20. TERRESTRIAL BIODIVERSITY

20.1 Introduction

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the Onshore Site of the Project may have on Biodiversity. Mitigation by design was applied to the finalised Onshore Site layout wherever possible to avoid impacts on Biodiversity. This chapter sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified. The residual impacts on biodiversity are then assessed. Particular attention has been paid to species and habitats of ecological importance. These include species and habitats with national and international protection under the Wildlife Acts 1976 (as amended), EU Habitats Directive 92/43/EEC. Impacts on avian receptors are considered in Chapter 11 Marine Ornithology and Chapter 21 Terrestrial Ornithology of this EIAR. The full description of the Project is provided in Chapter 5 Project Description of this EIAR.

The chapter is structured as follows:

- The Introduction provides a description of the legislation, guidance and policy context applicable to Biodiversity.
- This is followed by a comprehensive description of the ecological survey and impact assessment methodologies that were followed to inform the robust assessment of likely significant effects on ecological receptors.
- A description of the Baseline Ecological Conditions and Receptor Valuation is then provided.
- This is followed by an Assessment of Effects which are described with regard to each phase of the Onshore Site: construction phase, operational and maintenance, phase and decommissioning phase. Potential Cumulative effects in combination with other projects are fully assessed.
- Proposed mitigation and best practice measures to avoid, reduce or offset the identified effects are described and discussed. This is followed by an assessment of residual effects taking into consideration the effect of the proposed mitigation and best practice measures.
- The conclusion provides a summary statement on the overall significance of predicted effects on Biodiversity.

As detailed in Section 1.1.1 in Chapter 1 Introduction, for the purposes of this EIAR. The various Project components are described and assessed using the following references: 'The Project' the 'Onshore Site', the 'Offshore Site, the 'Onshore Grid Connection' (OGC), the 'Onshore Compensation Compound' (OCC) and the 'Onshore Landfall Location' (OLL).

- For the purpose of this chapter, which looks at the Onshore Site only, the Onshore Site refers to the work within the OLL, OGC, and OCC, as defined in Chapter 1. Where Study Area is referred to, this relates to the primary study area for the EIAR (i.e. the area where proposed works are contained), as delineated by the EIAR Site Boundary in green as shown on Figure 20-1.

In addition:

- 'Key Ecological Receptor" (KER) is defined as a species or habitat occurring within the zone of influence of the Onshore Site upon which likely significant effects are anticipated.
- Zones of Influence" (ZoI) for individual ecological receptors refers to the zone within which potential effects are anticipated. ZoIs differ depending on the sensitivities of

particular habitats and species and were assigned in accordance with best available guidance and through adoption of a precautionary approach.

400000
440000
480000
520000
720000
680000
640000
N

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Project EIAR Site Boundary
- Onshore Site

0 10 20 km
Kilometres

Data Source
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© British Crown and OceanWise, 2024. All rights reserved. License No. EMS-EK001-958983. Not to be used for Navigation

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Project and Onshore Site Location

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-1

SCALE	PAPER SIZE	DATUM	PROJECTION
1:480,000	A4	IRENET95	Transverse Mercator

20.1.1 Requirements for Ecological Impact Assessment

National Legislation

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

Natural Heritage Areas (NHAs) and Proposed Natural Heritage Areas (pNHAs) are heritage sites that are designated for the protection of flora, fauna, habitats and geological sites. Only NHAs are designated under the Wildlife (Amendment) Act 2017. NHAs are legally protected from damage from the date they are formally proposed for designation[1]. A list of pNHAs were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. However, these sites are considered to be of significance for wildlife and habitats as they may form statutory designated sites in the future.

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

National Policy

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

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

- **Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan.
- **Objective 2: Meet Urgent Conservation and Restoration Needs.** Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government.
- **Objective 3: Secure Nature's Contribution to People.** Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy.

[1] https://www.npws.ie/protected-sites/nha(accessed January 2024).

- **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts.
- **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.** Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.

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

European Legislation

Habitats and species of European importance are provided legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive) and the EU Birds Directive 2009/147/EC (the Birds Directive) this legislation forms the cornerstone of Europe's nature conservation within the EU. It is built around two pillars: the Natura 2000 network of protected sites (hereafter referred to as European sites[2]) and the strict system of species protection. Both the Habitats and Bird Directives have been transposed into Irish law by Part XAB of the Planning and Development Acts 2000 (as amended) (from a land use planning perspective) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011).

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

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

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

In summary, the species and habitats provided National and International protection under these legislative and policy documents have been considered in this Terrestrial Biodiversity Chapter. A detailed assessment of the likelihood of the Onshore Site having either a significant effect or an adverse impact on any relevant European Sites (i.e. SACs, cSACs[3], SPAs or cSPAs) has been carried out in the Appropriate Assessment (AA) Screening Report and Natura Impact Statement. A separate assessment has not been carried out in this chapter, to avoid duplication of assessments. However, the relevant conclusions have been cross-referenced and incorporated.

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

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

20.1.2 Review of Relevant Guidance and Sources of Consultation

The assessment methodology is based primarily upon the National Road Authority (NRA) *'s Guidelines for Assessment of Ecological Impacts of National Road Schemes Rev 2* (NRA, 2009a) and CIEEM Guidelines for *Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal* (CIEEM, 2018). The survey methodology is based on the NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009b). Although these survey methodologies relate to road schemes, these standard guidelines are recognised survey methodologies that ensure good practice regardless of the development type.

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

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022)

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

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

- Regional Spatial and Economic Strategy for the Southern Region (RSES) (2020-2032)
- Clare County Development Plan 2023-2029
- Ireland 4th National Biodiversity Action plan 2023-2030.
- Clare Biodiversity Action Plan 2017 – 2023

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

20.1.3 Statement of Authority

Baseline ecological surveys of the Onshore Site in Co. Clare were undertaken throughout 2023 and 2024, by Pádraig Desmond (BSc.) and Stephanie Corkery (BSc., M.Sc.) of MKO. Additional bat surveys were conducted by MKO ecologists; Laura Gránicz (BSc., MSc. Biology), Nathan Finn (BSc. Environmental Science, MSc.), Laura McEntegart (BSc. Botany), Neil Campbell (BSc. Botany, MSc.) and Cathal Bergin (BSc. Wildlife Biology). All surveyors have the relevant academic qualifications and experience in undertaking habitat and ecological assessments.

Data analysis was undertaken, and results were compiled by Nathan Finn. Impact assessment, the design of mitigation and final reporting was completed by Laura McEntegart, under the supervision of Sara Fissolo (B.Sc. Ecology), Aoife Joyce (B.Sc. Environmental Science, M.Sc.) and John Hynes (BSc. Environmental Science, MSc. Ecology, MCIEEM), who reviewed and approved the final document.

This EIAR chapter has been prepared by Stephanie Corkery and Pádraig Desmond. Pádraig is an experienced ecologist with 4 years professional experience in ecological consultancy. This Chapter has been reviewed by John Hynes (BSc, M.Sc., MCIEEM).

John Hynes is the Ecology Director at MKO, with over 12 years' professional experience in the public and private sector. John oversees MKO's Ecology, Ornithology, Forestry, Bats, and GIS teams. John holds a B.Sc. in Environmental Science and a M.Sc. in Applied Ecology.

John's key strengths and areas of expertise are in Appropriate Assessment of plans and projects, Ecological Impact Assessment, Flora and Fauna survey methods and design, project management and project strategy. John is experienced as a coordinator of large multi-disciplinary teams on complex ecological projects. John has been involved as a lead Ecologist on a range of energy infrastructure, commercial, transport, housing, forestry, biodiversity net gain and nature restoration projects. John is a Full member of the Chartered Institute of Ecology and Environmental Management, a member of Galway County Council Climate and Biodiversity Special Policy Committee (SPC) and a contributor to the Wind Energy Ireland (WEI) Biodiversity and Sustainability Working Group.

Pádraig is a Project Ecologist with MKO with 4 years post graduate ecological experience, over 3 years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as a Junior Ecologist with Envirico. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set. Pádraig's key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Biodiversity Chapters of Environmental Impact Assessments, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

Stephanie is an Ecologist with MKO with over 2 years of experience in professional ecological consultancy. Stephanie holds a BSc. in Ecology and Environmental Biology, an MSc. in Marine Biology, and a HDip in Sustainability in Enterprise, all from University College Cork. Since joining MKO as a graduate in March 2022, Stephanie has worked on a wide variety of projects including wind farms, large scale residential developments, and County Council projects. Stephanie's key strengths include organising and carrying out both terrestrial and marine mammal surveys, as well as general ecological walkover surveys and bat surveys. She is also experienced in GIS, acoustic data analysis for bat species, and in preparing Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Biodiversity Chapters, and Bat Reports.

Stephanie is also a JNCC Certified Marine Mammal Observer and has completed the ACCOBAMS Course for Highly Qualified Marine Mammal Observers (MMO) and Passive Acoustic Monitoring operators (PAM).

20.2 Methodology

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

20.2.1 Desk Study

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

- Review of NPWS Article 17 maps 2019, 2013 and 2007.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS)[4], EPA maps, Water Framework Directive (WFD) and Inland Fisheries Ireland (IFI).
- Inland Fisheries Ireland (IFI) Reports.
- Data on potential occurrence of rare plant and bryophytes – as per NPWS online map viewers; Flora Protection Order 2022 Map Viewer.
- Review of the Bat Conservation Ireland (BCI) Private Database.
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper.
- Review of specially requested records from the NPWS Rare and Protected Species Database for the hectads in which the Onshore Site is located.
- Potential for in-combination effects have been considered in Chapter 4: EIA Methodology of this EIAR and Section 20.7 of this Chapter. This was informed by a review of the EIARs/NISs prepared for other plans and projects occurring in the wider area.

20.2.1.1 Designated Sites

20.2.1.1.1 *Identification of the Designated Sites within the Likely Zone of Influence (ZOI) of the Onshore Site*

The potential for the Onshore Site to impact on sites that are designated for nature conservation was considered in this chapter.

Special Areas of Conservation (SACs) and Special Protection Areas for Birds (SPAs) are designated under the EU Habitats Directive and EU Birds Directive, respectively and are collectively known as 'European Sites'. The potential for significant effects and/or adverse impacts on the integrity of European Sites is fully assessed in the AA Screening Report and Natura Impact Statement that accompanies this application. As per '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* pubslihed by the EPA in May 2022 (hereafter referred to as EPA Guidelines), *"a biodiversity section of an EIAR, should not repeat the detailed assessment of potential effects on European sites contained in a Natura Impact Statement"* but should *"incorporate their key*

[4] https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba *Accessed 09/04/2024*

findings as available and appropriate". Section 20.5 of this EIAR provides a summary of the key assessment findings with regard to European Designated Sites.

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

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

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

- All designated sites within the vicinity of the Onshore Site were identified. In addition, the potential for connectivity with European or Nationally designated sites at greater distances from the Onshore Site was also considered in this initial assessment.
- The designation features of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report.
- Where potential pathways for Significant Effect are identified, the site is included within the Likely Zone of Influence (ZoI), as defined in Section 20-1, and further assessment is required.

20.2.1.2 NPWS Article 17 Reporting

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

20.2.2 Scoping and Consultation

MKO undertook a scoping exercise during preparation of this EIAR, as described in Chapter 2 Background and Planning Policy, Section 2.7 of this EIAR.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter. Table 2-5 in Chapter 2 of this EIAR describes where the comments raised in the scoping responses received have been addressed in this assessment. Table 20-1 provides a list of the organisations consulted with regard to biodiversity during the scoping process, and notes where scoping responses were received.

Table 20-1 Organisations consulted with regard to biodiversity.

Consultee	Date of Response	Response pertaining to Biodiversity
An Taisce - National Trust for Ireland	No Response	No Response
Bat Conservation Ireland	No Response	No Response
BirdWatch Ireland	No Response	No Response
Butterfly Conservation Ireland	No Response	No Response

Clare County Council - Environment Department	1/09/2023	No response pertaining to Biodiversity
Department of the Environment, Climate and Communications	1/09/2023	Response stated that 'the Department does not provide observations for individual projects and developments.
Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media	No Response	No Response
Department of Housing, Local Government and Heritage	No Response	No Response
Environmental Protection Agency (EPA)	26/09/2023	The EPA advised that a dumping at sea permit is required in the event that any deliberate disposal of a substance or material in the maritime area, as defined in Section 1 of the Dumping at Sea Act 1996 as amended, is proposed.
Friends of the Irish Environment	No Response	No Response
Golden Eagle Trust	No Response	No Response
Inland Fisheries Ireland (Galway)	No Response	No Response
Inland Fisheries Ireland (HQ)	19/10/2023	Responded stating that the Scoping Document was not received to the size limit of their inbox, but on following up regarding another method to issue to them, there was no response received.
Irish Peatland Conservation Council	09/01/2023	IPCC noted that there is a responsibility on wind farm developers to ensure that there is no loss of important peatland habitat and the species that utilise it through the development of wind farms. They have also raised concerns around the following points: › The importance of properly assessing and screening for adverse impact on habitat and species and having a post operation restoration plan in place. › The necessity of a full archaeological survey. › Familiarization with EPA funded project BOGLAND (www.ucd.ie/bogland) guidance. › Assessment of impacts from excess nitrogen inputs › Biosecurity awareness and implementation › Assessment of impact on water quality and associated aquatic receptors under the WFD,

		and to include non EPA mapped watercourses. › Consideration to be given to curlew and fen habitat. › Highlight's peat depth guidance: Peat Depth Criteria: Accounting for the lost peatlands - IUCN UK Peatland Programme › No adverse impacts on the conservation objectives of any EU or Nationally designated sites, particularly those where peat is a qualifying feature.
Irish Red Grouse Conservation Trust	20/10/2023	IRGCT noted funds from wind farm developments should be put in place to achieve a net biodiversity gain during and after the development on sites such as the Project.
Irish Raptor Study Group	No Response	No Response
Irish Seaweed Research Group / Irish Seaweed Consultancy	No Response	No Response
Irish Whale & Dolphin Group	11/10/2023	The IWDG made the following observations regarding specific sections of the scoping document, included below; **Table 8-9 Policy and Guidance Relevant to Marine Mammals and Reptiles:** › Reference is made to the document Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (DAHG, 2014). This guidance is currently under review and the updated guidance is likely to take a significantly different form. **Table 8-13 Potential impacts on marine mammals and reptiles during construction decommissioning, operations and maintenance of the Project:** › Impacts of operational noise was scoped out. A recent study by Thomsen et al (2023) indicated that operational noise from larger turbines (i.e. 20MW) may result in TTS ranges of 700m from source, potentially overlapping with TTS zones from other turbines and forming a barrier to cetaceans across entire windfarm sites. This should be taken into account in the EIAR when the specifications of the proposed turbines are finalized, and operational noise scoped in for assessment if necessary.

		Section 7 Offshore physical environment and Section 8 Offshore biological environment: › The IWDG state that there is an intrinsic value to establishing the baseline noise level for the underwater environment to determine accurately the additional operational noise in the marine environment from the windfarm. Without establishing a baseline, any measurements of operational noise would lack reference levels, and comparison could not be made between the pre and post-construction soundscapes. This is important at the individual project level but also in terms of cumulative impacts on marine mammals from multiple projects and to inform future planning. In addition, an accurate baseline may inform modelling of noise during the construction phase and would help to more accurately predicting impacts on marine receptors, and may also be important in keeping noise levels under defined limits during any piling operations. › There is great potential to ensure a net benefit to the marine ecosystem of ORE through biodiversity enhancement, e.g. through development of natural biogenic reefs, and artificial reefs. › Monitoring of all parameters across the marine ecosystem should begin before project construction with bird, marine mammal, fish and benthic surveys. Any impacts on marine species and on the whole ecosystem need to be continually assessed at a meaningful scale to understand the impacts and to inform future development"
Irish Wildlife Trust	No response	No response
Marine Institute of Ireland	No Response	No Response
Sea Fisheries Protection Authority	No Response	No Response
Uisce Eireann	19/10/2023	Advised that they do not have capacity to provide comments on specific projects but provided a list of general aspects of Water Services that should be considered within the EIAR, where relevant.
Waterways Ireland	14/09/2023	Noted that the Project is not within any Zone of Influence of Waterways Ireland, so they will not be commenting

West Region Local Authority Waters Programme	19/10/2023	LAWPRO advised that they are not a statutory authority and don't make comments on development projects. However, recommend that the EIAR ensures appropriate consideration of the draft River Basin Management Plan for Ireland 2022 – 2027, which is due to be finalised in Q4 of 2023.

20.2.3 Field Surveys

A comprehensive survey of the biodiversity within the Onshore Site was undertaken to inform this chapter of the EIAR. The following sections fully describe the ecological surveys that have been undertaken and provide details of the methodologies and guidance followed.

Table 20-2: Ecology Surveys Informing the EIAR

Survey Type	Dates	Appendix
Multi-disciplinary walkover (incl. habitats)	27th of July 2023; 28th of July 2023; 28th of March 2024 11th of April 2024 20th of June 2024	N/A
Badger/otter survey	27th of July 2023; 28th of July 2023; 28th of March 2024 11th of April 2024 20th of June 2024	N/A
Bat Surveys	24th of May 2023 25th of May 2023 18th of July 2023 7th of September 2023 20th of June 2024	Bat Report, Appendix 21-1

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

Multidisciplinary walkover surveys were undertaken within the Onshore Site. Surveys were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). A comprehensive walkover of the Onshore 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) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) was conducted.

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

vicinity of the Onshore Site (e.g. otter, marsh fritillary etc.). Bird species observed during the multi-disciplinary surveys were also recorded.

The multi-disciplinary walkover surveys comprehensively covered the entire study area 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 Onshore Site are described in the following subsections.

20.2.3.2 Habitat Surveys

Habitats within the Onshore Site were classified according to the guidelines set out in *'A Guide to Habitats in Ireland'* (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The extent of each habitat within the Onshore Site was mapped onsite using aerial photography, handheld GPS and smartphone technology. A representative photograph was also taken for each of the habitats recorded on site.

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

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

20.2.3.3 Terrestrial Fauna Surveys

The results of the desk study, scoping replies, incidental records of protected species during ecological survey work and multidisciplinary walkover surveys were used to inform the scope of targeted ecological surveys required. Dedicated surveys for mammals were undertaken on the dates set out in Table 20-2 above, with the methodologies followed also provided in the following sections. Dedicated surveys for bats were undertaken across the Onshore Site and are detailed in the Bat Report in Appendix 20-1. During the multidisciplinary walkover surveys, where observed, incidental records of birds and invertebrates including butterflies, dragonflies, etc. were recorded.

20.2.3.3.1 *Badger Survey*

As part of the Multidisciplinary walkover surveys badger surveys were conducted adhering to best practice guidance (NRA, 2009b) and CIEEM best practice competencies for species surveys[5]. Areas identified as providing potential habitat for badger were subject to specialist targeted survey. The badger survey aimed to determine the presence or absence of badger within Onshore Site and wider survey area. This involved a search for all potential badger signs (latrines, badger prints, mammal tracks and setts). Where potential setts were identified these were mapped and classified according to their status (i.e. main, annexe, subsidiary, outlier) and level of usage (disused, well-used, active). Where setts were identified as potentially being used/active camera traps were set up to confirm if they were in active use by badger. The badger survey was not constrained by vegetation given the nature of the habitats within the Onshore Site and the timing of the surveys.

20.2.3.3.2 *Otter Survey*

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

As part of the Multidisciplinary walkover surveys otter surveys were conducted adhering to best practice guidance (NRA, 2009b) and CIEEM best practice competencies for species surveys[6]. All watercourses within the Onshore Site were identified as providing potential habitat for otter and were subject to targeted surveys for this species. This involved a search for all otter signs (e.g. spraints, scat, prints, slides, trails, couches and holts) within 150m of each survey site. Where otter signs were observed these were mapped.

20.2.3.3.3 Marsh Fritillary Surveys

Taking account of the findings of the desk study, which showed records of marsh fritillary in hectads Q95, Q96, R05, a search for potential suitable habitat (e.g. abundance of devil's-bit scabious) was undertaken as part of the Multidisciplinary walkover survey.

20.2.3.3.4 Bat Surveys

Detailed description of the survey methodologies undertaken in relation to bats is provided in the Bat Report included in Appendix 20-1 of this EIAR, together with full details of the survey times and the surveyors who carried out the bat survey and assessment work.

Survey design and effort in 2023 was created in accordance with the best practice guidelines available, '*Bat Surveys: Good Practice Guidelines'* prepared by the Bat Conservation Trust (Collins 2016). Surveys undertaken were undertaken in strict accordance with those prescribed in NatureScot (2021) '*Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation*'. This is in line with standard best practice industry guidelines.

The Bat Survey presents the ecological baseline recorded within the selected locations in relation to bats, including the Drop-off points (closest points of the mainland to the Offshore Array Area (OAA)), and the Onshore site. Surveys included a suitability appraisal and inspection of the habitats present on site. Manual activity surveys and roost surveys were also carried out, as well as ground-level static detectors surveys.

20.2.3.3.5 Freshwater pearl mussel surveys

The Onshore Site is located within a hydrological sub-catchment where Freshwater Pearl Mussel (*Margaritifera margaritifera*) are present, the Doonbeg surface water sub-catchment.

As part of the Multidisciplinary walkover surveys assessments of the watercourses within the Onshore Site for suitability to support freshwater pearl mussel (*Margaritifera margaritifera*) were undertaken. These assessments were undertaken to determine whether there was any suitable habitat or potential for populations to be present in close proximity downstream of the Onshore Site.

20.2.4 Methodology for Assessment of Impacts and Effects

20.2.4.1 Identification of Target Receptors and Key Ecological Receptors

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

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

20.2.4.2 Valuing Ecological Receptors

The importance of the ecological features identified within the study area was determined with reference to a defined geographical context. This was undertaken following a methodology that is set out in Chapter 3 of the NRA guidelines. These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular receptor is of importance on the following scales:

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

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

In accordance with these guidelines impact assessment is only undertaken of KERs. KERs are within the Zone of Influence (ZoI) of the Onshore Site and are 'both of sufficient value to be material in decision making and likely to be affected significantly'. To qualify as KERs, features must be of Local Ecological Importance (Higher Value) or higher. Features valued at Local Ecological Importance (Lower Value) are not considered to be KERs and therefore not subject to impact assessment. This is not to say that they are of no biodiversity value, but that impacts on these habitat types in their local context are not likely to result in a significant effect on biodiversity. It should be noted that this relates to the impact on the habitat itself as distinct from considering the role these habitat types play in supporting KER fauna species, which is detailed under the species listed in Section 20.5.5 below.

20.2.4.3 Characterisation of Impacts and Effects

The Onshore Site will result in a number of effects. The ecological effects of these impacts are characterised as per the CIEEM '*Guidelines for Ecological Impact Assessment in the UK and Ireland*' (2018). The headings under which the impacts are characterised follow those listed in the guidance document and are applied where relevant. A summary of the impact characteristics considered in the assessment is provided below:

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

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

20.2.4.4 Determining the Significance of Effects

The ecological significance of the effects of the Onshore Site are determined in accordance with Section 5 of CIEEM (2018). Sections 5.24 to 5.28 of CIEEM guidance outlines the methodologies for assessing significant effects in relation to biodiversity.

For the purpose of Ecological Impact Assessment (EcIA), 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local, as detailed in Section 20.2.4.3 above.

When determining significance, consideration is given to whether:

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

20.2.4.5 Incorporation of Mitigation

Section 20.6 below assesses the potential effects of the Onshore Site to ensure that all effects on sensitive ecological receptors are adequately addressed. Where significant effects on sensitive ecological receptors are predicted, mitigation is incorporated into the Onshore Site design or layout to address such effects as set out in Section 20.6. The implemented mitigation measures avoid or reduce potential significant residual effects, post mitigation.

20.2.5 Annex IV species – requirement for Regulation 54 derogation

Species such as cetaceans (dolphins, whales and porpoises), Eurasian otter and bats are listed on Annex IV(a) to the EU Habitats Directive which requires their strict protection in their natural range. Having considered the impacts arising from the Onshore Site, and the likelihood of significant effects, it is concluded that there is no requirement to apply for a derogation licence under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011 (the "Habitats Regulations") because the Project will comply with the requirements of Regulation 51 of the Habitats Regulations. This is on the basis that no breeding sites or significant supporting habitat for any Annex IV species was recorded within or adjacent to the Onshore Site.

20.3 Consideration of data sources and quality

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

20.3.1 Desk Study

The following sections describe the findings of the desk study. It provides a baseline of the ecology known to occur in the existing environment based on data sources reviewed to inform the ecological impact assessment as outlined in Section 20.2.1.

20.3.1.1 Designated Sites

A map of all the European Sites within the vicinity of the Onshore Site is provided in Figure 20-2 with all Nationally designated sites shown in Figure 20-3.

Table 20-3 provides details of all relevant Nationally designated sites initially considered to potentially be within the ZoI of the Onshore Site. All European designated sites are fully described and assessed in the Natura Impact Statement submitted with the EIAR. In summary, five European sites were identified to be within the ZoI of the Onshore Site, namely:

- Carrowmore Dunes SAC [002250]
- Tullaher Lough and Bog SAC [002343]
- Lower River Shannon SAC [002165]
- Mid Clare Coast SPA [004182]
- River Shannon and River Fergus Estuaries SPA [004077]

No NHAs were identified to be within the likely ZoI. The following pNHA was identified as being within the likely ZoI of the Onshore Site:

- Tullaher Lough And Bog pNHA [000070]
- Poulnasherry Bay pNHA [000065]

Table 20-3 Identification of Nationally designated sites within the Likely ZoI.

Designated Site and approximate distance from Onshore Site	Features of interest	Likely Zone of Influence Determination
Natural Heritage Area (NHA)		
Bunnaruddee Bog NHA [001352] **Approx. Distance:** 11.2km from Onshore Site **Hydrological distance:** No hydrological connectivity	› Peatlands.	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This NHA is located approx. 11.2km south of the Onshore Site. This NHA and the Onshore Site lie in separate surface water and groundwater catchments.

Designated Site and approximate distance from Onshore Site	Features of interest	Likely Zone of Influence Determination
		No indirect pathways for effect exist between the Onshore Site and this NHA. Therefore, it is **not** within the likely Zone of Influence.
Illaunonearaun NHA [001014] **Approx. Distance:** 13.6km from Onshore Site **Hydrological distance:** No hydrological connectivity	› No NPWS site synopsis available. › This NHA is also designated as Illaunonearaun SPA which has been considered in the NIS.	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This NHA is located approx. 13.6km west of the Onshore Site. This NHA and the Onshore Site are located in separate hydrological sub-catchments. No indirect pathways for effect exist between the Onshore Site and this NHA. Therefore, it is **not** within the likely Zone of Influence.
Proposed Natural Heritage Area (pNHA)		
Tullaher Lough And Bog pNHA [000070] **Approx. Distance:** 0km from Onshore Site	› No NPWS site synopsis available. › This pNHA is also designated as Tullaher Lough and Bog SAC which has been considered in depth in the NIS.	Minor overlap exists between the Onshore Site and this National Site. Therefore, taking a precautionary approach and in the absence of best practice and mitigation, a potential pathway for direct significant effects has been identified as a result of habitat loss/deterioration, arising from the construction phase of the Onshore Site. **Therefore, this site is within the likely Zone of Influence and further consideration is required.**
St. Senan's Lough pNHA [001025] **Approx. Distance:** 1.8km from Onshore Site **Hydrological distance:** 3km upstream	› Acidic lake habitat. › Marsh habitat. › Common reed (Phragmites australis). › Lesser Bulrush (Typha angustifolia). › Sphagnum moss (Sphagnum spp.) › Peat is being formed here. › Abundant evidence of cutaway bog. › Heather (Calluna vulgaris). › Purple Moor-grass (Molinia caerulea). ›	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This pNHA is located approx. 1.8km east of the Onshore Site. Although a portion of the proposed cable lies in the same surface water sub-catchment (Cloon[Clare]_SC_010) and groundwater catchment (Kilrush), this National site is upstream of the Onshore Site and therefore, no potential pathway for significant indirect effect was identified between this pNHA and the Onshore Site. Therefore, this site is **not** within the likely Zone of Influence.
Poulnasherry Bay pNHA [000065]	› No NPWS site synopsis available.	There will be no direct effects as the Onshore Site is located entirely outside of the designated site.

Designated Site and approximate distance from Onshore Site	Features of interest	Likely Zone of Influence Determination
Approx. Distance: 2.0km from Onshore Site **Hydrological distance:** 2.7km from Onshore Site	› This pNHA is also designated as both Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA which have been cnsidered in depth in the NIS.	This pNHA is located approx. 2.7km west of the Onshore Site and located downstream of the OGC. Therefore, taking a precautionary approach and in the absence of best practice and mitigation, a potential pathway for indirect significant effects on the aquatic receptors of this pNHA has been identified via deterioration of water quality arising from the runoff of pollutants into surface or ground waters during the construction phase of the Onshore Site. **Therefore, the site is within the likely Zone of Influence and further consideration is required.**
White Strand/Carrowmore Marsh pNHA [001007] **Approx. Distance:** 3.4km from Onshore Site **Hydrological distance:** No direct hydrological connectivity	› No NPWS site synopsis available. › This pNHA is also partly designated as Carrowmore Dunes SAC and Mid-Clare Coast SPA which have been considered in depth in the NIS	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This pNHA is located approx. 3.4km east of the Onshore Site. Whilst the northern section of the Onshore Site is located in the same hydrological catchment as this pNHA and crosses several watercourses which drain into Doonbeg Bay, they are located in separate hydrological sub-catchments. Additionally, this pNHA is located further north up the coast and therefore, considering the assimilative capacity of the open sea, no potential pathway for significant indirect effects was identified. Therefore, this site is **not** within the likely Zone of Influence.
Farrihy Lough pNHA [000200] **Approx. Distance:** 2.7km from Onshore Site **Hydrological distance:** No hydrological connectivity	› Small brackish lake. › Common reed (Phragmites australis). › Large marshy floodplain. › Marsh-marigold (Caltha palustris). › Cuckooflower (Cardamine pratensis). › Yellow iris (Iris pseudacorus). › Important bird habitat for ducks and waders. › Golden plover (Pluvialis apricaria), lapwing (Vanellus vanellus), whooper swan (Cygnus cygnus).	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This NHA is located approx. 2.7km east of the Onshore Site. Although a section of the Onshore Site lies is the same surface water sub-catchment (Doonbeg_SC_010) no direct surface water connectivity exists and no potential pathway for significant indirect effect was identified between this pNHA and the Onshore Site. Therefore, this site is **not** within the likely Zone of Influence.
Carrowmore Point to Spanish Point and Islands pNHA [001021]	› No NPWS site synopsis available.	There will be no direct effects as the Onshore Site is located entirely outside of the designated site.

Designated Site and approximate distance from Onshore Site	Features of interest	Likely Zone of Influence Determination
Approx. Distance: 3.8km from Onshore Site **Hydrological Distance:** No direct hydrological connectivity	› This pNHA is partly designated as Carrowmore Dunes SAC and Mid-Clare Coast SPA which have been considered in depth in the accompanying NIS.	This pNHA is located approx. 3.8km east of the Onshore Site. Whilst the northern section of the Onshore Site is located in the same hydrological catchment as this pNHA and crosses several watercourses which drain into Doonbeg Bay, they are located in separate hydrological sub-catchments. However, this pNHA is located further north up the coast and therefore, considering the assimilative capacity of the open sea, no potential pathway for significant indirect effects was identified. Therefore, this site is **not** within the likely Zone of Influence.
Scattery Island pNHA [001911] **Approx. Distance:** 3.8km from Onshore Site **Hydrological distance:** 4.8 km downstream	› No NPWS site synopsis available › This pNHA is also designated as both River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC which has been considered in depth in the accompanying NIS.	There will be no direct effects as the Onshore Site is located entirely outside of the designated site. This pNHA is located approx. 3.8km west and 4.8km downstream of the Onshore Site. The southern section of the Onshore Site is located in the same hydrological catchment as this pNHA and crosses several watercourses which drain into the Shannon Estuary. However, considering the assimilative capacity of large Shannon estuary and the nature and scale of the Onshore Site, no potential pathway for significant indirect effects was identified. Therefore, this site is **not** within the likely Zone of Influence.
Ballylongford Bay pNHA [001332] **Approx. Distance**: 3.5km from Onshore Site **Hydrological distance:** 3.8km downstream	› No NPWS site synopsis available. › This pNHA forms part of both River Shannon and River Fergus Estuaries SPA and Lower River Shannon SAC which have been considered in depth in the accompanying NIS.	There will be no direct effects as the Onshore Site footprint is located entirely outside of the designated site. This pNHA is located approx. 3.5km west and 3.8km downstream of the Onshore Site. The southern section of the Onshore Site is located in the same hydrological catchment as this pNHA and crosses several watercourses which drain into the Shannon Estuary. However, considering the assimilative capacity of large Shannon estuary and the nature and scale of the Onshore Site, no potential pathway for significant indirect effects was identified. Therefore, this site is **not** within the likely Zone of Influence.

480000
490000
500000
510000
670000
660000
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N
Carrowmore Point to Spanish Point and Islands SAC
Mid-Clare Coast SPA
Carrowmore Dunes SAC
Mal Bay
Kilkee Reefs SAC
Tullaher Lough and Bog SAC
Illaunonearaun SPA
Shannon Estuary North
River Shannon and River Fergus Estuaries SPA
Lower River Shannon SAC
Tralee Bay-Feale
Shannon Estuary South

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Special Areas of Conservation (SACs)
- Special Protected Areas (SPAs)
- WFD watercourses
- WFD Catchments

1 0 1 2 3 4 5
Kilometres

PROJECT TITLE
Sceirde Rocks

MAP TITLE
European Sites surrounding the Onshore Site

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO
Figure 20-2

SCALE	PAPER SIZE	DATUM	PROJECTION
1:150,000	A4	IRENET95	Transverse Mercator

480000 490000 500000 510000

670000 660000 650000

N

Carrowmore Point To Spanish Point And Islands

Cragnashingaun Bogs NHA

White Strand/Carrowmore Marsh

Mal Bay

Farrihy Lough

Tullaher Lough And Bog

Illaunonearaun NHA

Poulnasherry Bay

Shannon Estuary North

Derrygeeha Lough

St.Senan's Lough

Clonderalaw Bay

Scattery Island

Beal Point

Tarbert Bay

Tarbert Bay

Ballylongford Bay

Shannon Estuary South

Tralee Bay-Feale

Bunnaruddee Bog NHA

480000 490000 500000 510000

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- National Heritage Areas (NHAs)
- Proposed National Heritage Areas (pNHAs)
- WFD watercourses
- WFD Catchments

1 0 1 2 3 4 5

Kilometres

Data Source

PROJECT TITLE

Sceirde Rocks

MAP TITLE

National Sites surrounding the Onshore Site

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-3

SCALE	PAPER SIZE	DATUM	PROJECTION
1:150,000	A4	IRENET95	Transverse Mercator

20.3.1.2 NPWS Article 17 Reporting

Available NPWS datasets were downloaded and overlain on the Onshore Site. No polygon or point data contained within datasets was identified within the Onshore Site. Following a review of the Irish Semi-natural Grasslands Survey (ISGS) no areas of the lands within the Onshore Site were found to have been surveyed as part of the ISGS.

20.3.1.3 Vascular plants

A search was made in the New Atlas of the British and Irish Flora (Preston *et al*, 2002) to investigate whether any rare or unusual plant species listed under Annex II of the EU Habitats Directive, The Irish Red Data Book – 1 Vascular Plants (Curtis, 1988) or the Flora (Protection) Order 2022 had been recorded in the relevant 10km squares in which the Onshore Site is situated (Q95, Q96, R05). Each hectad contains 100 whole one kilometre squares containing terrestrial habitats. Species of conservation concern are given in Table 20-4.

Table 20-4 Species listed designated under the Flora Protection Order or the Irish Red Data Book within Hectads Q95, Q96, R05.

Common Name	Scientific Name	Hectad	Status
Shepherd's-needle	*Scandix pecten-veneris*	Q96	RE
Fiddle dock	*Rumex pulcher*	Q96	VU
Smooth brome	*Bromus racemosus*	Q96	NT
Six-stamened waterwort	*Elatine hexandra*	Q96	NT
Pipewort	*Eriocaulon aquaticum*	Q96	NT
Bog orchid	*Hammarbya paludosa*	Q96	NT
Henbane	*Hyoscyamus niger*	Q96	NT
Spiny-spored quillwort	*Isoetes echinospora*	Q96	NT
Pale flax	*Linum bienne*	Q96	NT
Brown beaksedge	*Rhynchospora fusca*	Q96	NT

Near Threatened (NT), Vulnerable (VU), Regionally extinct (RE)

20.3.1.4 Bryophytes

The desktop search (NPWS bryophyte mapper) indicated that no protected bryophytes have been recorded within or adjacent to the Onshore Site.

20.3.1.5 National Biodiversity Data Centre (NBDC) Records

20.3.1.5.1 Fauna

A search of the NBDC website was conducted to inform survey effort and provide a baseline of likely species composition in the area. Records of protected fauna recorded from hectads Q95, Q96, and R05 are provided in in Table 20-5.

Table 20-5 NBDC records for protected species and species of conservation interest (excl. birds) in hectad Q95, Q96, R05.

Common name	Scientific name	Designation	Hectad
Common Frog	*Rana temporaria*	HD Annex V, WA	Q96, Q95, R05
Smooth Newt	*Lissotriton vulgaris*	WA	Q96, Q95
Marsh Fritillary	*Euphydryas aurinia*	HD Annex II	Q96, Q95, R05
Bottle-nosed Dolphin	*Tursiops truncatus*	HD Annex II, IV, WA	Q96, Q95, R05
Common Dolphin	*Delphinus delphis*	HD Annex IV, WA	Q96, Q95, R05
Common Porpoise	*Phocoena phocoena*	HD Annex II, IV, WA	Q96, Q95, R05
Cuvier's Beaked Whale	*Ziphius cavirostris*	HD Annex IV, WA	Q96
Long-finned Pilot Whale	*Globicephala melas*	HD Annex IV, WA	Q96, Q95
Minke Whale	*Balaenoptera acutorostrata*	HD Annex IV, WA	Q96
Risso's Dolphin	*Grampus griseus*	HD Annex IV, WA	Q96
Sowerby's Beaked Whale	*Mesoplodon bidens*	HD Annex IV, WA	Q96
Sperm Whale	*Physeter macrocephalus*	HD Annex IV, WA	Q96
Striped Dolphin	*Stenella coeruleoalba*	HD Annex IV, WA	Q96, Q95
Common Seal	*Phoca vitulina*	HD Annex II, V, WA	Q95
Grey Seal	*Halichoerus grypus*	HD Annex II, V, WA	Q95, R05
Narrow-mouthed Whorl Snail	*Vertigo (Vertilla) angustior*	HD Annex II, WA	Q96
Large White-moss	*Leucobryum glaucum*	HD Annex IV	Q96, Q95
Brown Long-eared Bat	*Plecotus auritus*	HD Annex IV, WA	Q96, Q95, R05
Daubenton's Bat	*Myotis daubentonii*	HD Annex IV, WA	Q96, R05
Eurasian Badger	*Meles meles*	WA	Q96, Q95, R05
Eurasian Pygmy Shrew	*Sorex minutus*	WA	Q96, Q95
European Otter	*Lutra lutra*	HD Annex II, IV, WA	Q96, Q95, R05
Lesser Noctule	*Nyctalus leisleri*	HD Annex IV, WA	Q96, R05
Pine Marten	*Martes martes*	HD Annex V, WA	Q96, Q95, R05
Pipistrelle	*Pipistrellus pipistrellus*	HD Annex IV, WA	Q96, R05
Soprano Pipistrelle	*Pipistrellus pygmaeus*	HD Annex IV, WA	Q96, Q95, R05
West European Hedgehog	*Erinaceus europaeus*	WA	Q96, Q95, R05

Common Lizard	*Zootoca vivipara*	WA	Q95

Annex II, Annex IV, Annex V – Of EU Habitats Directive, WA – Irish Wildlife Acts (1976 as amended).

20.3.1.5.2 Invasive Species

The NBDC database also contains records of invasive species identified within the relevant hectads. A number of species subject to restrictions under Regulations 49 and 50 and included in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024) were found to be present in hectads Q95, Q96, and R05 as shown in Table 20-6 below.

Table 20-6 NBDC records for invasive species (Q95, Q96, and R05).

Common Name	Scientific Name	Hectad
Japanese Knotweed	*Fallopia japonica*	Q95, Q96, R05
American Mink	*Mustela vison*	Q95, Q96
Common Cord-grass	*Spartina anglica*	Q95
Giant Rhubarb	*Gunnera tinctoria*	Q95
Brown Rat	*Rattus norvegicus*	Q95, Q96
Colonial Sea Squirt	*Perophora japonica*	Q95
Didemnum vexillum	*Didemnum vexillum*	Q95
Himalayan Knotweed	*Persicaria wallichii*	Q95
Three-cornered Garlic	*Allium triquetrum*	Q95, Q96
Canada Goose	*Branta canadensis*	Q96
Greylag Goose	*Anser anser*	Q96
Spanish Bluebell	*Hyacinthoides hispanica*	Q96
Rhododendron	*Rhododendron ponticum*	R05
Fallow Deer	*Dama dama*	R05

20.3.1.5.3 Bats

Full details of the desktop studies in relation to bats are detailed in the Bat Report, Appendix 20-1. As per Article 17 reporting, the Onshore Site is located within the current known range of five bat species: common pipistrelle, soprano pipistrelle, Daubenton's bat, Leisler's bat and brown long-eared bat.

20.3.1.5.4 NPWS Protected Species Records

National Parks and Wildlife Service (NPWS) online records were searched to see if any rare or protected species of flora or fauna have been recorded from hectads Q95, Q96, and R05. An information request was also sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database on the 27th of September 2023. A response was received on the 2nd of

October 2023. An updated request was sent on the 9th of August 2024, but no response has been received to date. Table 20-7 lists rare and protected species records obtained from NPWS.

Table 20-7 NPWS records for rare and protected species

Common name	Scientific name	Designation	Hectad
Red Threadwort	*Cephaloziella rubella*	VU	Q96
Blunt-fruited Pottia	*Tortula modica*	VU	Q96
Irish Hare	*Lepus timidus subsp. Hibernicus*	Annex V, WA	Q96, Q95
Eurasian Otter	*Lutra lutra*	HD Annex II, IV, WA	Q96, Q95, R05
Harbour Seal	*Phoca vitulina*	HD Annex II, V, WA	Q95
Greenland White-fronted Geese	*Anser albifrons flavirostris*	Annex 1	Q96, Q95, R05
Fiddle dock	*Rumex pulcher*	VU	Q95
Bog Orchid	*Hammarbya paludosa*	NT	Q96
Shepherd's-needle	*Scandix pecten-veneris*	RE	Q95
Pine Marten	*Martes martes*	HD Annex V, WA	Q95, R05
Eurasian Badger	*Meles meles*	WA	Q96, Q95, R05
Freshwater Pearl Mussel	*Margaritifera margaritifera*	HD Annex II, V, WA	Q96
Common frog	*Rana temporaria*	HD Annex V, WA	Q96, Q95, R05
Henbane	*Hyoscyamus niger*	NT	Q95
Smooth Brome	*Bromus racemosus*	NT	Q95
Mountain Pansy	*Viola lutea*	VU	Q96
West European Hedgehog	*Erinaceus europaeus*	WA	Q96, Q95
Brown Long-eared Bat	*Plecotus auritus*	HD Annex IV, WA	R05
Irish Stoat	*Mustela erminea subsp. hibernica*	WA	Q95
Narrow-mouthed Whorl Snail	*Vertigo angustior*	HD Annex II, WA	Q96
Cladonia ciliata var. tenuis	*Cladonia ciliata var. tenuis*	HD Annex V	Q96
Cladonia portentosa	*Cladonia portentosa*	HD Annex V	Q96

VU = Vulnerable, NT:=Near Threatened, WA = Wildlife Act. Annex II, Annex IV, Annex V – Of EU Habitats Directive.

20.3.1.6 Freshwater Pearl Mussel (*Margaritifera margaritifera*)

The NPWS *Margaritifera* Sensitive Area map (Version 8, 2017) was consulted during the desk study. Whilst the majority of the Onshore Site is not within any sensitive catchment for *Margaritifera,* a portion of the OGC is located within the Doonbeg *Margaritifera* Sensitive Area. The Doonbeg *Margaritifera* area is classified as a catchment of other extant populations of Pearl Mussel. There are 11 mapped watercourse crossings associated with the OGC route with 2 mapped stream crossings within the Doonbeg *Margaritifera* Catchment. These watercourses drain into the lower reaches of the Doonbeg river, where there are no records of this species.

Whilst the Onshore Site is also located within the Cloon (Clare) sub-catchment, within which internationally protected populations of this species are located in the Cloon River and are designated as QIs of the Lower River Shannon SAC, these populations are located within a separate river sub basin, and there is no hydrological connectivity between the Onshore Site and the Cloon River.

No instream works are required at any of the watercourse crossing locations along the OGC route.

20.3.1.7 Regional and Local Hydrology and Hydrogeology

Full details of the hydrology and hydrogeology are provided in Chapter 23: Water of this EIAR. The EPA Map-Viewer was consulted on the 19th of July 2024. The Onshore Site is located in both the Mal Bay and Shannon Estuary North surface water catchments within Hydrometric Areas 27 and 28 of the Shannon River Basin District. A regional hydrology map is shown in Figure 23-1, in Chapter 23 of this EIAR.

On a more local scale, the Onshore Site is located in the Shannon Estuary North (Catchement_27) and Mal Bay (Catchment_28) and within the Wood sub-catchment (Wood_SC_010)), Doonbeg sub-catchment (Doonbeg_SC_010) and the Cloon (Clare)_SC_010 sub-catchment. The development is located within the following river sub basins; Tonavoher_010, Wood_020, Wood_010, Moyasta_010, and Doonbeg_050, with a slight overlap with the Ballard_010. The Onshore Site is located within the Kilrush and Milltown Malbay groundwater catchments.

There are a total of 11 EPA mapped watercourses that traverse the OGC route.

20.3.1.7.1 Water Quality

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The online EPA Envision map viewer provides access to water quality information at individual waterbody status for all the River Basin Districts in Ireland. The EPA Envision map viewer was consulted on 19th of July 2024 regarding the water quality status of watercourses surrounding the Study Area. The WFD River Waterbody Status 2016 – 2021 for the watercourses surrounding the Onshore Site are listed in Table 20-8. Further detail is provided in the WFD Compliance Assessment provided in Appendix 23-2.

Table 20-8 Watercourses along the Onshore Site with relevant water quality statuses

Name	EPA Name	Status	Risk
Killard 28	28K39	Good	Review
Caherlean	28C83	Good	Review
Doon_beg	28D25	Good	Review
Carrowmore_south	28C65	Good	Review

Einagh	27E04	Moderate	Review
Moyasta 27	27M04	Moderate	Review
Parknamoney	27P01	Moderate	At risk
Wood 27	27W01	Poor	At Risk
Moyne 27	27M23	Moderate	Review
Ballynote_east	27B81	Moderate	Review
Mologha	27M19	Moderate	Review

Status– WFD River Waterbody Status 2016-2021 Risk – WFD River Waterbodies Risk

Q-rating status data for the closest EPA monitoring points where available along the Onshore Site are shown on Table 20-9 below. The Q-Rating is a water quality rating system based on both the habitat and the invertebrate community assessment and is divided into status categories ranging from 0-1 (Poor) to 4-5 (Good/High). Q-values are assigned using a combination of habitat characteristics and structure of the macro-invertebrate community within the waterbody. Individual macro-invertebrate families are classified according to their sensitivity to organic pollution and the Q-value is assessed based primarily on their relative abundance within a sample.

Table 20-9 illustrates the respective Q-value status results from monitoring stations located along rivers which the OGC cross.

Table 20-9 Water quality status of watercourses within or in proximity of the Onshore Site.

Waterbody	Station Code	Year	Easting	Northing	EPA Q-Rating Status
Doonbeg River	RS28D020770	2021	97830.97	164373.05	Q4 ('Good')
Wood River	RS27W010100	2022	101295	155391	Q3-4 ('Moderate')
Wood River	RS27W010200	2022	99373	154857	Q3-4 ('Moderate')

20.3.1.8 Conclusions of the Desktop Study

The desktop study has provided information about the existing environment in Hectads Q95, Q96 and R05 within which the Onshore Site is located.

There are 11 mapped watercourses that traverse the OGC route, each of which are connected downstream to European and National Site. The NIS which accompanies this EIAR address impacts to European Sites. No NHAs were identified to be within the likely ZoI. The following pNHA was identified as being within the likely ZoI of the Onshore Site:

- Tullaher Lough And Bog pNHA [000070]
- Poulnasherry Bay pNHA [000065]

The desk study identified that a variety of protected faunal species are known to occur within hectads Q95, Q96, and R05, within which the Onshore Site is located, including bats, marsh fritillary, otter,

lamprey spp., and badger. The mammal species recorded during the desk study informed the survey methodologies undertaken during site visits.

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

20.4 Ecological Survey Results

20.4.1 Description of Habitats and Flora

A total of 19 habitats were recorded within or adjacent the Onshore Site (Table 20-10). Habitat maps for sections of the Onshore Site that are within greenfield habitats is provided in Figure 20-4, Figure 20-5, 20-6, 20-7, 20-8 and 20-9. The remaining sections of the development are confined to public roads which are delineated by treelines, hedgerows, grassy verges, and private infrastructure.

Table 20-10: Habitats recorded on the Onshore Site.

Habitat Name	Fossitt Code
Exposed Rocky Shores	LR1
Improved agricultural grassland	GA1
Wet grassland	GS4
Dry meadows and grassy verges	GS2
Amenity Grassland	GA2
Cutover bog	PB4
Active raised bog	PB1
Spoil and bare ground	ED2
Recolonising bare ground	ED3
Hedgerows	WL1
Treelines	WL2
Scrub	WS1
Conifer plantation	WD4
Mixed broad-leaved woodland	WD1
Buildings and artificial surfaces	BL3
Shingle and gravelly shores	LS1
Upland Eroding Rivers/Lowland depositing rivers	FW1/FW2
Drainage ditches	FW4

Habitats within the Onshore Site have been considered below and a full description of the habitats are being considered under the following headings:

- Habitats within and adjacent to the OCG
- Habitats within and adjacent to the OCC
- Habitats within and adjacent to OLL and Temporary Compound
- Habitats within and adjacent to Proposed passing bays between the OCC and the N67

20.4.1.1 Habitats within and adjacent to the Onshore Grid Connection

The OGC, which forms the main element of the Onshore Site, primarily consisted of existing road infrastructure for much of its length, but also enters greenfield habitats which are used for agriculture and often included sections of scrub or woodland habitats. The sections below detail all habitats within which the OGC will be laid.

No habitats listed under Annex I of the EU Habitats Directive were recorded within or adjacent to the OGC and no significant suitable supporting habitat for species listed under Annex II of the EU Habitats Directive was identified during the survey. Shingle and gravelly shores, as discussed below, was identified as potentially providing foraging habitat for waterbirds and waders, including bird species that are among those listed as SCIs of any SPA.

20.4.1.1.1 *Exposed Rocky Shores (LR1)*

Where the Offshore Export Cable (OEC) of the Project reaches the Landfall at the northern extent of the Onshore Site, small sections within the Onshore Site are comprised of exposed boulder beaches/shores (Plate 20-1), which are best classified as Exposed Rocky Shores (LR1). These are shores which are highly exposed to ocean swells and are influenced by sea sprays and dynamic topographies. The upper reaches of this habitat were characterized by large boulders and exposed bedrock, with some recordings of sea thrift (*Armeria maritima*) and sea campion (*Silene uniflorae*). This habitat was identified as providing potential foraging habitat for protected bird species and several bird species designated as SCIs of nearby SPAs were identified during surveys within this habitat. Further details on bird survey results are provided in Chapter 21: Terrestrial Ornithology.

This habitat was identified over 120m from any works associated with the Onshore Site.

Plate 20-1 Exposed rocky shores recorded at the OLL of the Onshore Site, recorded directly adjacent to Improved agricultural grassland.

20.4.1.1.2 Improved agricultural grassland (GA1)

Outside of the existing road infrastructure, the dominant land use within the Onshore Site is agriculture, generally best classified as Improved agricultural grassland (GA1). This habitat type is present in lands where the Project reaches the Landfall, in the northern extent of the Onshore Site (Plate 20-2), and again where the OGC goes off road north and east of Kilrush (Plate 20-3). It was also recorded extensively adjacent to the Doonbeg (L2030) local road, within the Onshore Site. This habitat was typically dominated by perennial ryegrass, with rare to frequent occurrences of broadleaved species such as clovers (*Trifolium* spp.), sorrel and doc (*Rumex* spp.), chickweed (*Stellaria media*), Fumitory (*Fumaria sp.*), sheep's bit (*Jasione montana*), and creeping buttercup (*Ranunculus repens*).

Plate 20-2 GA1 habitat recorded in the northern extent of the Onshore Site.

Plate 20-3 GA1 habitat recorded in lands, north of Kilrush, which had been recently spread with slurry.

20.4.1.1.3 Active raised bog (PB1) and Cutover bog (PB4)

In lands adjacent to the northern section of the OGC, areas of peatland were identified and included areas of Active raised bog (PB1) and Cutover bog (PB4) (Plate 20-4 and Plate 20-5). Varying degrees of turbary were recorded and these peatlands often presented as bare beat. In areas less worked, categorised as Active raised bog, albeit degraded due to drainage, species identified were dominated by purple moor grass (*Molinia caerulea*), with frequent recordings of long heather (*Calluna vulgaris*), deer grass (*Trichophorum cespitosum*), common cottongrass (*Eriophorum angustifolium*), as well as frequent to occasional Yorkshire fog (*Holcus lanatus*) and soft rush (*Juncus effusus*) in the more degraded areas. These peatland habitats were buffered from the OGC and Onshore Site by other habitats, as indicated in Plate 20-5, such as grassy verges, bramble scrub, dense bracken, or hedgerows. No works will be undertaken within, or directly adjacent to, any peatland habitat.

Plate 20-4 Degraded blanket bog recorded in close proximity to the Onshore Site.

Plate 20-5 Grassy verge and scrub buffer between the Onshore Site and peatland habitats.

20.4.1.1.4 Wet grassland (GS4)

Areas of marginal or semi-improved wet agricultural grassland were recorded in lands adjacent to the Doonbeg (L2030) local road (Plate 20-6), within the Onshore Site, and were classified as Wet grassland (GS4). These were recorded sporadically along the length of the OGC, from the OLL to the Moneypoint 220kV Substation. These were generally dominated by a combination of wet ground species such as Yorkshire fog (*Holcus lanatus*) and soft rush (*Juncus effusus*).

Plate 20-6 Example of juncus dominated wet grassland recorded in lands adjacent to the Doonbeg (L2030) local road.

20.4.1.1.5 Dry meadows and grassy verges

Often delineating sections of the Doonbeg (L2030) local road, along which much of the OGC will be laid, this habitat was recorded as small narrow strips between road infrastructure and other habitats such as treelines, hedgerows, stone walls, and woodlands. This habitat typically contained a mix of species which included false oat-grass (*Arthenatherum elatius*), Bent grasses (*Agrostis spp.*) sheep's bit (*Jasione montana*), creeping buttercup (*Ranunculus repens*), Yorkshire fog (*Holcus lanatus*), daisy (*Bellis perennis*), tormentil (*Potentilla erecta*) and rosebay willow herb (*Chamaenerion angustifolium*).

20.4.1.1.6 Amenity grassland

This habitat was predominantly recorded in lands within Kilrush Golf Club (Plate 20-7), where the OGC travels north of Kilrush town. These are highly maintained grassland habitats and are typically species poor, usually dominated by one grass species. This habitat was also recorded delineating road infrastructure from private dwellings or farmyards.

Plate 20-7 Example of Amenity grassland within Kilrush Golf Course, also showing an example of Treeline habitat.

20.4.1.1.7 Hedgerow (WL1)

This habitat was recorded extensively along the OGC route as it delineated much of the existing road infrastructure (Plate 20-8) and agricultural fields (Plate 20-9). These were often managed through hedge cutting, particularly along roads. The structure of these habitats was typically dominated by European gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus* agg.), with occasional to frequent occurrences of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*). Species recorded in the understory of this habitat were diverse, including ivy (*Hedera helix*), false oat grass (*Arrhenatherum elatius*), rosebay willow herb (*Chamaenerion angustifolium*), cleaver (*Galium aparine*), tufted vetch (*Vicia cracca*), cocksfoot (*Dactylis glomerata*), hedge woundwort (*Stachys sylvatica*) and ragwort (*Jacobaea vulgaris*).

Plate 20-8 Example of managed hedgerow habitat recorded along existing road infrastructure.

Plate 20-9 Example of hedgerow forming field boundaries along the OGC route.

20.4.1.1.8 Treeline (WL2)

Treeline habitat was recorded along the OGC route, typically delineating road infrastructure (Plate 20-10) and also forming boundaries to areas of woodland such as conifer plantations (Plate 20-11). This habitat was also recorded in Kilrush golf club, adjacent to the route of the OGC (Plate 20-7 above). Treelines comprised a mix of native and non-native trees, including hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), ash (*Fraxinus excelsior*), silver birch (*Betula pendula*), beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*), as well as conifer species such as Scots pine (*Pinus sylvestris*) and Douglas fir (*Pseudotsuga menziesii*).

Plate 20-10 Example of native treeline delineating road infrastructure.

Plate 20-11 Birch treeline delineating conifer plantation habitat, also showing bramble scrub in the foreground.

20.4.1.1.9 Scrub (WS1)

Sections of scrub habitat were recorded along the length of the OGC route, particularly in unmanaged agricultural lands adjacent to the road corridor (Plate 20-12). It also formed boundaries to other habitat such as woodland, as shown in Plate 20-9 above. Scrub habitat recorded was typically dominated by bramble (*Rubus frutiocosus* agg.), European gorse (*Ulex europeaus*), hawthorn (*Crataegus monogyna*), and blackthorn (*Prunus spinosa*). Other species recorded included field bindweed (*Convolvulus arvensis*), Yorkshire fog (*Holcus lanatus*), and rosebay willowherb (*Chamaenerion angustifolium*).

Where the OGC turns south into the Moneypoint 220kV Substation, additional areas of scrub habitat were recorded (Plate 20-13). These were extremely dense sections of scrub, which was dominated by bramble with semi-matures recordings of willow (*Salix* spp.), European gorse (*Ulex europeaus*), hawthorn (*Crataegus monogyna*), birch (Betula pendula), and Douglas fir (*Pseudotsuga menziesii*), forming scrub woodland.

Plate 20-12 Example of scrub habitat which was allowed to establish in unmanaged agricultural lands.

Plate 20-13 Example of scrub habitat which was allowed to establish within Moneypoint Power Station lands

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20.4.1.1.10 Conifer plantation (WD4)

Areas of forestry were recorded adjacent to the road infrastructure along the OGC route and were categorized as Conifer plantation (WD4). These were typically comprised of Sitka spruce (*Picea sitchensis*) and due to shading of the canopy, there was little biodiversity in the understories of these woodlands.

20.4.1.1.11 Mixed broadleaved woodland (WD1)

The OGC will be lain in areas of existing road infrastructure and farm tracks which are delineated by Mixed broadleaved woodland. A section of the route along the Doonbeg (L2030) local road was delineated by mature broadleaved trees (Plate 20-14). Species here included a mix of native and non-native species including hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*), and sycamore (*Acer pseudoplatanus*).

The OGC route also passes along an access track within Kilrush Golf Club (Plate 20-15) which is delineated by ash and alder (*Alnus glutinosa*). There is significant evidence of ash die back in this woodland, with multiple dead trees and many more of ill health. The understory of this woodland was dominated by bramble scrub.

Along the southern extreme of the OGC route, just north of Moneypoint Power Station, the OGC will pass through an area of woodland dominated by ash and Douglas fir (*Salix* spp.), with a very dense understory of gorse and bramble scrub (Plate 20-16). Additionally, in these lands, scrub habitat has matured into scrub woodland (Plate 20-17) which was dominated by large bramble thickets with semi-mature hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), birch (*Betula pendula*), and Douglas fir (*Pseudotsuga menziesii*) scattered throughout.

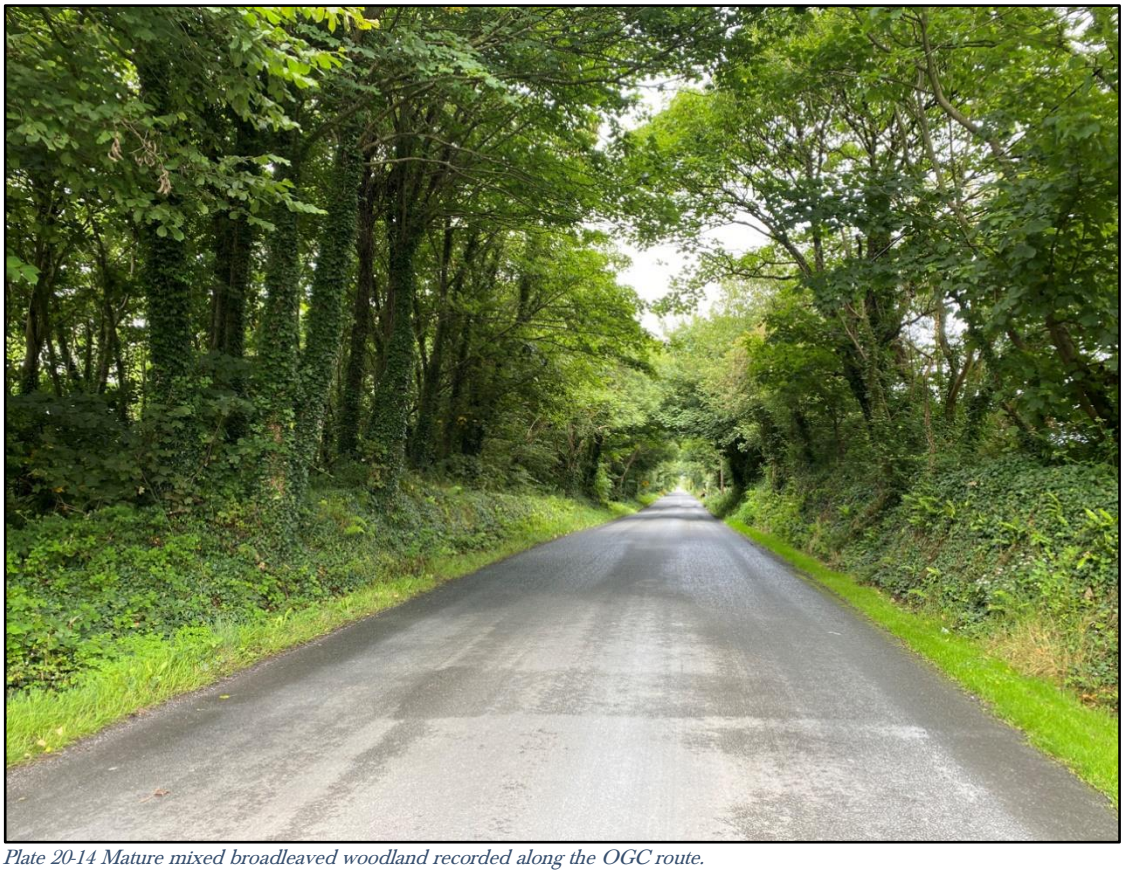


Plate 20-14 Mature mixed broadleaved woodland recorded along the OGC route.

Plate 20-15 Mixed broadleaved woodland recorded in Kilrush Golf Course, where ash die back is prevalent.

Plate 20-16 Mixed broadleaved woodland recorded in the southern extent of the OGC route, within Moneypoint Power Station.

Plate 20-17 Scrub woodland recorded within the grounds of Moneypoint Power Station.

20.4.1.1.12 Buildings and Artificial Surfaces (BL3)

The existing road infrastructure, as well as the buildings bordering the OGC route (Plate 20-18), were classified as Buildings and artificial surfaces (BL3). The route is primarily located along the Doonbeg (L2030) local road. Existing driveways, the Kilrush Golf Club (which includes one of the proposed temporary construction compounds to facilitate the Onshore Site), and hard surfaces within Moneypoint Power Station, as well as houses, farm shed/yards (Plate 20-19), and other buildings along the route are also classified as BL3.

Plate 20-18 Existing road infrastructure classified as Buildings and Artificial Surfaces (BL1).

Plate 20-19 Dwellings classified as Buildings and artificial surfaces along the OGC cable route.

20.4.1.1.13 Eroding Upland Rivers (FW1)/Depositing lowland Rivers (FW2)

The OGC will cross 11 no. mapped EPA watercourses along its route. These are described in further detail in the watercourse assessment in Section 20.5.2. Each watercourse was either categorized as Upland eroding rivers or Depositing lowland rivers, ranging from small highly vegetated streams (Plate 20-20), highly modified rivers (Plate 20-21) to more open rivers with typical pool riffle glide sequences (Plate 20-22). There are no proposed instream works as part of Onshore Site.

Plate 20-20 Highley vegetated mapped watercourses along the northern section of the OGC.

Plate 20-21 Heavily modified stream within Kilrush golf course, which the OGC will cross.

Plate 20-22 Section of an unmapped upland eroding stream within Moneypoint Power Station lands.

20.4.1.1.14 Shingle and gravelly shores (LS1)

At the southern extent of the Onshore Site, the OGC is located within grassy verges in close proximity to a Shingle and gravelly shore (LS1) (Plate 20-23). The OGC runs parallel to this habitat for approximately 370m, on the opposite site of the N67. The N67 itself provides a buffer between the works area and this habitat. This habitat was characterised by sediment that was larger than sands and smaller than that of boulder beaches. A narrow strip of grassy verge was identified between this coastal habitat and the N67.

This habitat was identified as potentially providing foraging habitat for waterbirds and waders, including bird species that are among those listed as SCIs of any SPA.

Plate 20-23 Shingle and gravelly shores habitat recorded adjacent to the southern section of the Onshore Site.

20.4.1.2 Habitats within and adjacent to the Onshore Compensation Compound

The OCC, which forms part of the Onshore Site, is located in an agricultural field best classified as Improved agricultural grassland (GA1) (Plate 20-24). This area was characterized by dominant perennial ryegrass and frequent Yorkshire fog (*Holcus lanatus*), as well as frequent to abundant recordings of common broadleaved species such as white clover (*Trifolium repens*), meadow thistle (*Cirsium arvense*), common fumitory (*Fumaria officinalis*), shepherd's purse (*Capsella bursa-pastoris*), common sorrel (*Rumex acetosa*), creeping buttercup (*Ranunculus repens*), and dandelion (*Taraxacum* spp.).

Hedgerow habitat formed the boundary of OCC, and was also recorded throughout the Onshore Site, forming smaller holdings (Plate 20-25). This habitat was characterised by dominant hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*), with an understory of bramble and gorse.

No habitats listed under Annex I of the EU Habitats Directive were recorded within or adjacent to the OCC and no significant suitable supporting habitat for species listed under Annex II of the EU Habitats Directive, or bird species that are among those listed as SCIs of any SPA, was identified during the walkover survey.

Plate 20-24 Improved agricultural grassland recorded at the OCC stie.

Plate 20-25 Hedgerow habitat delineating the OCC site.

20.4.1.3 Habitats within and adjacent to Onshore Landfall Location

The infrastructure associated with the Onshore Site at the OLL is located within agricultural lands (Plate 20-2 above) of Improved agricultural grasslands (GA1). These fields are delineated by low hedgerows and drainage ditches which were highly vegetated.

No habitats listed under Annex I of the EU Habitats Directive were recorded within or adjacent to the OLL and no significant suitable supporting habitat for species listed under Annex II of the EU Habitats Directive was identified during the survey.

20.4.1.4 Habitats within and adjacent to Proposed passing bays between the OCC and the N67

The proposed passing bays between the OCC and the N67, in the southern extent of the Onshore Site, are located adjacent to existing road infrastructure categorised as Buildings and artificial surfaces (BL3) and within road margins of Dry meadows and Grassy verges (GS2) and Hedgerows (WL1) (Plate 20-26).

No habitats listed under Annex I of the EU Habitats Directive were recorded within or adjacent to the proposed passing bays and no significant suitable supporting habitat for species listed under Annex II of the EU Habitats Directive was identified during the walkover survey.

Plate 20-26 Existing road, grassy verge, and hedgerow habitats recorded at the proposed passing bays.

20.4.2 Watercourse Assessment

All watercourses which the Onshore Site crosses were assessed as part of multidisciplinary walkover surveys. In total, 11 EPA mapped watercourses were assessed. Figure 23-1 of Chapter 23: Water indicates all mapped watercourses which cross the Onshore Site. Most of them were categorized as small Lowland Depositing Streams (FW2) and were highly vegetated, presented little flow, had fine silt substrates, and were heavily modified, offering low fisheries and ecological value. Examples of this type of watercourse are provided in Plates 20-27, 20-28, and 20-29. These were typically found in the northern and southern extents of the Onshore Site, either forming field boundaries or culverted under existing public roads.

Additional lowland depositing streams, such as those indicated in Plates 20-30 and 20-31, were also recorded crossing the Onshore Site. Whilst these watercourses were larger than the above, and were less vegetated, the substrates of these comprised fine silt and sand and presented high turbidity and slow flows. Surrounding land uses of these watercourses comprised agriculture (direct cattle access), turbary, and forestry.

Of the 11 mapped watercourses, three were categorized as Upland Eroding streams (FW1) and displayed typically riffle-pool-glide features up and down stream of the Onshore Site (Plates 20-32 and 20-33). Land uses adjacent to these watercourses included agriculture (direct cattle access) and forestry. Whilst these watercourses presented gravel beds, water flow was slow and there was varying degrees of siltation recorded. Whilst the watercourses presented in Plate 20-34 was categorized as an upland eroding stream, this was a highly vegetated first order watercourse and presented low fisheries and ecological value. There will be no instream works associated with the Onshore Site.

Plate 20-27 Example of heavily vegetated lowland depositing stream, in the northern extent of the Onshore Site.

Plate 20-28 Example of heavily vegetated lowland depositing stream, in the southern extent of the Onshore Site

Plate 20-29 Second example of heavily vegetated lowland depositing stream, adjacent to the OCC.

Plate 20-30 Larger lowland depositing stream with high degree of siltation and very slow flow.

Plate 20-31 Highly modified lowland depositing stream within Kilrush Golf Club

Plate 20-32 Example of upland eroding stream, east of Kilrush

Plate 20-33 Example of upland eroding stream with high shading and adjacent to agricultural fields.

Plate 20-34 highly vegetated first order upland eroding stream

No evidence of otter, including otter resting or breeding sites were recorded up or downstream of any water crossing associated with the Onshore Site. Additionally, no evidence of otter was recorded along the coastal shore in the northern extent of the Onshore Site. However, watercourses and coastal shores provide potential foraging, commuting and breeding habitat for this species and are likely to be used on occasion by otter.

No significant potential supporting habitat for freshwater pearl water was recorded within or adjacent to the Onshore Site. Watercourses associated with the Onshore Site were assessed as providing low suitability for supporting FWPM as they were typically small first order streams, highly vegetated, heavily shaded, or comprised fine sediment substrates.

20.4.2.1 Protected Habitats/Flora

In summary, as described in the preceding sections, no Annex I habitats were recorded within the Onshore Site. Furthermore, no botanical species listed under the Flora (protection) Order or listed in the Irish Red Data Books were recorded on the Onshore Site. All species recorded are common in the Irish landscape. No rare and protected plant species identified in the desk study, including those obtained from NPWS data request were recorded within the study area.

20.4.3 Invasive Species

Japanese knotweed (*Fallopia japonica*) was recorded along the OGC route in several locations (Plate 20-35 to 20-37). Additionally, rhododendron was recorded within Kilrush Golf Club, adjacent to the OGC route (Plate 20-38). These species are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 of 2011) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024). Locations where Japanese Knotweed and Rhododendron were recorded is provided in Appendix 20-2.

Plate 20-35 Japanese knotweed recorded along the northern section of the OGC route.

Plate 20-36 Japanese knotweed recorded along the OGC route within Kilrush Golf Club.

Plate 20-37 Japanese knotweed recorded along the southern section of the OGC route.

Plate 20-38 Stand on rhododendron recorded within Kilrush Golf Club.

493600
494000
494400
667600
667200

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Improved agricultural grassland (GA1)
- Wet grassland (GS4)
- Exposed rocky shores (LR1)
- Depositing/ Lowland Rivers (FW2)
- Drainage Ditches (FW4)
- Hedgerows (WL1)

0 0.1 0.2 km

Kilometres

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Northern most section

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-4

SCALE	PAPER SIZE	DATUM	PROJECTION
1:4,500	A4	IRENET95	Transverse Mercator

494000

494500

N

666500

666000

666500

666000

494000

494500

SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Improved agricultural grassland (GA1)
- Wet grassland (GS4)
- Depositing/ Lowland Rivers (FW2)
- Drainage Ditches (FW4)
- Hedgerows (WL1)

0 0.1 0.2 km

Kilometres

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Northern section

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-5

SCALE	PAPER SIZE	DATUM	PROJECTION
1:5,000	A4	IRENET95	Transverse Mercator

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Improved agricultural grassland (GA1)
- Wet grassland (GS4)
- Depositing/ Lowland Rivers (FW2)
- Hedgerows (WL1)
- Dry meadows and grassy verges (GS2)
- (Mixed) broadleaved woodland (WD1)
- Scrub (WS1)

0 0.1 0.2 km

Kilometres

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Kilrush Golf Club - North

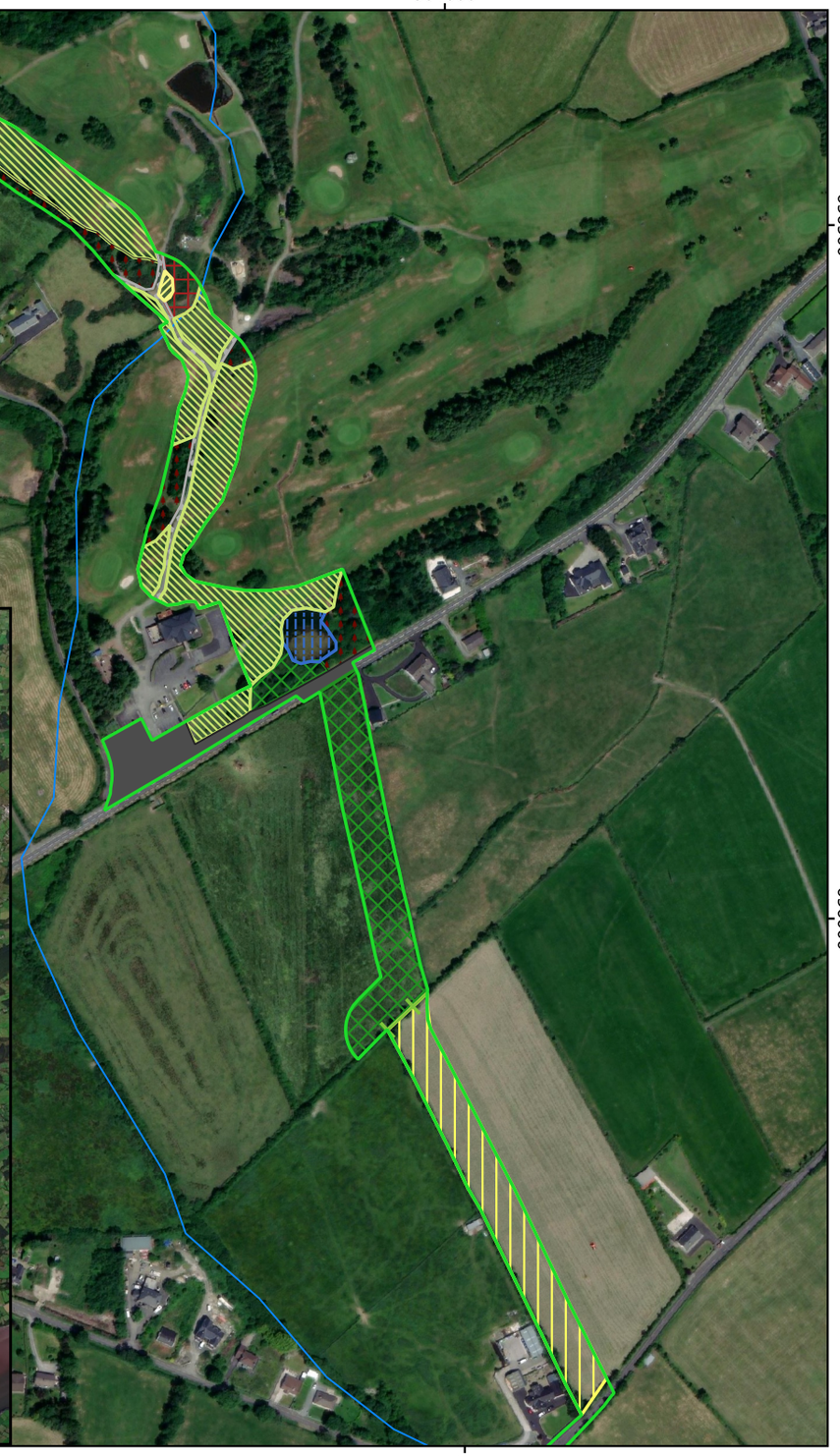
VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-6

SCALE	PAPER SIZE	DATUM	PROJECTION
1:5,000	A4	IRENET95	Transverse Mercator

500000
500500
501000
N
656500
656000



SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Buildings and artificial surfaces (BL3)
- Spoil and bare ground (ED2)
- Wet grassland (GS4)
- Depositing/ Lowland Rivers (FW2)
- Hedgerows (WL1)
- Arable crops (BC1)
- Other artificial lakes and ponds (FL8)
- Amenity grassland (improved) (GA2)
- (Mixed) broadleaved woodland (WD1)
- Scrub (WS1)

0 0.1 0.2 km

Kilometres

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Kilrush Golf Club - South

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-7

SCALE	PAPER SIZE	DATUM	PROJECTION
1:5,000	A4	IRENET95	Transverse Mercator

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Depositing/ Lowland Rivers (FW2)
- Hedgerows (WL1)
- Treelines (WL2)
- Improved agricultural grassland (GA1)

0 50 100 m
Meters

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Onshore Compensation Compound

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-8

SCALE	PAPER SIZE	DATUM	PROJECTION
1:2,500	A4	IRENET95	Transverse Mercator

502800

503400

652800

652200

N

SCEIRDE ROCKS WINDFARM
Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Onshore Site
- Buildings and artificial surfaces (BL3)
- Depositing/ Lowland Rivers (FW2)
- (Mixed) broadleaved woodland (WD1)
- Scrub (WS1)
- Dry meadows and grassy verges (GS2)
- Mixed broadleaved/conifer woodland (WD2)

0 0.1 0.2 km

Kilometres

PROJECT TITLE

Sceirde Rocks

MAP TITLE

Habitat Map - Lands west and within Moneypoint

VER	REMARKS	DATE	Drawn	Approved
V1		06/12/2024	PD	PR

DRAWING NO

Figure 20-9

SCALE	PAPER SIZE	DATUM	PROJECTION
1:6,000	A4	IRENET95	Transverse Mercator

20.4.4 Fauna in the Existing Environment

The following subsections provide the results of the faunal surveys undertaken within the Onshore Site of the Project during site visits and assessments as outlined in Section 20.2.3 (Field Surveys).

20.4.4.1 Badger

Signs of badger activity were recorded within woodland and agricultural fields within which the OGC is located. Signs were limited to worn mammal tracks along field margins and through woodland, and occasional snuffle holes as well as a disturbed bee nest. No additional indications, including setts, were recorded within or adjacent to the footprint of the Onshore Site. Woodland and hedgerow habitat recorded along the OGC route provided potential supporting habitat for this species.

20.4.4.2 Otter

No evidence of otter, including otter resting or breeding sites were recorded up or downstream of any water crossing associated with the Onshore Site. Additionally, no evidence of otter was recorded along the coastal shore in the northern extent of the Onshore Site. However, watercourses and coastal shores provide potential foraging, commuting and breeding habitat for this species and are likely to be used on occasion by otter.

20.4.4.3 Marsh Fritillary

No indication of marsh fritillary, including larval webs, were recorded within or adjacent to the Onshore Site. Furthermore, no supporting habitat, in the form of grasslands including Devil's bit scabious, was recorded during the survey efforts.

20.4.4.4 Freshwater Pearl Mussel (FWPM)

No significant potential supporting habitat for this species was recorded within or adjacent to the Onshore Site. Watercourses associated with the Onshore Site were assessed as providing low suitability for supporting FWPM as they were typically small first order streams and highly vegetated.

20.4.4.5 Bats

Full details and results of the bat surveys are provided in the Bat Report which is included as Appendix 20-1 of this EIAR. The sections below provide a summary of each of the surveys undertaken.

20.4.4.5.1 *Bat Habitat Appraisal*

Whilst this is the Terrestrial Biodiversity chapter of the Project, this section also provides information on bats which may be foraging offshore. The two closest accessible landfall areas to the OAA were selected as 'Drop-off points'. Bat surveys were undertaken at these locations to determine the potential use of coastal areas near the OAA by bats and estimate potential use of the OAA by bats.

The Drop-off points consisted of *Exposed Rocky Shore* habitat and were assessed as having *Negligible* suitability for foraging and commuting bats, due to limited connectivity and a lack of linear features. No potential for roosting bats was identified at the Drop-off points.

The OLL contains primarily *Improved Agricultural grassland,* with *Exposed Rocky shore* habitats located approximately 100m north of it. These habitats provide *Low* suitability for commuting and foraging bats. The OLL has no features that provide roosting potential for bats.

The OCC primarily consists of *Improved Agricultural grassland*, with *hedgerow* habitat forming the boundary and also recorded throughout the site. With regard to foraging and commuting bats, the OCC is considered of *Moderate* suitability due to the presence of established hedgerows within and bordering the OCC, along with high-quality connectivity to the wider landscape, in particular the woodland located 1.4km to the northwest. With regard to roosting bats, the OCC presented a roosting suitability of *None*.

Preliminary Roost Assessment

With regard to roosting bats, habitat features within the Onshore Site, including grassland habitats, hedgerows and drainage ditches were assessed as having *Negligible* suitability i.e. Negligible habitat features likely to be used by roosting bats/trees of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential (Collins, 2016).

There were 11 no. EPA mapped watercourse crossings recorded along the OGC. The bridge structures at each watercourse crossings were inspected for signs of bat roosts and were assessed for bat roost potential on the 20th of June 2024. No evidence of bat roosts was found at any of the structures.

Several potential roost features in trees were also identified within the Onshore Site. Due to the large number present, trees were assessed in clusters. All clusters were assessed as having *Negligible* roosting potential due to the presence of ivy. No other roosting features were identified.

20.4.4.5.2 Bat Activity Surveys

Manual Surveys

Night-time Bat Walkovers

Walkover surveys were carried out separately at the Drop-off points commencing before sunset and continuing for up to 3 hours after sunset. The aim was to assess bat activity and commuting/foraging behaviour, with the aid of NVAs. Bat activity was observed during all walkover surveys.

Bat activity consisted of a low number of common pipistrelle (n=11) and soprano pipistrelle (n=16) passes. The Spring night walkover survey was undertaken along Mweenish beach on the 25th of May 2023. The Summer transect was carried out along an unnamed beach on the Western edge of Mweenish island on the 18th of July 2023. A single Soprano pipistrelle was recorded flying east to west along the beach. The Autumn transect began at an unnamed beach on the southern coast of Mweenish island on the 7th of September 2023, and continued to Mweenish beach. Bats were recorded flying parallel to each of the beaches. No bats were observed flying out to sea towards the OAA during the Drop-off points manual surveys.

Driven Transects

Driven transects were carried out along the OGC. Activity was again dominated by soprano pipistrelles (n=84), with common pipistrelle (n=51) and Leisler's bat (n=32) also recorded. A single *Myotis* spp. call was recorded during the Summer transect.

Overall activity was relatively low along the OGC during each survey. At the OCC, five bat calls were recorded during the Summer transect. No bats were detected during the Spring and Autumn surveys. Soprano pipistrelle activity was recorded at White Strand Beach, the OLL, during all transects. At the OLL (IG Ref: Q 94450 67808), bat activity was recorded only during the Spring transect. The details of the survey are shown in Table 3-4 of the Bat Report and Figure 3-1, Figure 3-2 and Figure 3-3 of the Bat Report presents the spatial distribution of bat activity across the driven transects.

Static Detectors Surveys

Drop off points

Two SM4 static detectors were deployed along the Galway coast close to each of the Drop-off points for a minimum period of 10 days. The two detectors were deployed at locations DO01 and DO02 on the 5th of May 2023 for a total of 21 nights. They were then deployed on the 27th of June for a total of 21 nights. For the Autumn static detector survey, they were deployed at the same locations on the 24th of August and collected on the 7th of September for a total of 14 nights. The detectors allowed a specified look into species composition, commuting and foraging activities at the Drop-off points. Both detector locations were areas of exposed dry calcareous grassland. The locations of the static detectors are shown in Figure 2-1 of the Bat Report.

In total 1,787 bat passes were recorded. Analysis of the detector recordings positively identified five bats to species level with *Myotis* genus also present. Common pipistrelle (*Pipistrellus pipistrellus*) were the mostly commonly recorded species (n=895), followed by soprano pipistrelle *(Pipistrellus pygmaeus*) (n=790). *Myotis* spp. (n=48) and brown long-eared bat (*Plecotus auritus*) (n=42) were less frequently recorded. Leisler's bat (n=7) and Nathusius' pipistrelle (n=5) were recorded infrequently.

Onshore Site

Two SM4 static detectors were deployed at the OLL, and at the proposed OCC for a minimum period of 10 days. The two detectors were deployed at locations GC01 (OCC) and GC02 (OLL) on the 24th of May 2023 for a total of 19 nights. They were then deployed at the same locations on the 27th of July for a total of 18 nights. For the Autumn static detector survey, they were deployed at the same locations on the 5th of September and collected on the 21st of September for a total of 16 nights. The detectors allowed a specified look into species composition, commuting and foraging activities at the OLL and OCC. Both detector locations were areas of improved agricultural grassland. The locations of the static detectors are shown in Figure 2-1.

In total 28,046 bat passes were recorded. Analysis of the detector recordings positively identified six bats to species level with *Myotis* genus also present. Soprano pipistrelle (*Pipistrellus pygmaeus*) made up the vast majority of the activity recorded within the Onshore Site (n=21,081), followed by Common pipistrelle *(Pipistrellus pipistrellus*) (n=5,779). *Myotis* spp. (n=555) and Leisler's bat (*Nyctalus leisleri*) (n=449) were less frequently recorded, followed by brown long-eared bats (n=110) and Nathusius' pipistrelles (n=15). Additionally, 57 instances (bat passes) of lesser horseshoe bat were recorded at the Onshore Site. The OGC is located outside the current known range for this species, according to 2019 Article 17 Reports (NWPS, 2019).

Further details on all the bat surveys are provided in the Bat Report in Appendix 20-1 of this EIAR.

20.4.4.6 Other Fauna

No indications of any additional protected fauna, nor significant supporting habitat for any protected species, were recorded during the survey efforts.

20.4.5 Identification of Key Ecological Receptors

Table 20-11 below summarises the ecological evaluation of all receptors as outlined in Section 20.5. It provides the rationale for the determination and identifies the habitats and fauna that are considered to be KERs and therefore those receptors that are subject to impact assessment and considered in Section 20.6 of this report. Following impact assessment mitigation measures are incorporated into the Onshore Site where required, to avoid potential significant impacts on these KERs.

Table 20-11 Key Ecological Receptors identified during the assessment.

Ecological feature or species	KER	Reason for inclusion as a KER
Protected Sites		
European Sites › Tullaher Lough and Bog SAC (002343) › Lower River Shannon SAC (002165) › Carrowmore Dunes SAC (002250) › River Shannon and River Fergus Estuaries SPA (004077) › Mid-Clare Coast SPA (004182) *International Importance*	Yes	These designated sites have been assigned International Importance as they are sites designated as part of the Natura 2000 Network under the EU Habitats Directive. A potential pathway for direct effects on Tullaher Lough and Bog SAC via the inadvertent damage to QI habitats for which the designated was identified. A potential pathway for indirect effects on these European Sites, via the deterioration of water quality during the construction and operational and maintenance phases of the Onshore Site, was identified. **Therefore, these European Sites are included as KERs.** Note: European Sites within the Likely Zone of Impact are considered in the NIS that accompanies this planning application.
National Sites › Tullaher Lough And Bog [000070] pNHA › Poulnasherry Bay pNHA [000065] *National Importance*	Yes	These pNHAs have been assigned National Importance as they are sites proposed to be designated as Natural Heritage Areas (NHAs). Tullaher Lough And Bog pNHA is located directly adjacent to the OGC route and therefore, a potential pathway for significant impacts on this National Site was identified via direct habitat damage. The OGC crosses two mapped watercourses which drain into Poulnasherry Bay pNHA and therefore, a potential pathway for significant impacts on this National Site was identified via indirect deterioration of water quality. **Therefore, these National Sites are included as a KER.**
Habitats		
› Improved Agricultural Grassland (GA1) › Wet Grassland (GS4) › Dry meadows and grassy verges (GS2) › Arable Crops (BC1) › Buildings and artificial surfaces (BL3) › Amenity Grassland (GA2)	No	These habitats, although some contain small areas of semi-natural habitat that are of some local importance for wildlife, are common and widespread in the local and wider landscape and are assigned Local Importance (lower value). Whilst there will be some loss of some of these habitats to facilitate the Onshore Site, these habitats are **not** included as KERs.

› Spoil and bare ground (ED2) › Recolonising bare ground (ED3) › Earth banks (BL2) › Conifer plantation (WD4) › Drainage ditches (FW4) *Local Importance (lower value)*		
› Exposed Rocky Shores (LR1) › Shingle and gravely shores (LS1) › *Local Importance (higher value)*	No	These habitats have been assigned as of Local Importance (*higher value*) as they contain high biodiversity value and a high degree of naturalness, or populations of species that are uncommon in the locality. The Onshore Site will not interact with these habitats. Where the Offshore Site reaches the Landfall, trenchless technology will be used, avoiding all impacts on Exposed Rock Shores recorded in the northern section of the Onshore Site. Furthermore, where Shingle and gravely shores were recorded in southern extent of the Onshore Site, the OGC will be laid within road infrastructure and grassy verges, avoiding this habitat. Therefore, these habitats are **not** included as KERs.
› Hedgerow (WL1) › Scrub/Scrub woodland (WS1) › Mixed broadleaved woodland (WD1) *Local Importance (higher value)*	Yes	These habitats have been assigned as of Local Importance (*higher value*) as they contain high biodiversity value and help maintain links and ecological corridors between features of higher ecological value and are likely to be utilised by protected faunal species. To facilitate the Onshore Site, there will be some loss of these habitats. **Therefore, these habitats are included as KERs.**
› Aquatic receptors *Local Importance (higher value) to International Importance.*	Yes	A total of 11 mapped watercourses traverse the Onshore Site. European and National Sites are located along and downstream of some of these watercourses and therefore, aquatic receptors have been assigned *Local Importance (higher value)* to *International Importance*. There is, therefore, potential for indirect effects on surface and groundwater systems via deterioration of water quality arising from the construction and operational and maintenance phases of the Onshore Site. As no in stream works are proposed as part of the development, the potential for significant effects on aquatic species, with the exception of otter, is restricted to indirect effects on their habitat resulting from water pollution (as noted above). **Therefore, Aquatic receptors are included as a KER.**
› Otter *Local Importance (higher value) to International Importance.*	Yes	Otter have been assessed as Local Importance (higher value) to International Importance as they are a QI of the Lower River Shannon SAC, and multiple mapped watercourses cross the Onshore Site which drain into this SAC.

		In addition to indirect impacts on this receptor, as detailed above, there is also potential for direct impacts on populations of otter where they occur along watercourses or coastlines which interact with the Onshore Site, as a result of disturbance. **Therefore, otter are included as a KER.**
› Badger *Local Importance (higher value)*	Yes	Although no badger setts were identified along or adjacent to the OGC route or OCC, indications of badger presence were recorded in woodland and along field boundary hedgerows. Such indications included tracks and snuffle holes. To facilitate the Onshore Site, there will be loss of hedgerow and woodland, which provide potential supporting habitat for this species. **Therefore, badger is included as a KER.**
› Bats *Local Importance (higher value)*	Yes	All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland, bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Acts 1976 (as amended). Habitats at the Drop-off points, the closest mainland points to the OAA, are comprised of rocky shores and provide *Negligible* foraging and roosting habitat for bats. In addition, no bats were observed flying in the direction of the OAA during the manual surveys undertaken. Based on the desk studies and surveys, which indicated low levels of activity at the coasts closest to the Offshore Site, there is no evidence to suggest that bats are migrating/commuting towards the OAA. The habitats within and surrounding the Onshore Site, particularly within the OCC, were assessed as providing *moderate* suitability for foraging bats and are likely to be utilised by bat populations of Local Importance (*higher value*). Two bridges and several clusters of trees within the Onshore Site were identified as providing *Negligible* habitat for roosting bats. No other roosting features were identified and there is no potential for significant impacts on roosting bats. The Onshore Site has the potential to result in significant impacts on bats as a result of disturbance and loss of foraging habitat. **Therefore, bats are included as a KER.**
› Marsh Fritillary *County Importance* ›	No	No significant suitable habitat for marsh fritillary was recorded within or adjacent to the Onshore Site. Additionally, there will be no loss of habitats that could potentially provide significant suitable habitat for this species. Therefore, marsh fritillary are **not** included as a KER.
› Freshwater Pearl Mussel	No	No significant suitable habitat for FWPM was recorded within or adjacent to the Onshore Site. Whilst the OGC will cross two mapped EPA watercourses which are located within the catchment assigned "catchment of known extant populations, these

County to International Importance		watercourses drain into the lower reaches of the Doonbeg river, where there are no records of this species. Whilst the Onshore Site is also located within the Cloon (Clare) sub-catchment, within which internationally protected populations of this species are located in the Cloon River and are designated as QIs of the Lower River Shannon SAC, these populations are located within a separate river sub basin, and there is no hydrological connectivity between the Onshore Site and the Cloon River. Therefore, there is no pathway for effect on this species and FWPM are **not** included as a KER.
› Other fauna *Local Importance (higher value)* ›	No	No species of conservation concern or protected under Annexes of the EU Habitats Directive were recorded, nor was any significant supporting habitat recorded. Although other common species may occur within the Onshore Site, at least on occasion, no potential for significant effect has been identified on any other faunal species associated with the Onshore Site and are thus **not** included as KERs.

20.5 Ecological Impact Assessment

20.5.1 Do-Nothing Effect

If the Project doesn't proceed, the opportunity to capture the available renewable energy resource and connect it to Ireland's electricity grid would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

If the Onshore Site were not to proceed, it is unlikely that any changes would be made to the current land use practice. The majority of the lands along the OGC route and OCC would continue to be managed as they are now, either as improved agricultural/amenity grassland, woodland, or existing road infrastructure.

In some areas where scrub and woodland succession is establishing, these habitats may develop if not managed by the landowners and in time, this may undergo succession to small areas of mature woodland. The general biodiversity on the Onshore Site, as described in this chapter, would likely remain similar to its current state as activity levels and land use would not change.

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

20.5.2 Likely Significant Effects During Construction Phase

20.5.2.1 Effects on Habitats During Construction

The majority of the OGC route, which forms part of the Onshore Site, is located within habitats assessed as Local Importance (lower value), and include Buildings and artificial surfaces (BL3), Improved agricultural grassland (GA1), Wet grassland (GS4), and Spoil and bare ground (ED2). However, to facilitate the grid connection there will be some direct loss of habitats assessed as Local

Importance (higher value), including Hedgerows (WL1), mature Scrub and scrub woodland (WS1), and Mixed broadleaved woodland (WD1). The extent of these loses is provided in Table 20-12.

The proposed OCC and assoictaed HDD works are located in agricultural fields of Improved agricultural grassland (GA1), which are delineated by Hedgerows (WL1) dominated by hawthorn and blackthorn. Whilst the GA1 was assigned as Local Importance (lower value), hedgerow was assessed as Local Importance (higher value) and the extent of its loss to facilitate the development is given in Table 20-12. The table includes total temporary losses (areas temporarily disturbed during construction) and permanent losses (within operational footprint). Where the temporary loss is larger than the permanent loss, vegetation will be allowed to re-establish within the differences.

There are 11 mapped watercourses which the OGC will cross. Whilst there are no instream works proposed, there is potential for indirect effects on watercourses and their aquatic receptors as a result of the runoff of pollutants into the receiving environment, during the construction of the OGC.

Table 20-12 Habitats of local importance (higher value) which will be lost to facilitate the Onshore Site.

Habitat (KER)	Fossitt code	Temporary Area to be lost to construction works (hectares(ha)/meters(m))	Permanent Area to be lost to development footprint (hectares(ha)/meters(m))	Area allowed to reestablish post construction
Hedgerows (OGC)	WL1	33m	33m	0m
Hedgerows (OCC)	WL1	353m	353m	0m
Hedgerows (passing bays)	WL1	70m	70m	0m
Hedgerows Total		**456m**	**456m**	**0m**
Mature Scrub/Scrub woodland (OGC)	WS1	0.244 ha	0.203 ha	0.041 ha
Mature Scrub/Scrub woodland Total		**0.244 ha**	**0.203 ha**	0.041 ha
Mixed broadleaved woodland (OGC)	WD1	0.291 ha	0.225 ha	0.066 ha
Mixed broadleaved woodland (OGC joint bays)	WD1	0.036 ha	0.036 ha	0 ha
Mixed broadleaved woodland Total		**0.327 ha**	**0.261 ha**	0.066 ha

The effects on these KER habitats are described in Table 20-13 to Table 20-15 below.

20.5.2.1.1 Assessment of Potential Impact on Hedgerow (WL1)

Table 20-13 Assessment of Potential Effects on Hedgerow (WL1).

Description of Impact	To facilitate the OGC route for the Onshore Site, there will be requirement for loss of approx. 33m of hedgerow habitats. This total distance is the combination of small sections of hedgerow through which the OGC will pass through eleven individual sections along the overall route. To facilitate the OCC, there will be requirement for the permanent loss of approx. 353m of mature hedgerow habitat. To facilitate the proposed passing bays on the road between the OCC and N67, there will be requirement for the permanent loss of approx. 90m of hedgerow habitat. There will be no additional loss of hedgerow habitat as a result of the remaining components of the Onshore Site. In total, to facilitate the Onshore Site there will be a total permanent loss of approx. 456m of hedgerow habitat.
Assessment of Significance prior to mitigation	The loss of hedgerow habitats is not considered to be a significant effect at any scale greater than of local importance, as these habitats, although not widespread within the Onshore Site, are widespread and common within the wider environment. Removal of the hedgerows at this scale would not cause any significant fragmentation of habitat connectivity within the landscape. The loss of approx. 456m of linear habitats (hedgerow) is considered significant at the local geographic scale only.
Mitigation	In order to compensate for the loss of approximately 456 of hedgerow habitat to facilitate the Onshore Site, a landscape mitigation plan has been produced by Macroworks (Appendix 27-1 of Chapter 27 Landscape and Visual Impact Assessment) which provides for the bolstering and planting of hedgerow habitat around the OCC. Existing or marginal hedgerows around the OCC, totalling 870m, will be bolstered and maintained using native stock. Gaps in hedgerow alignment will be filled with native vegetation similar to existing species within the Onshore Site. Additionally, there will be approximately 406m of new hedgerow planted within the OCC site. Details of species, form, and size to be planted for the above are detailed in the Landscape Plan included in Appendix 27-1. Whilst there will be a loss in overall hedgerow habitat (50 meters), given the compensation measures given above, which includes the bolstering and maintenance of 870 m of hedgerow, this habitat will improve in the local area, as a result of the Onshore Site.

Residual Effect following Mitigation	Following implementation of mitigation, no potential for significant effect exists at any geographic scale. The planting of additional linear habitats as outlined above will result in a net gain of linear habitats within the Onshore Site.
Assessment of significant Effect	No significant effect on hedgerow habitat, as a result of the construction phase of the Onshore Site, are anticipated.

20.5.2.1.2 Assessment of Potential Impacts on Scrub/Scrub woodland and Mixed broadleaved woodland

Table 20-14 Assessment of Potential Effects on Scrub/Scrub woodland and Mixed broadleaved woodland.

Description of Impact	To facilitate the construction of the Onshore Site, there will be requirement to remove sections of mature scrub/scrub woodland and mixed broadleaved woodland along the OGC. To facilitate the OGC, there will be a total loss of approx. 0.327 ha of mixed broadleaved woodland within third party lands at Kilrush Golf Club and north of Moneypoint Power Station . Additionally, there will be a total loss of approx. 0.244 ha of mature scrub/scrub woodland to facilitate the OGC, predominantly within the lands of Moneypoint Power Station . There will be no additional loss of these habitats as a result of the remaining components of the Onshore Site.
Assessment of Significance prior to mitigation	The permanent loss of these habitats is not considered to be a significant effect at any scale greater than of local importance, as these habitats, although not widespread within the Onshore Site, are widespread and common within the wider environment. Removal of the scrub and mixed broadleaved woodland at this scale would not cause any significant fragmentation of habitat connectivity or overall distribution within the landscape. The loss of these habitats is considered significant at the local geographic scale only.
Mitigation	In order to compensate for the loss of approximately 0.244 ha of scrub/scrub woodland and approximately 0.327 ha of mixed broadleaved woodland habitat to facilitate the Onshore Site, a landscape mitigation plan has been produced by Macroworks (Appendix 27-1) which provides for planting of approximately 0.92 ha of native woodland within the OCC. Given the compensation measures given above, there will be total net gain of 0.35 ha of woodland habitat in the local area, as a result of the Onshore Site.
Residual Effect following Mitigation	Following implementation of compensation measures above, no potential for significant effect exists at any geographic scale. The planting of additional native woodland as outlined above will result in a net gain of such habitats within the Onshore Site.

Assessment of significant effects	No significant effects on Scrub/Scrub woodland and Mixed broadleaved woodland, as a result of the construction phase of the Onshore Site, are anticipated.

20.5.2.1.3 Assessment of Potential Impacts on Watercourses and Sensitive Aquatic Faunal Species

Table 20-15 Potential for impact on Watercourses and Sensitive Aquatic Species

Description of Impacts	The effects on onshore water quality are fully described in Chapter 23 Water of this EIAR and are described here in relation specifically to ecology. This section assesses the potential for likely significant effects on groundwater/surface watercourses and associated aquatic species, including, lamprey, white-clawed crayfish, European eel, salmonids, coarse fish, otter and other aquatic species identified during the desk study and surveys and likely to occur within or downstream of the Onshore Site. **Surface Watercourses (and associated aquatic species)** *Direct impacts (mortality)* There are 11 no. EPA mapped watercourses located along the OGC, as well as multiple drainage ditches which drain roadsides and field boundaries. These are further detailed in Chapter 23 'Water' of this EIAR. There are no instream works proposed to facilitate the OGC route, nor any other component of the Onshore Site. Therefore, there will be no direct impacts on aquatic receptors as a result of direct mortality, or any other direct pathway, as a result of the construction of the OGC or OCC. *Indirect impacts (water quality)* As there are multiple water crossings associated with the OGC, including 11 no. EPA mapped water crossings, there is potential for indirect impacts on watercourses and their aquatic receptors. Additionally, the OCC is located in close proximity to an EPA mapped watercourse, the Ballynote East stream. Indirect impacts may arise via the deterioration of water quality arising from the runoff/percolation of pollutants into surface or groundwater systems, as a result of the construction phase of both the OGC and OCC. Potential sources of pollution to aquatic systems include: › Slit laden surface water run-off; › Drainage and seepage of contaminated water resulting from infrastructure excavations; › Stockpiled excavated material providing a point source of exposed sediment; › Construction of the cabling trench including small amounts of peat soils, resulting in entrainment of sediment from the excavations during construction; and, › Erosion of sediment from emplaced site drainage channels.

	Groundwater Significant impacts on groundwater are not predicted to occur given the low to moderate vulnerability of most of the Onshore Site and no karst features were identified within or adjacent to Onshore Site.
Assessment of Significance prior to mitigation	In the absence of mitigation and following the precautionary principle, there is potential for works associated with the OGC route and OCC to result in a significant indirect effect on the identified aquatic habitats and their aquatic receptors at a local geographic scale in the form of pollution during the construction phase. This would also result in impacts on aquatic receptors assessed from Local Importance (Higher Value) to International Importance (i.e. the European designated sites listed in Table 20-11).
Mitigation	Detailed mitigation measures in relation to the protection of surface water during construction is detailed in Chapter 23. In summary the key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by utilizing water crossing methods which do not require in stream works, such as HDD or using existing structures. Detailed control measures in relation to the protection of surface waters during construction are detailed in Section 23.5.2 of Chapter 23. Although no significant impacts to groundwater are predicted from the Onshore Site during construction, measures to protect groundwater during construction are detailed in Section 23.5.2 in Chapter 23.
Residual Effect following Mitigation	Following the implementation of mitigation, there will be no significant residual effect on aquatic habitats or species as a result of the Onshore Site.
Assessment of significant effect	No significant effect on aquatic receptors, as a result of the construction phase of the Onshore Site, are anticipated.

20.5.2.2 Effects on Fauna During Construction

The construction of the Onshore Site has the potential to result in habitat loss and disturbance impacts on faunal species included as KERs, see Table 20-11. Therefore, the following species were taken forward for further assessment.

- Badger
- Otter
- Bats

The potential for significant effects on aquatic species, excluding otter, is restricted to indirect effects on their habitat resulting from water pollution. This has been assessed in Table 20-15 above and is not repeated below.

20.5.2.2.1 Assessment of Potential Impacts on Badger

Potential for significant effects on badger resulting from the construction of the Onshore Site were identified in the form of habitat loss/degradation and disturbance/displacement. These are assessed in Table 20-16.

Table 20-16 Assessment of Potential Impacts on badger during construction.

Description of Impacts	**Habitat Loss/Fragmentation** To facilitate the OGC route, there will be a loss of approx. 0.244 ha of scrub and scrub woodland, as well as approx. 0.33 ha of mixed broadleaved woodland and approx. 443m of hedgerow. There will also be temporary losses of sections of Improved agricultural grassland and Dry meadows and grassy verges. Whilst these habitats provide suitable foraging and commuting habitat for badger, this habitat loss will not be significant in the context of the widespread foraging habitat available in the wider environment and thus, there will be no significant loss/fragmentation of badger habitat as a result of the Onshore Site. **Disturbance/Mortality** No badger setts were identified during the ecological surveys undertaken of the Onshore Site. However, indications of badger activity along the OGC route (snuffle holes, worn mammals tracks, disturbed bee nest) were recorded. Additionally, the scrub/scrub woodland and mixed broadleaved habitats mentioned above provide potential supporting breeding habitat for this species. There is a potential for badger setts to be created during the interim between baseline ecological surveying and commencement of construction, therefore a potential for impact via disturbance/mortality of badger exists should new setts be created along the OGC or within the OCC. Noise and earth works during construction have the potential to disturb badgers occupying setts in close proximity to Onshore Site footprint. Badger tunnel systems can extend some distance from sett entrances (over 20m in some cases[7]) and therefore any excavation by heavy machinery in close proximity to sett entrances risks causing damage to setts and/or direct harm to badgers in the absence of mitigation. In the event that a new badger sett is established within or near the footprint of the Onshore Site during the interim, there is potential for disturbance/mortality to badger using the setts as a result of noise or sett/tunnel collapse during construction.
Assessment of Significance prior to mitigation	**Habitat Loss/Fragmentation** No significant overall loss or fragmentation of badger foraging habitat is anticipated at any geographic scale. **Disturbance/Mortality** Whilst no badger setts were recorded within or adjacent to the Onshore Site, baseline surveys identified recent activity within the construction footprint.

[7] *National Roads Authority (2006) Guidelines for the treatment of badgers prior to the construction of National Road Schemes.*

	Any potential for physical damage or significant disturbance of occupied setts (if established prior to construction) would be considered significant at the local geographic scale in the absence of mitigation.
Mitigation	**Habitat Loss/Fragmentation** No specific mitigation is required for habitat loss. However, where the loss of hedgerow, woodland and scrub habitats are to be compensated via the measures provided in Table 20-13 and Table 20-14, any losses of potential supporting breeding badger habitat will also be compensated for here. **Disturbance/Mortality** Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction badger survey will be carried out by a qualified ecologist to identify the presence of any setts that may have been established in the intervening period. The requirement for a pre-construction survey does not represent a *lacuna* in the survey assessment but is fully in line with industry best practice. Any setts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. If an active badger sett is identified and works can be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett as follows: › Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities. If a newly established and active sett was identified within an area where works could not avoid direct impacts on the sett then the sett would likely need to be excluded, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from the sett and would need to be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required.
Residual Effect following Mitigation	Following the incorporation of the mitigation measures described above, no significant negative effects to badger is anticipated at any geographic scale.
Assessment of significant effects	No significant effects on badger, as a result of the construction phase of the Onshore Site, are anticipated.

20.5.2.2.2 Assessment of Potential Impacts on Otter

Potential for significant effects on otter resulting from the construction of the Onshore Site were identified in the form of habitat loss/degradation and disturbance/displacement. These are assessed in Table 20-17.

Table 20-17 Assessment of Potential Impacts on otter during construction.

Description of Impact	Whilst no indications of otter (couches, holts, tracks, spraint) were recorded during the surveys undertaken, the OGC route crosses 11 EPA mapped watercourses, as well as drainage ditches, this protected species is likely to use these watercourses for foraging, commuting, and breeding at least on occasion. Furthermore, the OCC is located adjacent to an EPA mapped 1st order watercourse. Whilst otter are likely to use coastlines adjacent to the Onshore Site, there will be no works undertaken in these areas. **Habitat Loss/Fragmentation** There will be no instream works associated with the Onshore Site. Details of all water crossings are provided in Section 5.6.2.2.3 of Chapter 5: Project Description. Given the nature of the Onshore Site and the findings of the baseline surveys for otter, no significant habitat destruction, no loss of breeding or resting places and no direct mortality related impacts on this species are anticipated. Therefore, there is no potential for the Onshore Site to result in any impacts on otter as a result of habitat loss/fragmentation. **Disturbance, Mortality** In relation to disturbance, otter are predominantly crepuscular in nature and it is anticipated that construction activity associated with the Onshore Site will be confined to daytime hours, thus minimising potential disturbance related impacts to the species. Any disturbance impacts would be short-term in nature and not considered to have a significant impact on any local otter population. However, whilst no breeding sites (holts) were recorded within the construction footprint, should works result in the mortality of young in a breeding site that has established since surveys were undertaken, there is potential for significant impacts on this receptor, which was assessed from Local Importance (higher value) to Internationally important. **Habitat Degradation (impacts on water quality)** Taking a precautionary approach, it is assumed that otter may occur downstream of the OGC and OCC. There is, therefore, potential for construction works to result in the run-off of silt and other pollutants into watercourses downstream. This represents a potential indirect effect on otter in the form of habitat degradation/loss of prey resource through water pollution. Potential for indirect impacts on water quality was addressed in Table 20-15 and is not repeated here to avoid repetition.

Assessment of Significance prior to mitigation	**Habitat Loss/Fragmentation** Significant effects regarding habitat loss or barrier effect are not anticipated as a result of the Onshore Site. **Disturbance, Mortality** Whilst no otter breeding sites were recorded within or adjacent to the Onshore Site, watercourses adjacent to the Onshore Site provide potential foraging, commuting and breeding habitat for this species. Any potential for physical damage or significant disturbance of occupied holts (if established prior to construction) would be considered significant at the local and International geographic scale in the absence of mitigation. **Habitat Degradation (impacts on water quality)** Addressed in Table 20-15.
Mitigation	**Habitat Loss/Fragmentation** No mitigation required. **Disturbance, Mortality** Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction otter survey will be carried out by a qualified ecologist to identify the presence of any breeding sites up and downstream of the crossing points, that may have been established in the intervening period. The requirement for a pre-construction survey does not represent a *lacuna* in the survey assessment but is fully in line with industry best practice. Any holts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by otter and levels of activity. If an active otter holt is identified and works can be undertaken safely then an exclusion zone will be set up around the sett as follows: › Exclusion zone fencing and appropriate signage will be put in place between working areas and otter holt exclusion zones to ensure that there will be no encroachment of the breeding site exclusion zones by construction activities. If a newly established and active holt was identified within an area where works could not avoid direct impacts on the holt, the holt would likely need to be exclude, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from the holt and will be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required.

	Habitat Degradation (impacts on water quality) Addressed in Table 20-15.
Residual Effect following Mitigation	Following the incorporation of the mitigation measures described above, no significant negative effects to otter is anticipated at any geographic scale.
Assessment of significant effect	No significant effects on otter, as a result of the construction phase of the Onshore Site, are anticipated.

20.5.2.2.3 Assessment of Potential impacts on Bats

The impact assessment in relation to bats has been undertaken following best practice surveys (Collins, 2016 & Collins, 2023) and in accordance with NIEA and NatureScot Guidance. As per the NatureScot Guidance, there are three risks to bats as a result of the Onshore Site:

- Loss of, or damage to, roosts
- Loss or damage to commuting and foraging habitat
- Disturbance/displacement

For each of these three risks, the detailed knowledge of bat distribution and activity within the Onshore Site has been utilised to predict the potential effects of the Project on bats. These are assessed in Table 20-18.

Table 20-18 Assessment of Potential Impacts on Bats

Description of Impact	**Loss of, or Damage to, Roosts** No bat roosts were identified within the Onshore Site during the dedicated bat surveys undertaken and there are no historical roost records within its footprint. Where there will be loss of woodland associated with the OGC, semi mature ivy-covered ash trees proposed to be removed, as shown in Section 20.5.4.5 and the accompanying Bat report in Appendix 20-1, have been assessed as offering *Negligible* bat roosting potential (Collins 2023). The Onshore Site crosses 11 watercourses and each were assessed for roosting suitability. These features, which include culverts and bridges, presented *None* to *Negligible* suitability for roosting bats. Furthermore, the OGC will be lain via Horizontal Directional Drilling (HDD) or within road where sufficient cover is present, with no works to the under side of any bridge. Therefore, no significant impacts on bats as a result of loss or damage of roosts are anticipated as a result of the construction phase of the Onshore Site.
	Loss or Damage to Commuting and Foraging Habitat In absence of appropriate design, the loss or degradation of commuting/foraging habitat has potential to reduce feeding opportunities and/or displace bat populations. To facilitate the Onshore Site there will be a loss of hedgerow and woodland habitats within the footprint of the OGC and OCC. As per the Bat Report in Appendix 20-1, these habitats have assessed as providing *Moderate* suitability for foraging and commuting bats. There will be a total loss of approx. 456m of hedgerow habitat associated with the Onshore Site, to facilitate both the OGC and OCC. Additionally, there will be an approximate loss of 0.327 ha of Mixed broadleaved woodland.

	Disturbance/Displacement Construction of the majority of the Onshore Site is within existing road infrastructure delineated by hedgerows, treelines, woodland, and other linear features which provide foraging and commuting potential for bats. There is, therefore, potential for lighting associated with the construction phase of the Onshore Site to result in disturbance to foraging/commuting bats as a result of light spill and noise.
Assessment of Significance prior to mitigation	**Loss of, or Damage to, Roosts** No potential for significant effect with regard to the loss of, or damage to, roosting habitat as a result of the Onshore Site is anticipated at any geographical scale.
	Loss or Damage to Commuting and Foraging Habitat Considering the loss of potential suitable foraging and commuting habitat for bats associated with the construction of the Onshore Site, and the abundance of similar habitats in the wider environment, these losses would be considered significant at the local geographic scale only in the absence of mitigation. No significant impacts at any higher geographical scale are anticipated.
	Disturbance/Displacement Lighting and noise associated with construction phase of the Onshore Site will be short term and will not be confined to any one area for the duration of the works. Additionally, it is anticipated that works will generally be undertaken during daylight hours and there will be minimal requirement for lighting, if any. Therefore, no potential for significant impacts to bats, as a result of lighting or noise, at any geographical scale are anticipated during construction. However, mitigation measures are recommended on a precautionary basis.
Mitigation	**Loss of, or Damage to, Roosts** Whilst no significant impacts on roosting bats are anticipated, taking a precautionary approach, the following pre-commencement mitigations will be followed: › Any works undertaken on bridges identified as having bat roosting suitability will be subject to a pre-commencement inspection to ensure that no roosting bats are present. › Any potential felling of trees along the Onshore Site with suitable roosting features will be carried out with the assumption that bats may be present. Therefore, a pre-construction survey will be undertaken on trees to be felled by a qualified ecologist to ensure there are no roosting bats. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. › Trees with suitable potential roost features proposed for felling will be checked by a suitably qualified arborist at the time of felling. Further best practise measures will be

	prescribed by the ecologist following inspection as deemed necessary.
	Loss or Damage to Commuting and Foraging Habitat Mitigation and enhancement measures in relation to habitats, including those that provide foraging and commuting habitat for bats, are detailed in the Landscape Plan in Appendix 27-1. The Landscape Plan provides for the bolstering and maintenance of 870m of existing hedgerow habitat around the boundary of the OCC, which is where the majority of hedgerow loss will take place. Additionally, the Landscape Plan provides for the planting of 406m of new hedgerow within the OCC. Whilst there will be a slight loss in overall hedgerow habitat (37 meters), given the compensation measures given above, which includes the bolstering and maintenance of 870 m of hedgerow, overall hedgerow habitat will improve in the local area, as a result of the Onshore Site, enhancing foraging and commuting habitat for bats.
	Disturbance/Displacement On a precautionary basis, during construction works the following mitigations will be implemented to avoid any impacts on bats as a result of lighting or noise: › Any lighting required for night-time works, should they be required, will be switched off when not needed. › Lighting required for night-time works will be directed onto the works areas and will avoid linear habitat such as treelines or hedgerows. › All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 “European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996”. › Operating machinery will be restricted to the works area. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works. › Compressors will be of the “sound reduced” models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machines, which are used intermittently, will be shut down during those periods when they are not in use. With regard to the felling of trees which have been assessed as offering *Negligible* roosting potential for bats, the following mitigations will be implemented on a precautionary basis: › Following industry best practice, a pre-construction survey will be undertaken on trees to be felled/pruned by a qualified ecologist to assess any changes in the baseline environment since the 2023 and 2024 surveys. The requirement for a pre-construction survey does not represent a *lacuna* in the survey assessment but is fully in line with industry best

	practice. Whilst no roosts have been identified within the Onshore Site and significant impacts are not anticipated, if a bat roost is identified within any of the trees to be removed/pruned or bridges during the pre-commencement surveys, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required. › The pre-construction survey will either involve a dawn re-entry survey of the trees to be felled, and/or an inspection of the potential roosting features, depending on access availability and time of the year. Due to the potential for opportunistic use at any time of the bat activity season, and potential use during winter, the following precautionary measures are also recommended: › Trees will be nudged two or three times prior to felling or limb removal, with a pause of 30 seconds in between, to allow potential bats to wake and move. › Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006).
Residual Effect following Mitigation	Taking into consideration the sensitive design of the Onshore Site, the proposed best practice and adaptive mitigation measures, significant residual effects on bats as a result of loss or damage to commuting and foraging habitat, loss of, or damage to, roosts, displacement of individuals or populations, and disturbance, are not anticipated.
Assessment of significant effect	No significant effects on bats, as a result of the construction phase of the Project, are anticipated.

20.5.3 Likely Significant Effects During Operation and Maintenance Phase

20.5.3.1 Effects on Habitats during Operation and Maintenance

The operation of the Onshore Site will not result in any additional land take or loss of habitats and as such, there is no potential for any significant effects in this regard.

20.5.3.1.1 *Assessment of Potential Effects on aquatic receptors during Operation and Maintenance*

There is no potential for significant impacts on watercourses or their aquatic receptors as a result of the operation and maintenance phase of the Onshore Site. Whilst small sections of new access tracks will be created along the OGC (Note: the OGC predominantly follows existing road and farm tracks), there will be no significant increase in hard standing areas associated with the OGC, nor will the infrastructure result in any foul water discharge.

Regards surface water and foul water drainage of the OCC, a drainage design for the Onshore Site has been prepared by Malachy Walsh and Partners (MWP) (Appendix 5-15) and is described in Section 5.3.2.7 of Chapter 5 of this EIAR.

Stormwater runoff

Stormwater runoff will be collected from the hardstanding areas as follows.

- Buildings will be drained via rainwater downpipes to an underground gravity system before attenuation and discharge. Total buildings drainage area is 3210m².
- Bund areas will be constructed with benching to fall to a sump where it will be connected to the underground gravity system and will pass through a Full retention oil separator before attenuation and discharge. Total bunds drainage area is 224m².
- The proposed access track that is present throughout the Onshore Site will be constructed with the use of permeable asphalt. High voids within porous asphalt pavements cause water to filter through the pavement structure into an underlying drainage base and then into the water table. Total Asphalt Roadways drainage area is 8,459m².
- The remaining compound and any runoff from the access tracks are to drain via natural infiltration through the compound stone and the 6F2 material. Previous installations of this drainage mechanism have shown this approach is successful and the infiltration rate through the 6F2 material is adequate.

Foul Water

It is proposed to manage foul wastewater from the staff welfare facilities in the control buildings by means of 3 no. 5m^3 wastewater holding tanks to be installed. Emptying times of the holding tank may vary depending on usage but should be emptied every 6 months at a minimum.

Considering the above and the relatively small nature of the operation and maintenance phase of the Onshore Site, no potential for significant impacts on watercourses or their aquatic receptors exists.

20.5.3.2 Effects on Fauna during Operation and Maintenance

Potential for significant effects on bat species resulting from the operation of the Onshore Site were identified and therefore, these are identified as KERs during the operational phase and discussed further in Section 20.6.3.2 below.

There is no potential for significant negative effects on any other protected species during the operation and maintenance phase of the Onshore Site.

20.5.3.2.1 *Assessment of Potential Impacts on Bats during Operation and Maintenance*

Potential for significant effects on bat species resulting from the operation of the Onshore Site were identified in the form of disturbance from light spillage associated with the OCC only. No significant impacts on bats from the remaining elements of the Onshore Site or Offshore Site are anticipated during operation and maintenance. Please see Table 20-19 below for further detail.

Table 20-19 Assessment of Potential Effects on Bats during operation.

Description of Impact	Lighting has been proposed within the OCC as part of the Onshore Site. In the absence of mitigation, there is potential for disturbance of commuting or foraging bats due to artificial lighting associated with the operational phase of the Onshore Site.
Assessment of Significance prior to mitigation	In the absence of mitigation, disturbance from lighting during operation to local bat populations would be considered not significant at any geographic scale due to the overall low usage of the Onshore Site by local bat populations. However, as there was increased activity within the OCC, taking a precautionary approach, mitigations have been provided below to mitigate for any potential impacts during the operational phase of the Onshore Site, should they be required.
Mitigation	Any lighting plan for the proposed OCC will be designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Bat Conservation Trust (Guidance Note 08/23 Bats and Artificial Lighting at Night (ILP, 2023), to minimise light spillage, thus reducing any potential disturbance to bats. The proposed light fitting/scheme has been designed to help mitigate the effect of the artificial lighting on the local bat populations by incorporating the following: › Lamp temperatures will be 4000K throughout. However, all external lighting will be used for maintenance only and will only be used during such. There will be a central switch which will be switched on should any maintenance be required, once the central switch is on, lights will photocell controlled. › 0% tilt will be implemented to avoid upward lighting. › The luminaires will be complete with an LED source to eliminate the production of UV frequencies › Directional accessories will be implemented where necessary, in particular to prevent light spillage onto the linear hedgerows. ›
Residual Effect following Mitigation	No significant impacts on bat populations are anticipated. The mitigations provided above are aimed at minimising negative effects on local bats as a result of lighting. No significant residual effects are anticipated on local bat populations as a result of the Onshore Site.
Assessment of significant effects	No significant effects on bats, as a result of the operational phase of the Onshore Site, are anticipated.

20.5.4 Likely Significant Effects During Decommissioning Phase

Decommissioning of the Onshore Site is fully described in Section 5.8 of Chapter 5: Project Description of this EIAR.

There will be no additional habitat loss associated with the decommissioning of the Onshore Site and therefore there will be no significant effects in this regard.

The OGC connecting from the OLL to the OCC will be removed from the underground cable ducting at the end of the useful life of the renewable energy development. The cabling will be pulled from the cable duct using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at each of the joint bays/pull pits along the underground cabling route. The original pulling pits will be excavated using a mechanical excavator and will be fully re-instated once the cables are removed. The cable ducting and joint bays will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance for an underground element that is not visible and could be used for alternative purposes.

The above ground components of the OCC building and compound will be removed fully from the Onshore Site. For the underground components, such as the foundations and non-electrical infrastructure, the Best Environmentally Practicable Option (BEPO) is for these to remain in situ.

For the electrical infrastructure to be removed from the Onshore Site, any materials that can be reused or recycled will be. For example, steel or aluminium can be recycled and reused as building materials. This ensures that the volume of waste generated during decommissioning is kept to a minimum and promotes a circular economy.

The planted area adjacent to the OCC, as presented in the Landscape Mitigation Plan in Appendix 27-1, will remain in situ as this is considered to be the Best Environmentally Practicable Option (BEPO). The remainder of the Onshore Site will be reinstated to its original form with a grassed surface.

During the construction of the Onshore Site, passing bays will be created along between the OCC and the N67 west of Moneypoint Power Station to provide access to the Onshore Site during materials delivery. These accommodation areas will be re-used during decommissioning.

A Rehabilitation Plan, including details on decommissioning, has been included in Appendix 5-18 of this EIAR.

20.5.5 Effects on Designated Sites

20.5.5.1 European Designated Sites

The Onshore Site is located completely outside of the boundary of any European Site. The Onshore Site will interact with several watercourses which drain into European Sites to the north and south of the Onshore Site and therefore, a potential for likely significant effect was identified on several European Sites.

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

As per the EPA Guidelines *"A biodiversity section of an EIAR, for example, should not repeat the detailed assessment of potential effects on European sites contained in documentation prepared as part of the Appropriate Assessment process, but it should refer to the findings of that separate assessment in the context of likely significant effects on the environment, as required by the EIA Directive"*. This section provides a summary of the key assessment findings with regard to potential impacts on European Sites.

The AA Screening Report for the Onshore Site concluded:

'The Project alone or in combination with other plans and projects (i.e. Offshore and Onshore plans and projects) has the potential to have LSE on the following European Sites, in light of their conservation objectives and best scientific information (without the application of mitigation). Sites which have been included solely to ensure consistency with the foreshore licensing approach, are marked with an asterix.

- *Inishmore Island SAC,*
- *Kilkieran Bay and Islands SAC,*
- *Lower River Shannon SAC,*
- *Slyne Head Peninsula SAC,*
- *Slyne Head Islands SAC,*
- *West Connacht Coast SAC,*
- *Galway Bay Complex SAC,*
- *Blasket Islands SAC,*
- *Duvillaun Islands SAC,*
- *Connemara Bog Complex SAC,*
- *Twelve Bens/Garraun Complex SAC,*
- *Maumturk Mountains SAC,*
- *Lough Corrib SAC,*
- *Mweelrea/Sheeffry/Erriff Complex SAC,*
- *Inishmaan Island SAC,*
- *Carrowmore Point to Spanish Point and Islands SAC,*
- *Carrowmore Dunes SAC,*
- *Kilkee Reefs SAC,*
- *Kenmare River SAC*,*
- *Hook Head SAC*,*
- *Belgica Mound Province SAC*,*
- *Roaringwater Bay and Islands SAC*,*
- *Gweedore Bay and Islands SAC*,*
- *Bunduff Lough and Machair/Trawalua/Mullaghmore SAC*,*
- *St John's Point SAC*,*
- *Carnsore Point SAC*,*
- *Blackwater Bank SAC*,*
- *Lough Swilly SAC*,*
- *Codling Fault Zone SAC*,*
- *Rockabill to Dalkey SAC*,*
- *North Channel SAC*,*
- *West Wales Marine / Gorllewin Cymru Foro SAC*,*
- *Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC*,*
- *Mers Celtiques - Talus du golfe de Gascogne SCI*,*
- *North Anglesey Marine / Gogledd Môn Foro SAC*,*
- *Lambay Island SAC*,*
- *Nord Bretagne DH SAC*,*
- *Ouessant-Molène SAC*,*
- *Abers -Côte des legends SAC*,*
- *Chaussée de Sein SAC*,*

- *Côte de Granit rose-Sept-Iles SAC*,*
- *Baie de Morlaix SAC*,*
- *Côtes de Crozon SAC*,*
- *Récifs et landes de la Hague SAC*,*
- *Anse de Vauville SAC*,*
- *Banc et récifs de Surtainville SAC*,*
- *Baie du Mont Saint-Michel SAC*,*
- *Estuaire de la Rance SAC*,*
- *Baie de Lancieux SAC, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SAC*,*
- *Cap d'Erquy-Cap Fréhel SAC*,*
- *Baie de Saint-Brieuc SAC*,*
- *Tregor Goëlo Es SAC*,*
- *Mid-Clare Coast SPA*
- *Slyne Head to Ardmore Point Islands SPA*
- *Inishmore SPA*
- *Cruagh Island SPA*
- *River Shannon and River Fergus Estuaries SPA*
- *Cliffs of Moher SPA*
- *Illaunonearaun SPA*
- *High Island, Inishark and Duvillaun SPA*
- *Inner Galway Bay SPA*
- *Illaunnanoon SPA*
- *Magharee Islands SPA*
- *Clare Island SPA*
- *Loop Head SPA*
- *Bills Rock SPA*
- *Dingle Peninsula SPA*
- *Duvillaun Islands SPA*
- *Inishglora and InisKeeragh SPA*
- *Blasket Islands SPA*
- *Puffin Islands SPA*
- *Iveragh Peninsula SPA*
- *Skelligs SPA*
- *Stages of Broadhaven SPA*
- *Eirk SPA*
- *The Gearagh SPA*
- *Deenish Island and Scariff Island SPA*
- *Clonakilty SPA*
- *Illanmaster SPA*
- *The Bull and The Cow Rocks SPA*
- *Beara Peninsula SPA*
- *Aughris Head SPA*
- *West Donegal Coast SPA*
- *Tory Island SPA*
- *Horn Head to Fanad Head SPA*
- *Saltee Islands SPA*
- *Mingulay and Berneray SPA*
- *Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA*
- *Rum SPA*
- *Seas off St Kilda SPA*
- *St Kilda SPA*
- *Copeland Islands SPA*
- *Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island SPA*

- *Shiant Isles SPA*
- *Flannan Isles SPA*
- *Lambay Island SPA*
- *Ouessant-Molène SPA (France)*
- *Handa SPA*
- *Cape Wrath SPA*
- *Cote de Granit Rose-Sept Iles SPA*
- *Camaret SPA*
- *North Rona and Sula Sgeir SPA*
- *North Caithness Cliffs SPA*
- *Hoy SPA*
- *Cap d'Erquy-Cap Fréhel SPA (France)*
- *Rousay SPA*
- *West Westray SPA*
- *Copinsay SPA*
- *East Caithness Cliffs SPA*
- *Calf of Eday SPA*
- *Iles Houat-Hoedic SPA (France)*
- *Falaise du Bessin Occidental SPA (France)*
- *Seas off Foula SPA*
- *Fair Isle SPA*
- *Littoral seino-marin SPA*
- *Troup, Pennan and Lion's Heads SPA*
- *Foula SPA*
- *Sumburgh Head SPA*
- *Buchan Ness to Collieston Coast SPA*
- *Noss SPA*
- *Hermaness, Saxa Vord and Valla Field SPA*
- *Fetlar SPA*
- *Tullaher Lough and Bog SAC*

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

The NIS for the Onshore Site concluded:

'This NIS (Volumes 1 and 2) has assessed the impacts of the construction, operations and maintenance and decommissioning of the Project on European Sites and their relevant QI to determine whether the Project will have an adverse effect on the integrity of European Sites, either alone or in combination with other plans or projects and in light of the conservation objectives of the sites. The assessment concluded that there will be no adverse effect on the integrity of the

- *Inishmore Island SAC,*
- *Kilkieran Bay and Islands SAC,*
- *Lower River Shannon SAC,*
- *Slyne Head Peninsula SAC,*
- *Slyne Head Islands SAC,*
- *West Connacht Coast SAC,*
- *Galway Bay Complex SAC,*
- *Blasket Islands SAC,*
- *Duvillaun Islands SAC,*
- *Connemara Bog Complex SAC,*
- *Twelve Bens/Garraun Complex SAC,*
- *Maumturk Mountains SAC,*
- *Lough Corrib SAC,*
- *Mweelrea/Sheeffry/Erriff Complex SAC,*

- *Inishmaan Island SAC,*
- *Carrowmore Point to Spanish Point and Islands SAC,*
- *Carrowmore Dunes SAC,*
- *Kilkee Reefs SAC,*
- *Kenmare River SAC,*
- *Hook Head SAC,*
- *Belgica Mound Province SAC,*
- *Roaringwater Bay and Islands SAC,*
- *Gweedore Bay and Islands SAC,*
- *Bunduff Lough and Machair/Trawalua/Mullaghmore SAC,*
- *St John's Point SAC,*
- *Carnsore Point SAC,*
- *Blackwater Bank SAC,*
- *Lough Swilly SAC,*
- *Codling Fault Zone SAC,*
- *Rockabill to Dalkey SAC,*
- *North Channel SAC,*
- *West Wales Marine / Gorllewin Cymru Foro SAC,*
- *Bristol Channel Approaches / Dynesfeydd Môr Hafren SAC,*
- *Mers Celtiques - Talus du golfe de Gascogne SCI,*
- *North Anglesey Marine / Gogledd Môn Foro SAC,*
- *Lambay Island SAC,*
- *Nord Bretagne DH SAC,*
- *Ouessant-Molène SAC,*
- *Abers -Côte des legends SAC,*
- *Chaussée de Sein SAC,*
- *Côte de Granit rose-Sept-Iles SAC,*
- *Baie de Morlaix SAC,*
- *Côtes de Crozon SAC,*
- *Récifs et landes de la Hague SAC,*
- *Anse de Vauville SAC,*
- *Banc et récifs de Surtainville SAC,*
- *Baie du Mont Saint-Michel SAC,*
- *Estuaire de la Rance SAC,*
- *Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SAC,*
- *Cap d'Erquy-Cap Fréhel SAC,*
- *Baie de Saint-Brieuc SAC,*
- *Tregor Goëlo Es SAC,*
- *Mid-Clare Coast SPA*
- *Slyne Head to Ardmore Point Islands SPA*
- *Inishmore SPA*
- *Cruagh Island SPA*
- *River Shannon and River Fergus Estuaries SPA*
- *Cliffs of Moher SPA*
- *Illaunonearaun SPA*
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- *Magharee Islands SPA*
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- *Blasket Islands SPA*
- *Puffin Islands SPA*
- *Iveragh Peninsula SPA*
- *Skelligs SPA*
- *Stages of Broadhaven SPA*
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- *Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA*
- *Rum SPA*
- *Seas off St Kilda SPA*
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- *Copeland Islands SPA*
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- *Shiant Isles SPA*
- *Flannan Isles SPA*
- *Lambay Island SPA*
- *Ouessant-Molène SPA (France)*
- *Handa SPA*
- *Cape Wrath SPA*
- *Cote de Granit Rose-Sept Iles SPA*
- *Camaret SPA*
- *North Rona and Sula Sgeir SPA*
- *North Caithness Cliffs SPA*
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- *Iles Houat-Hoedic SPA (France)*
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- *Sumburgh Head SPA*
- *Buchan Ness to Collieston Coast SPA*
- *Noss SPA*
- *Hermaness, Saxa Vord and Valla Field SPA*
- *Fetlar SPA*
- *Tullaher Lough and Bog SAC*

either as a result of the Project alone or in combination with other plans or projects, provided that the mitigation listed is adhered to.

Therefore, it can be objectively concluded, following an examination, analysis and evaluation of the relevant information, including in particular the nature of predicted impacts from the Project, that the Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site in light of its conservation objectives and best scientific information, and there is no reasonable scientific doubt in relation to this conclusion.'

20.5.5.2 Nationally Designated Sites

The following pNHAs were identified to be within the Likely Zone of Influence of the Onshore Site

- Tullaher Lough And Bog [000070] pNHA
- Poulnasherry Bay pNHA [000065]

No site synopsis was available for either of these pNHAs at the time of preparing this report. Both of these pNHAs are also designated as European Sites (Tullaher Lough and Bog SAC [002343], Lower River Shannon SAC [002165], and the Lower River Shannon SAC [002165]. The potential for significant effects on these sites is fully considered in the NIS which accompanies this application.

20.5.6 Invasive Species

As per Appendix 20-2, the Third Schedule invasive species Japanese knotweed (*Fallopia japonica*) and *Rhododendron ponticum* were recorded within the Onshore Site. Whilst just one small stand of Rhododendron was recorded, outside the Onshore Site works area, several large stands of Japanese knotweed were recorded at several locations adjacent to the OGC.

Japanese knotweed (*Fallopia japonica*) is a tall, vigorous, hardy perennial plant. native to Japan, Korea and North Western China. The species was introduced to Britain in the mid-19th century as an ornamental plant for large gardens, prized due to its imposing size and sprays of creamy white flowers. By 1886 it was established in the wild and now considered one of the most problematic plant species in the UK and Ireland. Japanese knotweed has a rapid upward growth rate of shoots at the beginning of the growing season which allows it to outcompete native vegetation, and lateral growth via extension of rhizomes which are capable of penetrating built structures over time. Japanese knotweed is characterised by shield-shaped leaves which are flat at the base and carried on zigzagged stems which are sturdy, purple spotted, hollow and bamboo-like with regular spaced nodes. The flowers (only female in the UK and Ireland), appear in late summer or early autumn and are creamy white -coloured in drooping clusters 8cm to 12cm in length. In spring, the emerging stems are green to red/purple with rolled leaves that unfurl as the shoots extend. At the end of the year, the stems persist and turn various shades of brown, sometimes with an orange tinge. The rhizome is dark brown in colour and slightly leathery with a brittle snap and a musty smell. The interior is an orange-yellow colour, generally darker towards the centre with lines often radiating from the centre.

Due in part to spreading vegetatively and rapid growth, Japanese knotweed is highly invasive and can impact native species by shading out native and rare plant species. As with other species of knotweed, Japanese knotweed is expensive to control and difficult to deal with.

As Japanese knotweed has been identified adjacent to the Onshore Site and within seven meters of its known location, as per Appendix 20-2, the following mitigations will be implemented to ensure that this high impact invasive species is not spread as a result of the Onshore Site.

Site set up

- Additional pre-commencement surveys will be undertaken to identify if the known infestation has spread since the preparatiuon of this application. The locations and extent of Japanese knotweed within the Onshore Site will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and the will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 7m around the identified stands.
- An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclsuoiion zones.
- All staff will receive a tool box talk from the ECoW regarding the identification and protocols surrounding Japanese knotweed on the Onshore Site.
- Given that short sections of the OGC will be lain within the above 7m exclsuiuon zones, the below measures will be in place to ensure there is no spread of this species.
- The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010).

Excavation within Contaminated Areas and retention on-site

- The OGC will be laid as far as possible from the identified stands to minimise the likelihood of encountering rhizomes.
- Once machinery and personnel enter the contaminated area, they will not leave until they have been cleaned down following the procedure that is set out below.
- Excavated material will be kept within the contaminated area and will either be backfilled into the trench following the pipelaying operation or will remain within the contaminated zone adjacent to the trench and be graded and reseeded. No excavated material will leave the contaminated zone.
- Following works, all personnel, equipment and machinery will be cleaned down as per the methodology below, prior to exiting the contaminated area.

Clean Down Procedure

- All plant, machinery, tools and personnel will be cleaned down prior to leaving the contaminated areas.
- Clean down will be undertaken on an impermeable membrane such as a radon barrier and following completion of the clean down operation, this will be brushed clean with sweepings left within the contaminated area to ensure that there is no potential to spread any contaminated material.
- Power washing avoided to prevent potentially contaminated run-off spreading outside the Onshore Site.

Tool box talks will be held with all members of the Onshore Site and contractors team responsible for carrying out measures detailed in this mangement plan. This will detail locations of infested material and how to carry out work on Onshore Site in a biosecure way.

20.5.7 Impacts of the Onshore Site in cumulation with the Offshore Site

Whilst this chapter assesses whether the Onshore Site will have a significant impact on terrestrial biodiversity, this section considers the potential for significant impacts on terrestrial biodiversity as a result of the cumulation of both the Onshore Site and Offshore Site i.e. the Project.

Having regard to this chapter, as well as the Offshore biodiversity and hydrology chapters, a potential for significant impacts was identified via the deterioration of water quality within both the Onshore Site and Offshore Site, and as such, reports pertaining to biodiversity and aquatic receptors were reviewed as part of this assessment.

The assessment of significant effects from the Onshore Site, as provided above, was considered in cumulation with the assessment of significant effects from the Offshore Site. All potential impacts have been mitigated to the extent that there is no potential for significant impacts on any aquatic receptors, as a result of the effects of both the Onshore Site and Offshore Site. When considered in cumulation, the residual effects of the Project as a whole do not result in any potential for additional effects on any biodiversity and do not change the findings of the residual impact assessment for the Onshore Site as provided above.

20.6 Cumulative Impacts

The Onshore Site was considered in combination with other plans and projects in the area as well as the interacting factors of the Project i.e. the Offshore Site, that could result in cumulative impacts on the KERs identified in Section 20.5.4 of this report, including European designated sites and Nationally designated sites. This included a review of online Planning Registers and served to identify past, present and future plans and projects, their activities and their predicted environmental effects. The projects considered are listed in Chapter 2: Background and Policy of this EIAR. The full list of projects has been considered and relevant ones from this list are discussed in this section.

Table 20-20 below provides the cumulative study areas for individual EIAR topics that are also relevant in relation to ecological receptors i.e., hydrological connectivity is important for assessing potential for effects on designated sites. Potential for cumulative effects in relation to onshore birds is assessed separately within Chapter 22 of this EIAR.

Table 20-20 Cumulative Study Areas in relation to ecological receptors (birds are assessed separately within Chapter 21 of this EIAR)

Individual Topic	Maximum Extent	Justification
Terrestrial Biodiversity	3km from the Onshore Site	As habitat loss has been identified as a potential impact on biodiversity, a 3km buffer has been applied to the OCC to account for losses of foraging and commuting habitat for protected species with other projects. This accounts for the foraging ranges of protected bats such as Lesser horseshoe (NPWS & VWT, 2022) and the core foraging ranges for relevant protected birds (SNH, 2016). Additionally, a 500m buffer has been applied to the remaining elements of the Onshore Site.

		As disturbance has been identified as a potential impact on biodiversity, a 200m buffer has been applied to the Onshore Site to assess cumulative impacts on protected fauna with other projects. This has been captured by the 3km buffer above.
Aquatic receptors	The Tonavoher_010 WFD river sub-basins due to the location of the OCC within this sub-basin; The area immediately around the OLL within the Doonbeg_050 WFD river sub-basin. There is no requirement to include this entire sub-basin as the OLL is situated in the northwestern corner of the sub-basin, whereby all drainage is directed to the north and into the sea; and, A 200m study buffer zone has been applied to the OGC. This is considered to be an appropriate scale given the nature of the proposed works and the potential effects on the hydrological environment.	As potential for impact on aquatic receptors have been identified in this chapter via the deterioration of water quality, the cumulative hydrological study area has followed that of Chapter 23: Water of this EIAR.

Potential for cumulative impacts on European Sites are considered within the Natura Impact Statement that accompanies this application, which concludes:

'Following the detailed assessment provided in the preceding sections, it is concluded that, the Onshore Site will not result in any residual adverse effects on any of the European Sites, their integrity or their conservation objectives when considered on its own. There is, therefore, no potential for the Onshore Site to contribute to any cumulative adverse effects on any European Site when considered in-combination with other plans and projects.

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

Taking into consideration the reported residual impacts on any European Site from other plans and projects in the area and the predicted impacts with the current proposal, no residual cumulative impacts have been identified with regard to any European Site.'

20.6.1 Review of Plans

The following development plans have been reviewed and taken into consideration as part of this assessment as the Onshore Site falls within each of their remits:

- Regional Spatial and Economic Strategy for the Southern Region (RSES) (2020-2032)
- Clare County Development Plan 2023-2029

- Ireland 4th National Biodiversity Action plan 2023-2030.
- Clare Biodiversity Action Plan 2017 – 2023

These plans have been considered in this assessment as the Onshore Site falls within each of their geographical areas. The review focused on policies and objectives that relate to designated sites for nature conservation, biodiversity and protected species. Policies and objectives relating to the conservation of Annex I habitats were also reviewed. An overview of the search results with regard to plans is provided in Table 20-21.

Table 20-21 Assessment of Plans

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
Regional Spatial and Economic Strategy for the Southern Region (RSES) (2020-2032)	**RPO 1 Environmental Assessment** b) The RSES seeks to protect, manage, and through enhanced ecological connectivity, improve the coherence of the Natura 2000 Network in the Southern Region. **RPO5 Population Growth and Environmental Criteria** Increased population growth should be planned with regard to environmental criteria, including: › Proximity of Natura 2000 sites and potential for adverse effects on these sites, and their conservation objectives. **RPO 11 Key Towns** k) To plan increasing population growth in all Key Towns on a phased basis in collaboration with Irish Water, the local authority and other stakeholders to ensure that the assimilative capacity of the receiving environment is not exceeded and that increased wastewater discharges from population growth does not contribute to degradation of water quality and avoids adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network; l) To give due consideration to the suitability of new and/or existing drinking water sources (e.g. hydromorphological pressures) to meet the increased demands on the water supply and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network. The National Water Resources Plan (NWRP)	The Regional Spatial and Economic Strategy was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity. No potential for cumulative impacts when considered in conjunction with the Project were identified. There will be no significant effects on habitats or features of ecological importance, as a result of deterioration in habitat loss or disturbance. The Onshore Site will not result in significant effects on habitats or features of ecological importance at any geographical scale.

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	will outline how we move towards a sustainable, secure and reliable public drinking water supply over the next 25 years, whilst safeguarding our environment. **RPO 117 Flood Risk Management and Biodiversity** It is an objective to avail of opportunities to enhance biodiversity and amenity and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned. Plans and projects that have the potential to negatively impact on Natura 2000 sites are subject to the requirements of the Habitats Directive. **RPO 124 Green Infrastructure** a) It is an objective to promote the concept of connecting corridors for the movement of wildlife and encourage the retention and creation of features of biodiversity value, ecological corridors and networks that connect areas of high conservation value such as woodlands, hedgerows, earth banks, watercourses and wetlands. The RSES recognises the necessity of protecting such corridors and the necessity to encourage the management of features of the landscape that support the Natura 2000 network; **RPO 126 Biodiversity** c) Local Authorities are required to carry out required screening of projects and any draft land-use plan or amendment/ variation to any such plan for any potential ecological impact on areas designated or proposed for inclusion as Natura 2000/ European Sites and shall decide if an Appropriate Assessment is necessary, of the potential impacts of the project or plan on the conservation objectives of any Natura 2000/European Site;	

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	RPO 151 Integration of Land Use and Transport j) The protection of the Natura 2000 networks and the ecological linkages connected to the Natura 2000 network. **RPO 208 Irish Water and Water Supply** c) Deliver and phase services, subject to the required appraisal, planning and environmental assessment processes and avoid adverse impacts on the integrity of the Natura 2000 network; d) Local Authority Core Strategies shall demonstrate compliance with DHPLG Water Services Guidelines for Planning Authorities and demonstrate phased infrastructure led growth to meet demands on the water supply, suitability of new and/or existing drinking water sources (for example hydro morphological pressures) and prevent adverse impacts on the integrity of water dependent habitats and species within the Natura 2000 network. **RPO 212 Strategic Wastewater Treatment Facilities** For the management of wastewater, increasing population growth should be planned on a phased basis in collaboration with Irish Water and the local authorities to ensure that the assimilative capacity of the receiving environment is not exceeded and that increased wastewater discharges from population growth does not contribute to degradation of water quality and to avoid adverse impacts on the integrity of the Natura 2000 network.	

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	Limerick-Shannon MASP Policy Objective 1 **Limerick-Shannon Metropolitan Area** e) The MASP seeks to protect, manage and through enhanced ecological connectivity, to improve the coherence of the Natura 2000 Network in the Region.	
Clare County Development Plan 2023-2029	CDP 3.3 - It is an objective of the Clare County Council: To require compliance with the objectives and requirements of the Habitats Directive, specifically Article 6(3) and where necessary 6(4), Birds, Water Framework, and all other relevant EU Directives and all relevant transposing national legislation; To require project planning to be fully informed by ecological and environmental constraints at the earliest stage of project development and any necessary assessment to be undertaken, including assessments of disturbance to species, where required together with the preparation of both statutory and non-Statutory Ecological Impact Assessments (EcIA); To protect, manage and enhance ecological connectivity and improve the coherence of the Natura 2000 Network; To require all proposals to ensure there is 'no net loss' of biodiversity within developments. To ensure that European sites and Natural Heritage Areas (designated proposed NHAs) are appropriately protected; To require the preparation and assessment of all plans and projects to have regard to the information, data and requirements of the Appropriate Assessment Natura Impact Report, SEA Environmental Report and Strategic Flood Risk Assessment Report contained in Volume 10 of this Development Plan; and To require compliance with the objectives of the Water Framework Directive and support the implementation of the 3rd Cycle River Basin Management Plan (and any other iteration during the lifetime of the CDP).	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to biodiversity. No potential for cumulative impacts when considered in conjunction with the Project were identified. There will be no significant effects on habitats or features of ecological importance, as a result of deterioration in habitat loss or disturbance. The Onshore Site will not result in significant effects on habitats or features of ecological importance at any geographical scale and it will not prevent the objectives set out in the plan.

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	CDP 11.26 - It is an objective of Clare County Council: To facilitate the implementation of the River Basin Management Plan 2022-2027 and any subsequent plan for ground, surface, estuarine, coastal and transitional waters in the Plan area as part of the implementation of the EU Water Framework Directive; To protect groundwater and surface water resources in accordance with the statutory requirements and specific measures as set out in the River Basin Management Plan 2022-2027, and any subsequent management plans; To achieve and maintain at least good water quality status for all water bodies except where more stringent obligations are required such as Blue Dot/High Status Objective Water Bodies; To consider development proposals where it can be clearly demonstrated that the development will meet the requirements of the River Basin Management Plan; and, To work with and support LAWPRO and support improvements/recommendations within Priority Areas for Action, Blue Dot/High Status Objective catchments and any additional areas identified within subsequent River Basin Management Plans. CDP 13.1- It is an objective of the Clare County Council: To require proposals for development which may impact on a European site to undertake and submit a Natura Impact Statement and Environmental Impact Assessment Report should it be deemed necessary as part of any planning application in accordance with the requirements of the Habitats and EIA Directives.	

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	CDP 15.1 - It is an objective of Clare County Council: To ensure that features of importance to local biodiversity are retained as part of developments and projects being undertaken in the County. CDP 15.12 - It is an objective of Clare County Council: To protect and promote the sustainable management of the natural heritage, flora and fauna of the County both within protected areas and in the general landscape through the promotion of biodiversity, the conservation of natural habitats, the enhancement of new and existing habitats, and through the integration of Green Infrastructure (GI), Blue Infrastructure and ecosystem services including landscape, heritage, biodiversity and management of invasive and alien species into the Development Plan; To promote the conservation of biodiversity through the protection of sites of biodiversity importance and wildlife corridors, both within and between the designated sites and the wider Plan area; To ensure there is no net loss of potential Lesser Horseshoe Bat feeding habitats, treelines and hedgerows within 2.5km of known roosts; To implement and monitor the actions as set out in the Clare County Biodiversity Plan; and To promote biodiversity net gain in any new plans/projects/policies to promote development that leaves biodiversity in a better state than before. CDP 15.13 - It is an objective of Clare County Council: To encourage and, where appropriate, enhance the provision of biodiversity features in urban areas through the preparation of local areas plans/settlement plans, green infrastructure strategies, ecosystem services, and through the development management process.	

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	CDP 15.14 - It is an objective of Clare County Council: To ensure that development proposals support and enhance the connectivity and integrity of habitats in the Plan area by incorporating natural features into the design of development proposals. CDP 15.15 - It is an objective of Clare County Council: To support the implementation of positive conservation management on lands which are owned or managed by Clare County Council. To protect and where possible enhance the biodiversity value of land owned and managed by Clare County Council; To support national policy to create new woodlands on public land and participate in the Creation of Woodlands on Public Lands Scheme and any subsequent schemes subject to the appropriate ecological assessments; To create new native woodlands on public lands which will be carried out in accordance with proper planning and sustainable development in order to ensure important habitats such as Wetlands (which are key carbon sequestration locations) are not lost due to their development; and To support the use of natural approaches to flood management and control on lands owned or managed by or on behalf of Clare County Council subject to the appropriate ecological assessments. CDP 15.19 – It is an objective of the Clare County Council: To protect individual or groups of trees within the Plan area which are important for environmental, recreational, historical, biodiversity and/or aesthetic reasons or by reason of contribution to sense of place, including	

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	groups of trees which correspond with protected habitats, or which support protected species, under the Habitats Directive; To protect woodlands and hedgerows from damage and/or degradation and to prevent disruption of the connectivity of woodlands and hedgerows of the County;	
Ireland 4th National Biodiversity Action plan 2023-2030.	› **Objective 1: Adopt a Whole-of Government, Whole of-Society Approach to Biodiversity.** Proposed actions include capacity and resource reviews across Government; determining responsibilities for the expanding biodiversity agenda providing support for communities, citizen scientists and business; and mechanisms for the governance and review of this National Biodiversity Action Plan. › **Objective 2: Meet Urgent Conservation and Restoration Needs.** › Supporting actions will build on existing conservation measures. Efforts to tackle Invasive Alien Species will be elevated. The protected area network will be expanded to include the Marine Protected Areas. The ambition of the EU Biodiversity Strategy will be considered as part of an evolving work programme across Government. › **Objective 3: Secure Nature's Contribution to People.** › Actions highlight the relationship between nature and people in Ireland. These include recognising the tangible and intangible values of biodiversity, promoting nature's importance to our culture and heritage and recognising how biodiversity supports our society and our economy. › **Objective 4: Enhance the Evidence Base for Action on Biodiversity.** › This objective focuses on biodiversity research needs, as well as the development and strengthening of long-term monitoring programmes that will underpin and strengthen future decision-making. Action will also focus on collaboration to advance ecosystem accounting that will contribute towards natural capital accounts. › **Objective 5: Strengthen Ireland's Contribution to International Biodiversity Initiatives.** Collaboration with other countries and across the island of Ireland will play a key role in the realisation of this Objective. Ireland will strengthen its	The Onshore Site will not result in significant effects on habitats and features of ecological importance. The Onshore Site will not impact on connectivity within the wider area and there is no potential for significant effects on water quality. There will be no adverse effects on biodiversity as a result of the Onshore Site.

Plans	Key Policies/Issues/Objectives Directly Related To European Sites, Biodiversity and Sustainable Development In The Zone of Influence	Assessment of cumulative impacts of the development in compliance with policy
	contribution to international biodiversity initiatives and international governance processes, such as the United Nations Convention on Biological Diversity.	
Clare Biodiversity Action Plan 2017 - 2023	› To implement the actions of Ireland's National Biodiversity Action Plan 2017-2021 as they relate to County Clare; › To inform all biodiversity projects undertaken as part of the County Clare Heritage Plan 2017-2023 and support its full implementation; › To ensure the Clare County Biodiversity Action Plan 2017-2023 fully informs all planning policy within the County, including the biodiversity objectives in the Clare County Development Plan 2017-2023; › To produce best practice guidelines on biodiversity conservation and management for all sections of Clare County Council; › To ensure that all projects carried out under the Clare County Biodiversity Action Plan 2017- 2023 comply with the requirements of the Habitats Directive, and all other legislation as appropriate.	The Onshore Site will not result in significant effects on habitats and features of ecological importance. The Onshore Site will not impact on connectivity within the wider area and there is no potential for significant effects on water quality. There will be no adverse effects on biodiversity as a result of the Onshore Site. (**Note, the updated Clare Biodiversity Action Plan 2024-2030 was not available at the time of drafting this report**).

20.6.2 Review of Projects

As described in Section 4.3.3.4 of the EIAR, relevant projects have been assessed in-combination with the Project and include planning applications in the vicinity of the Onshore Site, within the zone of influence of all habitats and species considered in this report and include other applications of similar scale within the wider area. These have not been repeated here to reduce the duplication of information within this EIAR. However, they have been fully considered in the assessment with further detail provided below. In addition, Section 20.7.3 concludes on their potential for cumulative impact on biodiversity.

Other smaller developments within the wider study area, as fully described in Section 4.3.3.4 of this EIAR, have been considered within this cumulative impact assessment. In order to avoid repetition within the EIAR, these have not been repeated below.

All projects within the vicinity of the Onshore Site were considered as part of this assessment and predominantly included developments pertaining to the following:

Private developments
Commercial
Agriculture
Forestry
Other renewable energy developments/infrastructure

20.6.2.1 Cumulative Effects with Energy Development

There are no renewable energy development within the cumulative Onshore study area as defined above. However, there are two developments which have been identified within the cumulative study area pertaining to energy infrastructure. These include the following:

- Proposed 400kV electricity transmission cables, extension to the existing Kilpaddoge Electrical Substation and associated works, between the existing Moneypoint 400kV Electrical Substation in the townland of Carrowdoita South County Clare and existing Kilpaddoge 220/110kV Electrical Substation in the townland of Kilpaddoge County Kerry. The development includes work in the foreshore. **(ABP Case ref. 307798). This application was granted by An Bord Pleanála (ABP) on the 04/06/2021.**
- Proposed transition and conversion of the existing 900MW electricity generating station from coal to heavy fuel oil and associated ancillary development at Moneypoint Generating Station, Moneypoint, Co. Clare. **(ABP Case ref. 319080). This application was granted by ABP on the 25/09/2024.**

The potential for the Onshore Site to result in significant cumulative effects when assessed alongside these developments was considered. The conclusion for these developments from a terrestrial biodiversity perspective was that there would be no residual significant effects on biodiversity with the implementation of mitigation measures outlined in their respective reports. Given the lack of residual effects predicted as a result of the Onshore Site, there is no potential for significant cumulative effects.

20.6.2.2 Cumulative Effects with Agriculture

The delineated cumulative study area is a largely agricultural area.

Agriculture is the largest pressure on water quality in Ireland. 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 Onshore Site 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 above in Section 23.5.2, 23.5.3 and 23.5.4 of Chapter 23 for the construction, operation and maintenance, and decommissioning phases of the onshore elements of the Project will ensure the protection of downstream surface water quality.

In terms of habitat loss and disturbance, ongoing agricultural practices do not pose any significant impacts on biodiversity in these regards.

For these reasons it is considered that there will not be a significant cumulative effect associated with agricultural activities.

20.6.2.3 Cumulative Effects with Forestry

A section of the OGC in the vicinity of Moneypoint 220kV Substation is situated in an area of coniferous 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 felling may also give rise to modified stream flow regimes caused by associated land drainage.

However, the mitigation measures detailed in Section 23.5.2, 23.5.3 and 23.5.4 of Chapter 23 for the construction, operation and maintenance, and decommissioning phases of the onshore elements of the Project will ensure the protection of downstream surface water quality.

In terms of habitat loss and disturbance, forestry is not considered to be of significant value to protected fauna and any felling is not anticipated to result in significant impacts on Biodiversity.

For these reasons it is considered that there will not be a significant cumulative effect associated with commercial forestry activities.

20.6.2.4 Cumulative Effects with Other Development

A detailed cumulative assessment has been carried out for all planning applications (granted and awaiting decisions) within the cumulative assessment area for the Onshore Site as described above, which are listed in Appendix 4-2.

The planning applications identified within the study area are for new dwellings or renovations of existing dwellings, as well as for the erection of farm buildings. The planning applications have been reviewed based on their type, scale and proximity to the Onshore Site. Based on the scale of the works, their proximity to the Onshore Site and the temporal period of likely works, no cumulative effects will occur as a result of the onshore elements of the Project (construction, operation and maintenance, and decommissioning phases).

20.6.2.5 Existing Habitats and Land Uses

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

The Onshore Site is located primarily within road infrastructure and agricultural fields, which provide low value habitats for faunal species. The development will also result in the loss of some small sections of mixed woodland, scrub, and linear features, which provide foraging, commuting, and breeding habitats for a range of protected species. However, the loss of these habitat within the Onshore Site will

be minimal in the context of these habitats in the wider landscape. The loss of these habitats associated with other developments in the wider area will also be minimal and cumulative loss of these habitat types in the wider landscape is not considered significant. Additionally, these losses will be mitigated, as per the compensation measures detailed in Section 20.6. The Onshore Site will not contribute to any overall loss of high value habitat, it has been deliberately designed to be located on habitats of low value for faunal species.

20.6.3 Assessment of Cumulative Effects

The residual construction, operation and maintenance, and decommissioning impacts of the Onshore Site are considered cumulatively with other plans and projects pertinent to Biodiversity and within the extents detailed in the preceding sections (Sections 20.7.1 and 20.7.2). Full list of projects considered are included in Appendix 4-2 of this EIAR and particular focus has been placed on those plans and projects that are in closest proximity to the Onshore Site and those that could potentially result in cumulative impacts on designated sites, surface water, habitats and species, as discussed above.

Following the detailed surveys undertaken and impact assessment provided in Section 20.6 (including mitigation measures), it is concluded that there will be no significant residual habitat loss, disturbance of fauna, or deterioration of water quality associated with the Onshore Site and therefore it cannot contribute to any cumulative effect when considered in-combination with other plans and projects. The Onshore Site has been deliberately designed to minimise the effects on biodiversity through the siting of the Onshore Site in habitats of low ecological value and an emphasis on protection of surface water features (and associated aquatic fauna) during construction of the development.

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

The Onshore Site will not result in any significant residual effects on biodiversity and will not contribute to any cumulative effect when considered in combination with other known plans and projects.

In the review of the projects and plans that was undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Nor was there any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Onshore Site.

20.7 Conclusion

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

The potential for effects on European designated sites is fully described in the NIS that accompanies this application. The NIS concluded that in view of best scientific knowledge and on the basis of objective information, the Onshore Site either individually or in-combination with other plans or projects, is not likely to have an adverse effect on the European sites that were assessed as part of the Appropriate Assessment process. Similarly, with the prescribed mitigations in place, there is no potential for impact on any nationally designated site.

Based on the design and proposed mitigation measures described within this chapter for the Onshore Site, significant individual or cumulative effects on biodiversity are not anticipated at any geographic scale.