining 9 no. being drains.

Whilst no instream works are proposed as part of the Proposed Project, taking a precautionary approach, the proposed works have the potential to cause deterioration in surface water quality during the construction, operational and decommissioning phases of the Proposed Project due to the potential release of pollutants, including suspended solids and hydrocarbons, which, in the absence of mitigation could potentially affect downstream aquatic habitats and supporting faunal wetland habitat of the following QIs/SCIs:

Inagh River Estuary SAC (000036)

- [1310] Salicornia and other annuals colonising mud and sand
- [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- [1410] Mediterranean salt meadows (*Juncetalia maritimi*)

Carrowmore Point to Spanish Point and Islands SAC (001021)

- [1150] Coastal Lagoons
- [1170] Reefs
- [7220] Petrifying springs with tufa formation (*Cratoneurion*)

Mid-Clare Coast SPA (004182)

- [A017] Cormorant (*Phalacrocorax carbo*)
- [A045] Barnacle Goose (*Branta leucopsis*)
- [A137] Ringed Plover (*Charadrius hiaticula*)
- [A144] Sanderling (*Calidris alba*)
- [A148] Purple Sandpiper (*Calidris maritima*)
- [A149] Dunlin (*Calidris alpina alpina*)
- [A169] Turnstone (*Arenaria interpres*)
- [A999] Wetlands

Mitigation by Design

The project design has followed the basic principles outlined below to eliminate the potential for adverse effects on QI and SCI receptors:

- Sensitive hydrological features have, and will be, avoided where possible, by application of suitable buffer zones (i.e. 50m for on-site streams and rivers). Apart from the 5 no. proposed new watercourse crossing locations, 1 no. existing natural crossing upgrades, sections of proposed access roads and sections of existing roads for upgrading, the Proposed Wind Farm Site infrastructure is located outside the delineated 50m buffer zones.

6.2.1.2 Construction Phase Mitigation

The construction phase of the Proposed Project will involve, clear-felling, excavations and earth moving and creation/upgrading of watercourse crossings, which create the potential for pollution in various forms, i.e. the generation of suspended solids and the potential for spillage of fuels associated with the refuelling of excavation machinery.

Surface and groundwater flowpaths as pathways for effect on the screened in European Sites, via deterioration of water quality.

Chapter 9 of the accompanying EIAR prescribes detailed mitigation measures to be implemented to ensure that no impacts on any hydrological receptor occurs during the construction phase of the Proposed Project. Those pertinent to mitigating adverse effects on European Sites are highlighted below:

Potential Effects from Clear Felling of Coniferous Plantation

Proposed Mitigation Measures

All felling operations will conform to current best practice Forest Service regulations, policies and strategic guidance documents as well as Coillte and DAFM guidance documents, including the specific guidelines listed below, to ensure that felling, planting and other forestry operations result in minimal potential negative effects to the receiving environment.

- Forestry Standards Manual (Forest Service, 2015);
- Forest Protection Guidelines (Forest Service, 2002);
- Forest Operations and Water Protection Guidelines (Coillte, 2013);

- Forestry and Water Quality Guidelines (Forest Service, 2000b);
- Forests and Water, Achieving Objectives under Ireland's River Basin Management Plan 2018-2021 (DAFM, 2018);
- Coillte Planting Guideline SOP;
- A Guide to Forest Tree Species Selection and Silviculture in Ireland (Horgan et al., 2003);
- Management Guidelines for Ireland's Native Woodlands. Jointly published by the National Parks & Wildlife Service (Cross and Collins, 2017);
- Native Woodland Scheme Framework (Forest Service, 2018); and,
- Code of Best Forest Practice (Forest Service, 2000)

Mitigation by Avoidance

There is a requirement in the Forest Service Code of Practice and in the FSC Certification Standard for the installation of buffer zones adjacent to aquatic zones at planting stage. Minimum buffer zone widths recommended in the Forest Service (2000) guidance document *"Forestry and Water Quality Guidelines"* are shown in Table 6-1.

Table 6-1 : Minimum Buffer Zone Widths (Forest Service, 2000)

Average slope leading to the aquatic zone		Buffer zone width on either side of the aquatic zone	Buffer zone width for highly erodible soils
Moderate	(0 – 15%)	10 m	15 m
Steep	(15 – 30%)	15 m	20 m
Very steep	(>30%)	20 m	25 m

During the wind turbine construction phase a self-imposed buffer zone of 50 metres will be maintained for all streams where possible. With the exception of existing road upgrades and proposed watercourse crossings all proposed tree felling areas are located outside of imposed buffer zones. Additional mitigation (detailed below) will be carried out where tree felling is required inside the buffer zones.

The large distance between most of the proposed felling areas and sensitive aquatic zones means that potential poor quality (sediment laden) runoff from felling areas will be adequately managed and attenuated prior to even reaching the aquatic buffer zone and primary drainage routes. Where tree felling is required within the 50m buffer, the following additional mitigation measures will be employed.

Mitigation by Design:

Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows:

- Machine combinations (i.e., handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance;
- Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicles through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing points. Where possible, existing drains will not be disturbed during felling works;
- Ditches which drain from the proposed area to be felled towards existing surface watercourses will be blocked, and temporary silt traps will be constructed. No direct discharge of such ditches to watercourses will occur. Drains and sediment traps will be installed during ground preparation. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains

- will include water drops and rock armour, as required, where there are steep gradients, and will avoid being placed at right angles to the contour;
- Sediment traps will be sited in drains downstream of felling areas. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of in the peat disposal areas. Where possible, all new silt traps will be constructed on even ground and not on sloping ground;
 - In areas particularly sensitive to erosion or where felling inside the 50 metre buffer is required, it will be necessary to install double or triple sediment traps;
 - All drainage channels will taper out before entering the 50m buffer zone. This ensures that discharged water gently fans out over the buffer zone before entering the aquatic zone, with sediment filtered out from the flow by ground vegetation within the zone. On erodible soils, silt traps will be installed at the end of the drainage channels, to the outside of the buffer zone;
 - Drains and silt traps will be maintained throughout all felling works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled;
 - Brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there is risk of severe erosion occurring, extraction will be suspended during periods of high rainfall;
 - Timber will be stacked in dry areas, and outside a local 50 metre watercourse buffer. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites;
 - Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water run-off;
 - Checking and maintenance of roads and culverts will be on-going through the felling operation;
 - Refuelling or maintenance of machinery will not occur within 100m of a watercourse. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required;
 - A permit to refuel system will be adopted;
 - Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors;
 - Crossing of streams will not be permitted;
 - Trees will be cut manually from along streams and using machinery to extract whole tree; and,
 - Travel only perpendicular to and away from stream.

Silt Traps:

Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner.

Drain Inspection and Maintenance:

The following items shall be carried out during pre-felling inspections and after:

- Communication with tree felling operatives in advance to determine whether any areas have been reported where there is unusual water logging or bogging of machines;
- Inspection of all areas reported as having unusual ground conditions;
- Inspection of main drainage ditches and outfalls. During pre-felling inspections the main drainage ditches shall be identified. Ideally the pre-felling inspection shall be carried out during rainfall;
- Following tree felling all main drains shall be inspected to ensure that they are functioning;

- Extraction tracks near drains need to be broken up and diversion channels created to ensure that water in the tracks spreads out over the adjoining ground;
- Culverts on drains exiting the site will be unblocked; and,
- All accumulated silt will be removed from drains and culverts, and silt traps, and this removed material will be deposited away from watercourses to ensure that it will not be carried back into the trap or stream during subsequent rainfall.

Surface Water Quality Monitoring:

Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The ‘before’ sampling will be conducted within 4 weeks of the felling activity commencing, preferably in medium to high water flow conditions. The “during” sampling will be undertaken once a week or after rainfall events. The ‘after’ sampling will comprise as many samplings as necessary to demonstrate that water quality has returned to pre-activity status (i.e., where an impact has been shown).

Criteria for the selection of water sampling points include the following:

- Avoid man-made ditches and drains, or watercourses that do not have year-round flows, i.e. avoid ephemeral ditches, drains or watercourses;
- Select sampling points upstream and downstream of the forestry activities;
- It is advantageous if the upstream location is outside/above the forest in order to evaluate the impact of land-uses other than forestry;
- Where possible, downstream locations will be selected: one immediately below the forestry activity, the second at exit from the forest, and the third some distance from the second (this allows demonstration of no impact through dilution effect or contamination by other land-uses where impact increases at third downstream location relative to second downstream location); and,
- The above sampling strategy will be undertaken for all on-site sub-catchments streams where tree felling is proposed.

Also, daily surface water monitoring forms will also be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.

Earthworks (Removal of Vegetation Cover, Excavations and Stock Piling) Resulting in suspended Solids Entrainment in Surface Waters

Mitigation by Avoidance

The key mitigation measure during the construction phase is the avoidance of sensitive aquatic areas where possible. All of the key areas of the Proposed Project are actually significantly away from the delineated buffer zones with the exception of sections of proposed upgrades to existing roads, proposed new roads, proposed stream crossings and existing stream crossings requiring upgrading. Additional control measures, which are outlined further on in this section, will be undertaken at these locations. The large setback distance from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures (discussed below) to be properly installed and operated effectively. The proposed buffer zone will:

- Avoid physical damage to watercourses, and associated release of sediment;
- Avoid excavations within close proximity to surface water courses;
- Avoid the entry of suspended sediment from earthworks into watercourses; and,
- Avoid the entry of suspended sediment from the construction phase drainage system into watercourses, achieved in part by ending drain discharge outside the buffer zone and allowing percolation across the vegetation of the buffer zone.

Mitigation by Design:

- Source controls:
 - Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sand bags, oyster bags filled with gravel, filter fabrics, and other similar/equivalent or appropriate systems.
 - Small working areas, covering stockpiles, weathering off stockpiles, cessation of works in certain areas or other similar/equivalent or appropriate measures.
- In-Line controls:
 - Interceptor drains, vee-drains, oversized swales, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps/attenuation lagoons, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems.
- Treatment systems:
 - Temporary sumps and attenuation ponds, temporary storage lagoons, sediment traps, and settlement ponds, and proprietary settlement systems such as Siltbuster, and/or other similar/equivalent or appropriate systems.

Please see **Appendix 7** for detailed drainage design drawings and mitigation measures. It should be noted that a network of bog, agricultural and roadside drains already exist at the Proposed Wind Farm Site, and these will be integrated and enhanced as required and used within the Proposed Wind Farm Site drainage system. The integration of the existing drainage network and the Proposed Wind Farm Site network is relatively simple. The key elements being the upgrading and improvements to water treatment elements, such as in line controls and treatment systems, including silt traps, stilling ponds and buffered outfalls.

The main elements of interaction with existing drains will be as follows:

- Apart from interceptor drains, which will convey clean runoff water to the downstream drainage system, there will be no direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the Proposed Project drainage into the existing site drainage network. This will reduce the potential for any increased risk of downstream flooding or sediment transport/erosion;
- Silt traps will be placed in the existing drains upstream of any streams where construction works / tree felling is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area;
- Runoff from individual turbine hardstanding areas will be not discharged into the existing drain network but discharged locally at each turbine location through stilling ponds and buffered outfalls onto vegetated surfaces;
- Buffered outfalls which will be numerous over the Site will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the Site; and,
- Drains running parallel to the existing roads requiring widening will be upgraded, widening will be targeted to the opposite side of the road. Velocity and silt control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works. Regular buffered outfalls will also be added to these drains to protect downstream surface waters.

Pre-commencement Temporary Drainage Works

Prior to the commencement of road upgrades (or new road/hardstand or turbine base installs) the following key temporary drainage measures will be installed:

- All existing dry forestry drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using forestry check dams/silt traps;
- Clean water diversion drains will be installed upgradient of the works areas;
- Check dams/silt fence arrangements (silt traps) will be placed in all existing forestry drains that have surface water flows and also along existing forestry roadside drains; and,
- A double silt fence perimeter will be placed down-slope of works areas that are located inside the watercourse 50m buffer zone.

Refer to the drainage plan (**Appendix 7**) for the location of these temporary measures.

Water Treatment Train

A final line of defence will be provided by a water treatment train such as a “Siltbuster”. If the discharge water from construction areas fail to be of a high quality during regular inspections, then a filtration treatment system (such as a ‘Siltbuster’ or similar equivalent treatment train (sequence of water treatment processes) will be used to filter and treat all surface discharge water collected in the dirty water drainage system. This will apply for all of the construction phase.

Silt Fences

Silt fences will be emplaced within drains down-gradient of all construction areas. Silt fences are effective at removing heavy settleable solids. This will act to prevent entry to water courses of sand and gravel sized sediment, released from excavation of mineral sub-soils of glacial and glacio-fluvial origin, and entrained in surface water runoff. Inspection and maintenance of these structures during construction phase is critical to their functioning to stated purpose. They will remain in place throughout the entire construction phase. Double silt fences will be placed within drains down-gradient of all construction areas inside the hydrological buffer zones.

Silt Bags

Silt bags will be used where small to medium volumes of water need to be pumped from excavations. As water is pumped through the bag, the majority of the sediment is retained by the geotextile fabric allowing filtered water to pass through. Silt bags will be used with natural vegetation filters or sedimats. Sediment entrapment mats, consisting of coir or jute matting, will be placed at the silt bag location to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to the ground surface using stakes/pegs. The sedimat will extend to the full width of the outfall to ensure all water passes through this additional treatment measure.

Settlement Ponds

The built infrastructure footprint of the Proposed Project has been divided into drainage catchments (based on topography, outfall locations, and catchment size) and stormwater runoff rates based on the 10-year return period rainfall event were calculated for various catchment areas in order to size the settlement ponds. The location and dimensions of proposed settlement ponds are shown on the Proposed Wind Farm Site drainage plan drawings (**Appendix 7**).

Level Spreaders and Vegetation Filters

Level spreaders and vegetation filters will be implemented at the settlement ponds. The purpose of level spreaders is to release treated drainage flow in a diffuse manner, and to prevent the concentration of flows at any one location thereby avoiding erosion. Level spreaders are not intended to be a primary treatment component for development surface water runoff. They are not stand-alone but occur as part of a treatment train of systems that will reduce the velocity of runoff prior to be released at the level spreader. In the absence of level spreaders, the potential for ground erosion is significantly greater than not using them.

Vegetation filters are essentially end-of-line polishing filters that are located at the end of the treatment train. In fact, vegetation filters are ultimately a positive consequence of not discharging directly into watercourses which is one of the mitigation components of the drainage philosophy. This makes use of the natural vegetation of the Site to provide a polishing filter for the Proposed Wind Farm Site drainage prior to reaching the downstream watercourses.

Again, vegetation filters are not intended to be a single or primary treatment component for treatment of works area runoff. They are not stand alone but are intended as part of a treatment train of water quality improvement/control systems (i.e. source controls→check dams→silt traps→settlement ponds→level spreaders →silt fences→vegetation filters).

Pre-emptive Site Drainage Management

The works programme for the entire construction stage of the development will also take account of weather forecasts, and predicted rainfall in particular. Large excavations and movements of peat/subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

The following forecasting systems are available and will be used on a daily basis at the Site to direct proposed construction activities:

- General Forecasts: Available on a national, regional and county level from the Met Eireann website (www.met.ie/forecasts). These provide general information on weather patterns including rainfall, wind speed and direction but do not provide any quantitative rainfall estimates;
- MeteoAlarm: Alerts to the possible occurrence of severe weather for the next 2 days. Less useful than general forecasts as only available on a provincial scale;
- 3-hour Rainfall Maps: Forecast quantitative rainfall amounts for the next 3 hours but does not account for possible heavy localised events;
- Rainfall Radar Images: Images covering the entire country are freely available from the Met Eireann website (www.met.ie/latest/rainfall_radar.asp). The images are a composite of radar data from Shannon and Dublin airports and give a picture of current rainfall extent and intensity. Images show a quantitative measure of recent rainfall. A 3-hour record is given and is updated every 15 minutes. Radar images are not predictive; and,
- Consultancy Service: Met Eireann provide a 24-hour telephone consultancy service. The forecaster will provide interpretation of weather data and give the best available forecast for the area of interest.

Using the safe threshold rainfall values will allow work to be safely controlled (from a water quality perspective) in the event of forecasting of an impending high rainfall intensity event.

Works will be suspended if forecasting suggests either of the following is likely to occur:

- >10 mm/hr (i.e., high intensity local rainfall events);
- >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or,
- >half monthly average rainfall in any 7 days.

Prior to works being suspended the following control measures will be completed:

- Secure all open excavations;
- Provide temporary or emergency drainage to prevent back-up of surface runoff; and,
- Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.

Management of Runoff from Peat and Subsoil Management Areas

It is proposed that excavated spoil and peat will be used for landscaping where required. The excess material will then be placed in 5 no. dedicated peat and spoil management areas as well as placement of peat in the 1 no. proposed borrow pit once the rock is fully extracted.

All proposed peat and spoil storage areas including borrow pits have been thoroughly assessed from a geotechnical and peat stability perspective.

All proposed 5 no. peat and spoil management areas, including the borrow pit are located outside of 50m watercourse buffer zones.

During the initial construction of repository/deposition areas, silt fences, straw bales and biodegradable geogrids will be used to control surface water runoff from works areas.

Where applicable, the vegetative top-soil layer of the peat and spoil management areas will be rolled back to facilitate placement of excavated spoil, following which the vegetative-top soils layer will be reinstated. Where reinstatement is not possible, spoil and peat management areas will be sealed with a digger bucket and seeded as soon possible to reduce sediment entrainment in runoff.

Drainage from peat and spoil storage areas will ultimately be routed to an oversized swale and a number of stilling ponds with appropriate storage and settlement designed for a 1 in 10-year return period before being discharged to the on-site drains.

Peat/subsoil reinstatement areas will be sealed with a digger bucket and vegetated as soon possible to reduce sediment entrainment in runoff. Once re-vegetated and stabilised peat/subsoil reinstatement areas will no longer be a potential source of silt laden runoff.

Therefore, at each stage of the peat and spoil management area development the above mitigation measures will be deployed to ensure protection of downstream water quality.

Timing of Site Construction Works

Construction of the site drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses. Construction of the drainage system during this period will also ensure that attenuation features associated with the drainage system will be in place and operational for all subsequent construction works.

Monitoring

An inspection and maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be undertaken, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water in parts of the systems where it is not intended. Inspections will also be undertaken after tree felling.

Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. Checks will be carried out on a daily basis.

During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for each primary watercourse and specifically following heavy rainfall events (as per the Construction and Environmental Management Plan (CEMP) included in **Appendix 6**).

Potential Effects from Excavation Dewatering and Potential Impacts on Surface Water Quality

Proposed Mitigation Measures

Management of groundwater seepages and subsequent treatment prior to discharge into the drainage network will be undertaken as follows:

- Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place;
- If required, pumping of excavation inflows will prevent build-up of water in the excavation;
- The interceptor drainage will be discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters;
- The pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit;
- There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur;
- Daily monitoring of excavations by a suitably qualified person will occur during the construction phase. If high levels of seepage inflow occur, excavation work will immediately be stopped and a geotechnical assessment undertaken; and,
- A mobile 'Siltbuster' or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites. They will be used as final line of defence if needed.

Potential Effects from the Potential Release from Hydrocarbons

Proposed Mitigation Measures

Mitigation measures proposed to avoid release of hydrocarbons at the Site are as follows:

- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station;
- On-site re-fuelling will be undertaken using a fuel truck with spill kits kept on site for accidental leakages or spillages;
- Only designated trained operatives will be authorised to refuel plant on-site;
- Taps, nozzles or valves associated with refuelling equipment will be fitted with a lock system;
- All fuel storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area;
- Fuels stored on-site will be minimised. All storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area;
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- The transformer within the proposed substation extension will be bunded appropriately to the volume of oils likely to be stored and to prevent leakage of any associated chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor;
- The plant used during construction will be regularly inspected for leaks and fitness for purpose; and,

- An emergency response plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan (CEMP) which is contained in **Appendix 6**.

Potential Effects from Groundwater and Surface Water contamination from wastewater Disposal

Proposed Mitigation Measures:

- It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. It is not proposed to treat wastewater on-site.

Potential Effects from the Release of Cement-Based Products

Proposed Mitigation Measures

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where possible pre-cast elements for culverts and concrete works will be used;
- Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds;
- Weather forecasting will be used to plan dry days for pouring concrete; and,
- The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event; and,
- At proposed turbine foundations, sand blinding, DPM, and lean-mix blinding are used to vertically contain the concrete. While the concrete is contained laterally by temporary/permanent shuttering. The concrete cures within 72hrs.

Potential Effects from Morphological Changes to Surface Water Courses & Drainage Patterns

Proposed Mitigation Measures

- Watercourse crossings will be bottomless or clear span structures and the existing banks will remain undisturbed. No in-stream excavation works are proposed and therefore there will be no direct impact on the stream at the proposed crossing location;
- Where the proposed cable route follows an existing road or road proposed for upgrade, the cable will pass over or below the culvert within the access road;
- All guidance / mitigation measures proposed by the OPW or the Inland Fisheries Ireland is incorporated into the design of the proposed crossings;
- As a further precaution, near stream construction work, will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works according to the Eastern Regional Fisheries Board (2004) guidance document “Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites”, i.e., May to September inclusive. This time period coincides with the period of lowest expected rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses (any deviation from this will be done in discussion with the IFI);
- During the near stream construction work double row silt fences will be emplaced immediately down-gradient of the construction area for the duration of the construction phase. There will be no batching or storage of cement allowed in the vicinity of the crossing construction areas;

- All new river/stream crossings will require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent; and,
- All crossings will be designed to accommodate a 100-year design flood with allowance for 300mm freeboard

The watercourse crossings will be constructed to the specifications of the OPW bridge design guidelines 'Construction, Replacement or Alteration of Bridges and Culverts - A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945', and in consultation with Inland Fisheries Ireland. Abutments will be constructed from precast units combined with in-situ foundations, placed within an acceptable backfill material.

Confirmatory inspections of the proposed new watercourse crossing location will be carried out by the Project Civil/Structural Engineer and the Project Hydrologist prior to the construction of the crossing.

In relation to the new proposed culverts and proposed culvert upgrades at forestry drain crossings, the culverts will be suitably sized (approx. 900mm) for the expected peak flows in the relevant drain. All culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. This will help dissipate its energy and help prevent problems of erosion. Smaller water crossings will simply consist of an appropriately sized pipe buried in the sub-base of the road at the necessary invert level to ensure ponding or pooling does not occur above or below the culvert and water can continue to flow as necessary.

Potential Effects from the use of Siltbuster

Mitigation Measures

Measures employed to prevent overdosing and potential chemical carryover:

- The siltbuster system comprises an electronic in-line dosing system which provides an accurate means of adding reagents, so overdosing cannot occur;
- Continued monitoring and water analysis of pre and post treated water by means of an inhouse lab and dedicated staff will be carried out, which means the correct amount of chemical is added by the dosing system;
- Dosing rates of chemical to initiate settlement is small, being in the order of 2-10 mg/L and the vast majority of the chemical is removed in the deposited sediment;
- Final effluent not meeting the discharge criteria is recycled and retreated, which has a secondary positive effect of reducing carryover; and,
- Use of biodegradable chemical will be used at very sensitive sites (i.e. upstream of SACs).

Potential Effects from Earthworks and Watercourse Crossings (Proposed Grid Connection Site)

Proposed Mitigation Measures

Pre-commencement Temporary Drainage Works:

Prior to the commencement of the cable trenching or crossing works the following key temporary drainage measures will be installed:

- All existing roadside drains (where present) that intercept the proposed works area will be temporarily blocked down-gradient of the works using check dams/silt traps;

- Culverts, manholes and other drainage inlets (where present) will also be temporarily blocked; and,
- A double silt fence perimeter will be placed along the road verge on the down-slope side of works areas that are located inside a watercourse 50m buffer zone.

The following mitigation measures will be implemented for the proposed 33kV underground cabling watercourse crossing works:

- No stock-piling of construction materials will take place along the grid route;
- No refuelling of machinery or overnight parking of machinery is permitted within 100m of a watercourse crossing;
- No concrete truck chute cleaning is permitted along the Proposed Grid Connection Site underground cabling route;
- Works will not take place at periods of high rainfall, and will be scaled back or suspended if heavy rain is forecast;
- Local road drainage, culverts and manholes will be temporarily blocked during the works;
- Machinery deliveries will be arranged using existing structures along the public road;
- All machinery operations will take place away from the stream and ditch banks, apart from where crossings occur. Although no instream works are proposed or will occur;
- Any excess construction material will be immediately removed from the area and sent to a licenced waste facility;
- Spill kits will be available in each item of plant required to complete the stream crossing; and,
- Silt fencing will be erected on ground sloping towards watercourses at the stream crossings if required.

Fracture Blow-out (Frac-out) Prevention and Contingency Plan for HDD:

- The drilling fluid/bentonite will be non-toxic and naturally biodegradable (i.e. Clear Bore Drilling Fluid or similar will be used);
- The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage;
- One or more lines of silt fencing will be placed between the works area and the adjacent river;
- Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility;
- Adequately sized skips will be used where temporary storage of arisings are required;
- The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse;
- This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur, then drilling will be immediately stopped;
- Any frac-out material will be contained and removed off-site;
- The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and,
- If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location.

Potential Effects from the Proposed Biodiversity Management and Enhancement Plan

Proposed Mitigation Measures:

All proposed habitat management and enhancement works will be in accordance with the best practice Forest Service regulation, policies and strategic guidance documents as well as Coillte, DAFM and NatureScot guidance documents to ensure minimal potential negative effects on the local peat, soil and subsoil environment. Refer also to above for tree felling mitigation.

Given the nature of the restoration measures the following mitigation measures are proposed:

- Before any works are completed silt fences will be installed to limit the movement of entrained sediment in surface water runoff;
- Proposed off-road routes will be walked in advance of any machinery;
- All machinery operators will be experienced;
- The proposed areas will be walked before a machine goes off-road;
- Bog mats will be used where the excavator is required to travel over wet ground;
- A low ground pressure excavator with wide tracks (1.9m or greater) will be used to reduce compaction of the peat and subsoils.; and,
- Standard tree felling water quality protection mitigation as presented will be employed.

6.2.1.2.2 **Residual adverse effects from Construction**

Following the successful implementation of the above listed mitigation measures, there will be no potential for significant residual adverse effects on water quality/habitat degradation of European Sites as a result of deterioration of water quality during the construction of the Proposed Project.

6.2.1.3 **Operational Phase Mitigation**

The following pathways for which deterioration of water quality may occur during the operational phase of the Proposed Project:

- Removal of Vegetation Cover and Progressive Replacement of Natural Surface with Low Permeability Surfaces
- Potential Effects from Runoff.

As discussed above, a potential pathway for adverse effects on European Sites, taking a precautionary approach, was identified due to downstream hydrological connectivity from the Site. Each of the above pathways are assessed below, with mitigation prescribed to ensure no significant impacts on water quality during operation. Full details on mitigations are detailed in the drainage drawings in **Appendix 7** and are summarised below.

Removal of Vegetation Cover and Progressive Replacement of Natural Surface with Low Permeability Surfaces

Proposed Mitigation by Design

The operational phase drainage system of the Proposed Project will be installed and constructed in conjunction with the road and hardstanding construction work as described below and as shown on the Drainage drawings submitted with this planning application:

- Interceptor drains will be maintained up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it will be re-distributed over the ground by means of a level spreader;
- Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the Site, likely to have entrained suspended sediment, and channel it to settlement ponds for sediment settling;
- On steep sections of access road transverse drains ('grips') will be constructed in the surface layer of the road to divert any runoff off the road into swales/road side drains;
- Check dams will be used along sections of access road drains to intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock;
- Settlement ponds, emplaced downstream of road swale sections and at turbine locations, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall,

- by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to watercourses; and,
- Settlement ponds will be designed in consideration of the greenfield runoff rate.

Potential Effects from Runoff

Proposed Mitigation Measures

The mitigation measures outlined in Sections 6.2.1.2 and 6.2.1.3 will ensure all surface water runoff from upgraded roads and new road surfaces (including hardstand and turbine base areas) will be captured and treated prior to discharge/release. Settlement ponds, checks dams and buffered outfalls will prevent roads acting as preferential flowpaths by providing attenuation and water quality treatment (refer to **Appendix 7**).

6.2.1.3.2 **Residual adverse effects from Operation**

Following the successful implementation of the above listed mitigation measures, there will be no potential for significant residual adverse effects on water quality/habitat degradation of European Sites as a result of deterioration of water quality during the operation of the Proposed Project.

6.2.1.4 **Decommissioning Phase Mitigation**

The only potential pathway for adverse effects on European Sites during construction was indirect effects as a result of a deterioration in water quality.

The potential impacts associated with decommissioning of the Proposed Project will be similar to those associated with construction but of a reduced magnitude, due to the reduced scale of the proposed decommissioning works in comparison to construction phase works.

The proposed decommissioning works include the following:

Proposed Wind Farm Site

As construction will be completed, elements of the project that will be developed as a temporary facilitator will either be removed, restored to its original condition, or will naturally revegetate; i.e., the temporary construction compounds. All access roads and hardstanding areas forming part of a site roadway network will be required by the ongoing farming operations and therefore will be left in situ for future use.

It is intended that decommissioning process will remove all the remaining elements i.e., above ground components and underground cabling from the Proposed Wind Farm Site, and reinstate areas where infrastructure is removed. The following elements will be decommissioned:

- Wind turbines and Met Mast: dismantling and removal off site;
- Turbine and Met Mast foundation: Turbine and met mast foundation covered with topsoil following dismantling and removal of wind turbines and met mast, with the underground reinforced concrete remaining in-situ;
- Internal Underground cabling: removal (ducting remaining).

Wind Turbines and Met Mast

Prior to any works being undertaken on wind turbines or the met mast, they will be disconnected from the grid by the site operator in conjunction with ESB Networks. The dismantling and removal of wind turbines and met mast of this scale is a specialist operation which will be undertaken by the turbine

supplier or competent subcontractor. Turbine dismantling will be undertaken in reverse order to methodology employed during their construction. Cranes will be brought back to the Proposed Wind Farm Site utilising the hardstand areas adjacent to each turbine. The dismantling of turbines and met mast will be bound by the same safety considerations as will be the case during construction in terms of weather conditions. Works will not be undertaken during adverse weather conditions and in particular not during high winds.

The turbines and met mast will be removed from the Proposed Wind Farm Site in a similar manner to how they will be transported to the Site originally in extended articulated trucks. The details of transport to and from the Proposed Wind Farm Site are assessed in Chapter 15.1 of the EIAR, which accompanies this application.

The transport of disassembled turbines from the Proposed Wind Farm Site will be undertaken in accordance with a Transport Management Plan (TMP). The TMP will be issued to and agreed with the planning authority at that time as part of a permit application for the delivery of abnormal loads using the local roads under the Road Traffic (Special Permits for Particular Vehicles) Regulations 2007. The TMP will provide for all necessary safety measures, including a convoy and Garda escort as required, off-peak turning/reversing movements and any necessary safety controls.

Turbine and Met Mast Foundations

On the dismantling of turbines and met mast, it is not intended to remove the concrete foundation from the ground. It is considered that its removal will be the least preferred options in terms of potential effects on the environment. Therefore, the foundations of the 9 no. turbines and met mast will be covered with soil material. If there is usable soil or overburden material on the Proposed Wind Farm Site after construction, this material will be used. Alternatively, where material is not readily available on site, soil will be sourced locally and imported to site on heavy good vehicles (HGVs). The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation enhanced by spreading of an appropriate seed mix to assist in revegetation and accelerate the resumption of the natural drainage management that will have existed prior to any construction.

Internal Underground Cabling and Proposed Grid Connection

The proposed 33kV underground cabling connecting the turbines to the proposed extension of the existing 110kV Slieveacurry substation will be removed from the cable ducts. The cabling will be pulled from the cable ducts using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at the original cable jointing pits which will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance. The cable materials will be transferred to a suitable recycling or recovery facility.

The proposed extension to the 110kV electricity substation will remain in place as it will be part of the Electricity Grid under the ownership and control of the ESB Networks and EirGrid.

Temporary Construction Compound

As construction will be completed, the proposed 2 no. temporary construction compounds that were developed as a temporary facilitator will either be removed and restored to its original condition or will naturally revegetate.

Mitigations

The mitigations detailed in the construction phase in Section 6.2.1.2 above will be applied during decommissioning. This will ensure that no adverse effects on any European Site will occur, as a result of deterioration of water quality.

6.2.1.4.2 **Residual adverse effects from Decommissioning**

Following the successful implementation of the above listed mitigation measures, there will be no potential for residual adverse effects on water quality/habitat degradation of European Sites as a result of deterioration of water quality during decommissioning of the Proposed Project.

6.2.2 **Invasive Species**

During field surveys, a search for Invasive Alien Species (IAS) listed under the ‘Third Schedule’ of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the ‘First Schedule’ of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. Rhododendron was recorded in the vicinity of built infrastructure footprint of the Proposed Project.

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

6.2.2.1 **Construction Phase**

The ISMP in **Appendix 3** provides robust mitigation and best practice measures to ensure that infestations of invasive species do not spread into both the local environment and European Sites, as a result of the Proposed Project.

6.2.2.1.1 **Residual adverse effects from Construction**

Following the successful implementation of the mitigation measures detailed in **Appendix 3**, there will be no potential for residual adverse effects on European Sites as a result of invasive species during construction of the Proposed Project.

6.2.2.2 **Operational Phase**

No potential for adverse effects on any European Site is anticipated, as a result of invasive species spreading as a result of the Proposed Project, during operation.

6.2.2.3 **Decommissioning Phase**

No potential for adverse effects on any European Site is anticipated, as a result of invasive species spreading as a result of the Proposed Project, during decommissioning.

7. ASSESSMENT OF RESIDUAL ADVERSE EFFECTS

The potential for residual adverse effects on each of the individual relevant Qualifying Features of the Screened In European Sites following the implementation of mitigation, is assessed in this section of the report.

Based on the above, in view of best scientific knowledge, on the basis of objective information, there is no potential for adverse effect on the identified QIs/SCIs and their associated targets and attributes, or on any European Site. Potential pathways for effect have been robustly blocked through measures to avoid impacts and the incorporation of best practice/mitigation measures into the project design.

Taking cognisance of measures to avoid impacts and best practice/mitigation measures incorporated into the project design which are considered in the preceding section, the Proposed Project will not have an adverse effect on the integrity of any European Site, in view of its conservation objectives.

The Proposed Project will not prevent the QIs/SCIs of European Sites from achieving/maintaining favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive. A definition of Favourable Conservation Status is provided below:

‘Favourable conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2; The conservation status will be taken as ‘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, and*
- *The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.’*

‘Favourable conservation status of a habitat is achieved when:

- *It’s natural range, and area it covers within that range, are stable or increasing, and*
- *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, and*
- *The conservation status of its typical species is favourable.’*

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the Proposed Project will not adversely affect the Qualifying Interests/Special Conservation Interests associated with any European Site.

8. ASSESSMENT OF CUMULATIVE EFFECTS

A search and review in relation to plans and projects that may have the potential to result in in-combination impacts on European Sites was conducted. This assessment focuses on the potential for in-combination effects on the European Sites where potential for adverse effects was identified in Section 5 of this report. This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities and their predicted environmental effects. A list of the projects considered is provided in **Appendix 5**.

8.1 Assessment of Plans

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

- Clare County Development Plan 2023-2029
- Ireland's 4th National Biodiversity Action Plan 2023-2030

The review focused on policies and objectives that relate primarily to European sites. Policies and objectives relating to the conservation of Annex I habitats were also reviewed. No potential for in-combination effects with the Proposed Project has been identified, and the Proposed Project is in compliance with the relevant objectives of the Plans.

In addition, the Appropriate Assessments carried out for these Plans have been reviewed where available. Relevant available reports for these plans, where available, can be found at the following locations:

- Clare County Development Plan 2023-2029

<https://clarecdp2023-2029.clarecoco.ie/stage3-amendments/adoption/volume-10a-appropriate-assessment-natura-impact-report-clare-county-development-plan-2023-2029-51394.pdf>

The Appropriate Assessment carried out for these plans have concluded that there is no potential for residual adverse effect as a result of implementation of the Plan. Furthermore, as per the assessment of residual adverse effects in Section 7 of this report, the Proposed Project will not adversely affect the Qualifying Interests/Special Conservation Interests associated with any European Site. Therefore, there is no potential for cumulative effect as a result of the Proposed Project in-combination with the Plan.

8.2 Assessment of Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Project and was verified in March 2026. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g. individual Appropriate Assessment Screening Reports, Natura Impact Statements, EISs/EIARs where appropriate, layouts, drawings etc.) for all relevant projects, where available.

The plans and projects considered include those listed in **Appendix 5**. The residual construction, operational and decommissioning impacts of the Proposed Project are considered cumulatively with other plans and projects. Particular focus has been placed on those plans and projects that are in closest proximity to the Proposed Project and those that could potentially result in impacts on SCI bird species, surface water, groundwater and QI habitats and species.

8.2.1 Other Projects within the Hydrological Sub-catchment

As the Proposed Project is hydrologically connected to several European Sites, which have been considered in this NIS, the potential for cumulative impacts on hydrology has been considered.

Cumulative Effects with Agriculture

According to Corine land cover mapping (www.epa.ie) (2018) the Water Study Area catchments are largely agricultural catchment.

Agricultural practices such as the movement of soil and the addition of fertilizers and pesticides can lead to nutrient losses and the entrainment of suspended solids in local surface watercourses. This can have a negative effect on local and downstream surface water quality.

In an unmitigated scenario the Proposed Project would have the potential to interact with these agricultural activities and contribute to a deterioration of downstream surface water quality through the emissions of elevated concentrations of suspended solids and ammonia.

However, the mitigation measures detailed in Section 6 for the construction, operation and decommissioning phases of the Proposed Project will ensure the protection of downstream surface water quality.

For these reasons, there will not be a significant cumulative effect associated with agricultural activities.

Cumulative Effects with Commercial Forestry

The most common water quality problems arising from forestry relate to the release of sediment and nutrients to the aquatic environment, and impacts from acidification. Forestry works can also give rise to modified stream flow regimes caused by associated land drainage.

However, the Proposed Project felling areas are spread across several sub-catchments, thereby reducing the potential for cumulative effects.

In addition, the mitigation measures detailed for the construction, operation and decommissioning phases of the Proposed Project will ensure the protection of downstream surface water quality.

Also, the tree felling activities required as part of the Proposed Project will be the subject of a Felling Licence application to the Forest Service, in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licences for wind farm developments.

For these reasons we consider that there will not be a significant cumulative effect associated with commercial forestry activities.

Cumulative Effects with Turbary Peat Cutting Activities

Private peat cutting on turbary plots will likely continue in the vicinity of the Proposed Project site and in the wider cumulative area. The construction phase of the Proposed Project is likely to interact with these turbary activities and result in a deterioration of downstream surface water quality through the emissions of elevated concentrations of suspended solids and ammonia.

However, the areas of private peat cutting will be small, significantly limiting the potential for cumulative effects to arise with the Proposed Project. Nevertheless, the mitigation measures detailed for the construction, operational, and decommissioning phases of the Proposed Project will ensure the protection of downstream surface water quality.

For these reasons outlined above there will not be a significant cumulative effect associated with turbary activities.

Cumulative Effects with One Off Housing Developments

A detailed cumulative assessment has been carried out for all planning applications (granted and awaiting decisions) within the cumulative assessment area described above.

There are applications for new dwellings or renovations of existing dwellings, as well as for the erection of farm buildings. Based on the scale of the works, their proximity to the Site and the temporal period of likely works, no cumulative effects will occur as a result of the Proposed Project (construction, operation and decommissioning phases).

Cumulative Effects with Other Wind Farm Projects

A list of other wind farm developments in the Proposed Project Water Study Area is shown in Table 8-1 below. A cumulative impact assessment was undertaken regarding other wind farm developments located within the Annagh River and Inagh River catchments.

In terms of the potential impacts of developments on downstream surface water bodies, the biggest risk is during the construction phase of the Proposed Project as this is the phase when earthworks and excavations will be undertaken at the Site.

However, within the Annagh River catchment, the Slievecallan Wind Farm is already operational. Therefore, there is no risk of a construction overlap with the operational Slievecallan Wind Farm and the Proposed Project. Presently, there are no proposals or permissions for other wind farm development in the Annagh River catchment.

In terms of operational phase hydrological effects, the total number of turbines that could potentially be operating within the Annagh River catchment is 24 no. (which includes 3 no. from the Proposed Project and 21 no. from the Slievecallan Wind Farm). The total catchment area of the Annagh River catchment

is $\sim 105\text{km}^2$ and therefore this equates to 1 turbine for approximately every $\sim 4.4\text{km}^2$ which is considered to be low density and therefore, effects on the Annagh River catchment are not anticipated.

The majority of Proposed Turbines are located in the Inagh River catchment (6 no. of 9). However, other wind farm development in the Inagh River catchment is limited to 8 no. operational turbines at Slievecallan Wind Farm and 4 no. turbines from the future proposed Illaunbaun Wind Farm.

In terms of operational phase hydrological effects, the total number of turbines that could potentially be operating within the Inagh River catchment is 18 no. (which includes 6 no. from the Proposed Project, 4 no. from the proposed Illaunbaun Wind Farm and 8 no. from Slievecallan Wind Farm). The total catchment area of the Inagh River catchment is $\sim 140\text{km}^2$ and therefore this equates to 1 turbine for approximately every $\sim 8\text{km}^2$ which would not be considered high density. Therefore, effects on catchment hydrology and water quality are not anticipated.

No hydrological cumulative effects with respect other windfarm developments is anticipated due to the fact that majority of the other wind farm turbines are constructed and also due to the low turbine density within the two regional catchments.

Table 8-1: List of Other WF Developments Assessed for Hydrological Cumulative Impacts

Regional Catchment	Wind Energy Developments	Total Turbine No.	Turbine No. in Inagh Catchment
Inagh River	Slievecallan WF (Operational)	29	8
	Illaunbaun WF (New Application)	6	4
Totals		35	12
Annagh River	Slievecallan Wind Farm (Operational)	29	21
Totals		29	21

8.2.2 Other Wind Farm Projects

For the purposes of this cumulative assessment, wind farms within a 25-kilometre radius of the Proposed Project area were considered in further detail below. Details of wind farm projects within 25km of the Proposed Project are provided in **Appendix 5** and are summarised below. In total, 18 no. wind farms were identified within the cumulative study boundary.

Table 8-2 Wind farm projects considered to be within the cumulative study area of the Proposed Project.

Wind Farm	Planning Status	Number of Turbines	Separation Distance (turbine to turbine)	County
Slievenalicka Wind Turbine	Pre-validation	1	c. 1.5 km	Co. Clare
Slievecallan Wind Farm	Existing	29	c. 1.6 km	Co. Clare
Illaunbaun Wind Farm	Refused; Appealed.	5	c. 1.7 km	Co. Clare
Booltiagh Wind Farm Extension	Existing	6	c. 8.6 km	Co. Clare
Booltiagh Wind Farm	Existing	12	c. 9.2 km	Co. Clare
Cahermurphy Wind Farm	Existing	4	c. 9.5 km	Co. Clare
Dehomad Wind Farm	Public Domain	6	c. 9.5 km	Co. Clare
Cahermurphy II Wind Farm	Proposed	10	c. 9.75 km	Co. Clare
Cahermurphy West Wind Farm	Proposed	8	c. 9.95 km	Co. Clare
Letteragh Wind Farm	Existing	6	c. 10.8 km	Co. Clare
Glenmore/ Sorrell Wind Farm	Existing	12	c. 11 km	Co. Clare

Wind Farm	Planning Status	Number of Turbines	Separation Distance (turbine to turbine)	County
Kiltumper Wind Farm	Existing	2	c. 11.6 km	Co. Clare
Boolynagleragh Wind Farm	Existing	9	c. 13.1 km	Co. Clare
Boolynagleragh Wind Farm Extension	Existing	7	c. 13.9 km	Co. Clare
Crossmore Wind Farm	Existing	7	c. 18.1 km	Co. Clare
Coolkett Wind Farm	Proposed	14	c. 20.12 km	Co. Clare
Tullabrack Wind Farm	Existing	6	c. 22 km	Co. Clare
Ballykett Wind Farm	Granted	4	c. 23 km	Co. Clare
Moanmore Wind Farm	Existing	7	c. 23.1 km	Co. Clare

Slievenalicka Wind Turbine

This wind farm consists of 1 no. turbines and is located approximately 1.5 km northwest of the Proposed Wind Farm Site.

The AA Screening for the project did not identify potential for likely significant effects on any European Sites.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Slievecallan Wind Farm

This wind farm consists of 29 no. turbines and is located approximately 1.6 km southeast of the Proposed Wind Farm Site.

The Environmental Impact Statement for Slievecallan Wind Farm states the nearest European Sites are Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA, which lie approximately 7.6 km to the west, in addition to Inagh Estuary SAC located 9.6 km to the north. Although there were habitats of significance within the site, there were many areas considered to be of low value, with the most abundant habitat being conifer plantation.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Illaunbaun Wind Farm

This wind farm consists of 5 no. turbines and is located approximately 1.7 km north of the Proposed Wind Farm Site.

The Environmental Impact Assessment Report for Illaunbaun Wind Farm stated that the proposed development did not overlap with any European Sites. Following analysis of potential connectivity between the Illaunbaun Wind Farm and European sites considered to fall within the Zone of Influence of the scheme, none were considered relevant to the wind farm element of the proposed development. The AA Screening for the project identified no potential for likely significant effects on any European Sites, as a result of its construction. Therefore, considering the available information on the Illaunbaun Wind Farm, no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Booltiagh Wind Farm Extension

This wind farm extension consists of 6 no. turbines and is located approximately 8.6 km south of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Booltiagh Extension Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Booltiagh Wind Farm

This wind farm consists of 12 no. turbines and is located approximately 9.2 km south of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Booltiagh I Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Cahermurphy Wind Farm

This wind farm consists of 4 no. turbines and is located approximately 9.5 km south of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Cahermurphy Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Cahermurphy II Wind Farm

This wind farm extension consists of 10 no. turbines and is located approximately 9.75 km southwest of the Proposed Wind Farm Site.

The site of the proposed Cahermurphy West Wind Farm and that of the Proposed Project are both hydrologically linked to the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA. However, with the implementation of mitigation measures outlined within this report, which ensure that there will be no adverse effects on any European Site, no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Cahermurphy West Wind Farm

This wind farm extension consists of 8 no. turbines and is located approximately 9.5 km south of the Proposed Wind Farm Site.

The site of the proposed Cahermurphy West Wind Farm and that of the Proposed Project are both hydrologically linked to the Carrowmore Point to Spanish Point and Islands SAC and Mid-Clare Coast SPA. However, with the implementation of mitigation measures outlined within this report, which ensure that there will be no adverse effects on any European Site, no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Letteragh Wind Farm

This wind farm consists of 6 no. turbines and is located approximately 10.8 km southeast of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS and the mitigation measures outlined within the NIS for the Letteragh Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Glenmore/Sorrel Wind Farm

This wind farm consists of 6 no. turbines and is located approximately 11 km south of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the

implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS and the mitigation measures outlined within the NIS for the Glenmore Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Kiltumper Wind Farm

This wind farm consists of 2 no. turbines and is located approximately 11.6 km south of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Kiltumper Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Boolynagleragh Wind Farm

This wind farm consists of 9 no. turbines and is located approximately 13.1 km southeast of the Proposed Wind Farm Site.

The site of the Boolynagleragh Wind Farm and that of the Proposed Project are located in separate hydrological catchments. Given the distance between these projects, and that they are in located in separate catchments, no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Boolynagleragh Wind Farm Extension

This wind farm extension consists of 7 no. turbines and is located approximately 13.9 km southeast of the Proposed Wind Farm Site.

The site of the Boolynagleragh Extension Wind Farm and that of the Proposed Project are located in separate hydrological catchments. Given the distance between these projects, and that they are in located in separate catchments, no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Crossmore Wind Farm

This wind farm consists of 7 no. turbines and is located approximately 18.1 km south of the Proposed Wind Farm Site.

The site of the Crossmore Wind Farm and that of the Proposed Project are both hydrologically linked to the Mid-Clare Coast SPA. The NIS for this project was reviewed as part of this assessment. The AA

Screening for the project identified potential for likely significant effects on the Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Crossmore Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Coolkett Wind Farm

This wind farm consists of 14 no. turbines and is located approximately 20.12 km southeast of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). No potential for in-combination effects were identified as the Proposed Project is not connected to these European Sites.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Tullabrack Wind Farm

This wind farm consists of 6 no. turbines and is located approximately 22 km southwest of the Proposed Wind Farm Site.

The site of the Tullabrack Wind Farm and that of the Proposed Project are both hydrologically linked to the Mid-Clare Coast SPA. The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Mid-Clare Coast SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). As such the potential for in-combination effects with the Proposed Project specifically in relation to the Mid-Clare Coast SPA were initially identified (construction related impacts on water quality). However, with the implementation of mitigation measures outlined within this NIS and the mitigation measures outlined within the NIS for the Tullabrack Wind Farm no potential for in-combination effects were identified.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Ballykett Wind Farm

This wind farm consists of 4 no. turbines and is located approximately 23 km southwest of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). No potential for in-combination effects were identified as the Proposed Project is not connected to these European Sites.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Moanmore Wind Farm

This wind farm consists of 7 no. turbines and is located approximately 23.1 km southwest of the Proposed Wind Farm Site.

The NIS for this project was reviewed as part of this assessment. The AA Screening for the project identified potential for likely significant effects on the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA (reduction in water quality from release of suspended solids and/or other pollutants into the surface water system). No potential for in-combination effects were identified as the Proposed Project is not connected to these European Sites.

Therefore, no potential additive impacts have been identified which would result in the potential for significant cumulative effects with the Proposed Project.

Dehomad Wind Farm

This project is in the pre-application consultation phase and therefore an EIAR and NIS has not been produced as of yet. This proposed wind farm is located approximately 9.5 km to the Proposed Project. However, given this development is located within separate catchment to the Proposed Project, and given the significant terrestrial distance between the sites, there is no potential for the Proposed Project to result in cumulative effects on biodiversity with the Cahermurphy West Farm.

9. **CONCLUDING STATEMENT**

This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites.

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

Therefore, it can be objectively concluded, on the basis of the best available information, beyond reasonable scientific doubt, that the Proposed Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in view of its conservation objectives.

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